

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

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**LINKING INSTITUTIONAL PRESSURES, SUPPLY CHAIN TECHNOLOGY
UTILISATION, SUPPLY CHAIN PERFORMANCE AND BUSINESS PERFORMANCE**

By

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**A THESIS SUBMITTED TO THE DEPARTMENT OF SUPPLY CHAIN AND
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SUPPLY CHAIN MANAGEMENT)**

October 2023

DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which, to a substantial extent, has been accepted for the award of any other degree or diploma at Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement is made in the text.

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DEDICATION

This work is dedicated to the family!

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The logo of Kwame Nkrumah University of Science and Technology (KNUST) is centered in the background. It features a yellow eagle with its wings spread, perched on a black mortar and pestle. Above the mortar is a red flame. The entire emblem is set against a circular background with a yellow border containing the university's name in Ghanaian and English.

ABSTRACT

This study examines the relationship between institutional pressures, supply chain technology utilization, and supply chain and business performance in the Accra metropolis of Ghana. The research employed the quantitative survey design and used a questionnaire to gather data from 394 respondents from 114 firms. Descriptive statistics, correlation, regression, and structural equation modelling techniques were used to analyse the data. The study found that all three types of institutional pressures (coercive, normative, and mimetic) have a significant positive effect on business performance. Although institutional pressures did not have a statistically significant impact on supply chain technology utilization, the utilization of supply chain technology has a positive effect on supply chain and business performance. Supply chain technology utilization is identified as mediating the relationship between institutional pressures and supply chain and business performance. The findings suggest that firms operating in the Accra metropolis of Ghana

can benefit from investing in innovative technologies to enhance their supply chain and business performance. The study recommends that managers pay close attention to institutional pressures and develop effective response strategies to mitigate the negative effects of such pressures. Future research could explore the relationship between institutional pressures, supply chain technology utilization, and supply chain and business performance in other regions or industries to generalize the findings.

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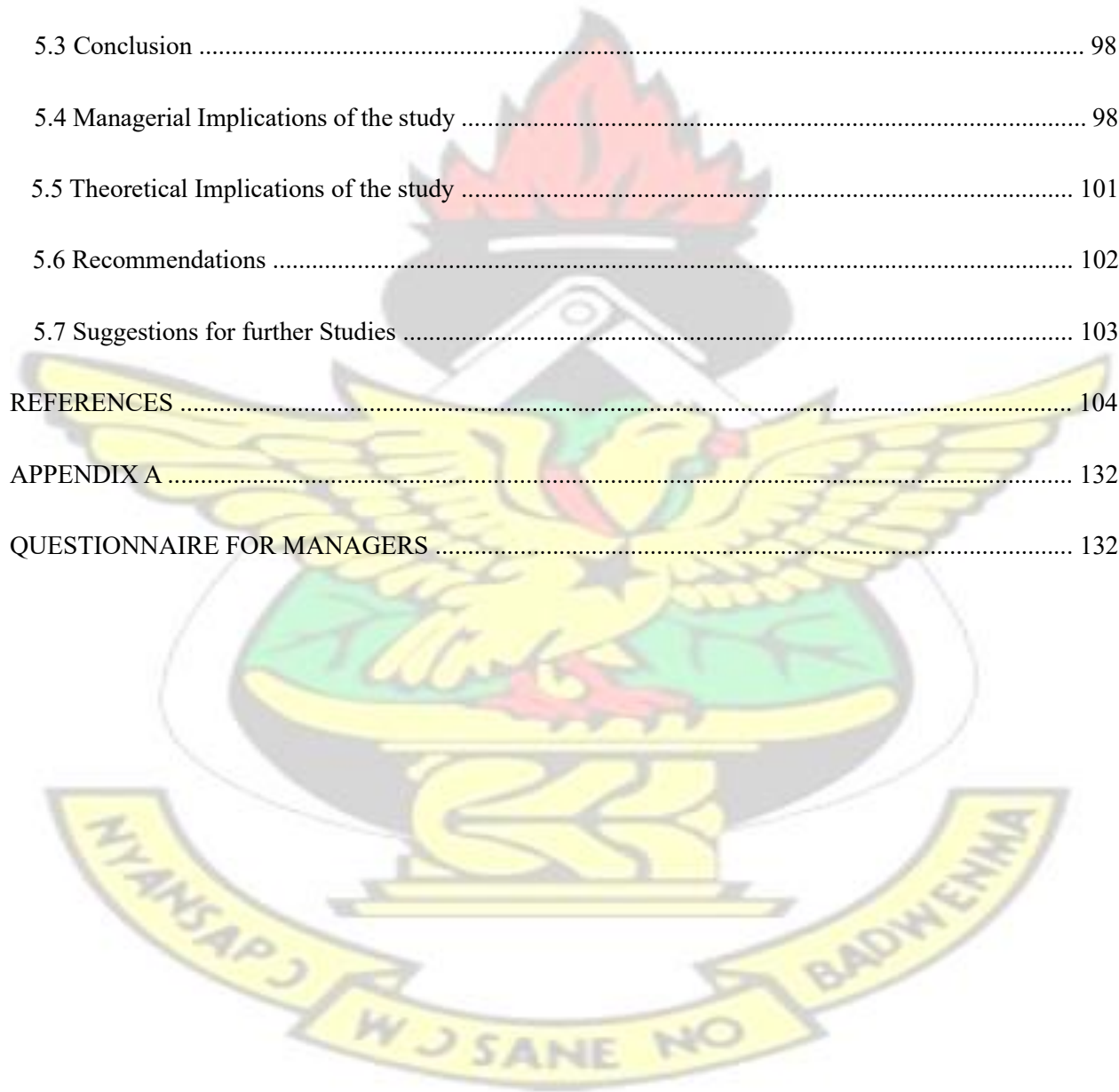
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LIST OF ABBREVIATIONS

SCP	Supply Chain Performance
SCTU	Supply Chain Technology Utilisation
BP	Business Performance
TCE	Transaction cost economics

RBV

Resource-Based View

PBV

Practice-Based View

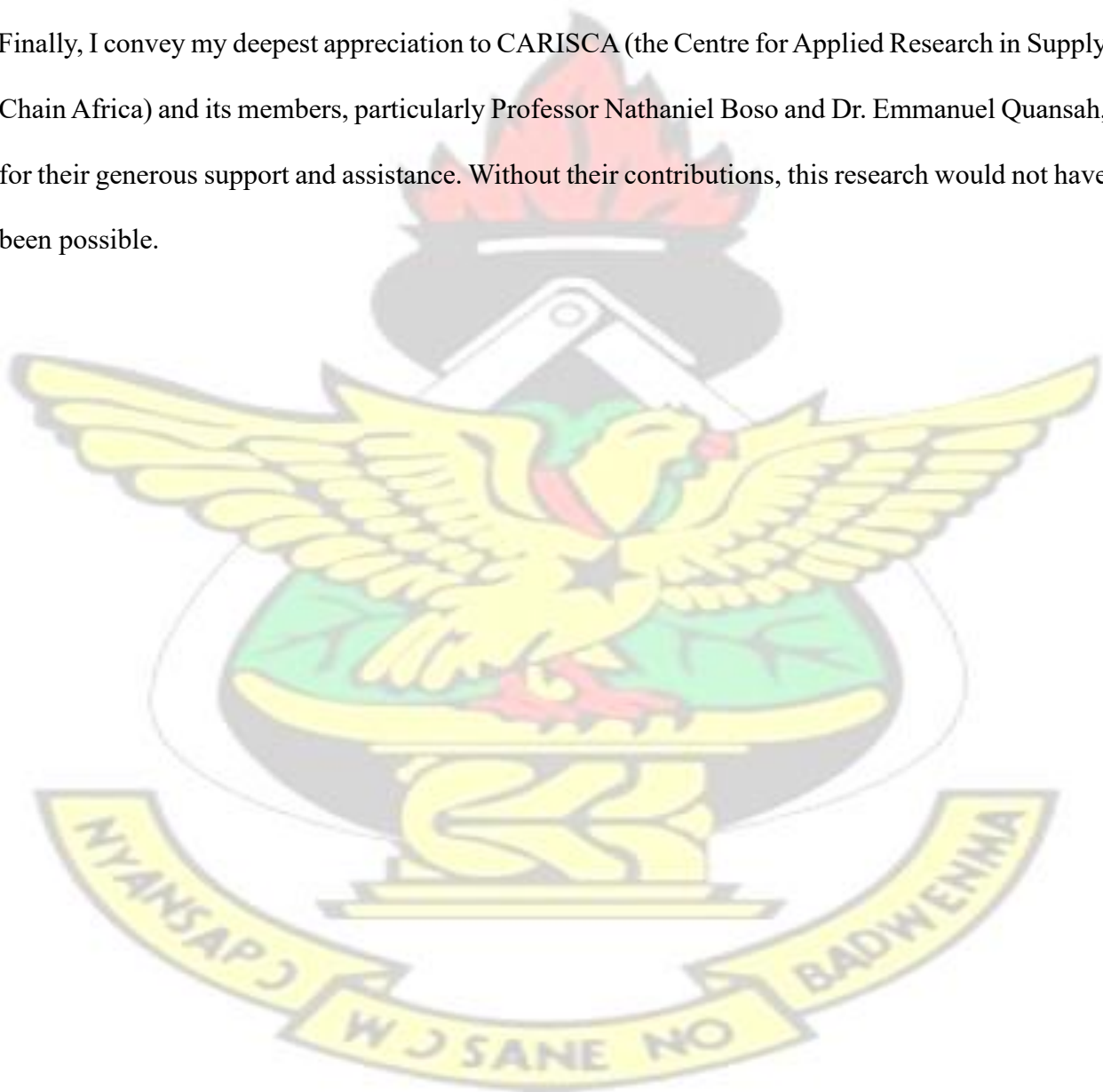
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CHAPTER ONE

INTRODUCTION

1.1 Background to the study

In recent years, global enterprises have become increasingly concerned about the impact of regulatory pressures, customer demands, and competition on their businesses in the context of globalization and intense industry competition (Kalyar *et al.*, 2019; Zhang *et al.*, 2019). These pressures from regulatory agencies are referred to as institutional pressures (Kalyar *et al.*, 2019). The Institutional Theory asserts that, institutions act as forces on organizations by creating pressures and restrictions that set boundaries for acceptable behaviour (Samad *et al.*, 2021; Somjai and Jermstittiparsert, 2019). These pressures can take the form of coercive, normative, and mimetic pressures (Samad *et al.*, 2021; Somjai and Jermstittiparsert, 2019).

The normative pressures are demonstrated through dyadic inter-organisational networks of firmsupplier and firm-customer relationships, allowing companies to learn about innovations in consort with their associated benefits and cost (Teo *et al.*, 2003). On the other hand, coercive pressures are often thought of as the pressures stemming from institutions in an organisation's environment that directly formulate rules that an organisation needs to comply with. Firms are inspired to adopt a specific practice either because of the favourable outcomes realised by other users in the same context or by the popularity of a practice. Firms also mimic the behaviours of other firms with whom they share important features. Thus, mimetic isomorphism implies that firms will follow leading organisations which have profited from being the first movers in the industry (Hyatt and Berente, 2017).

To mitigate the impact of these pressures and improve business performance, firms are increasingly turning to Supply Chain Technology (SCT) as a way of gaining competitive advantage (Chiu and

Yang, 2019). SCT has become crucial as the gap between businesses is widening in the face of the rapidly evolving business landscape. The speed of change in the modern world of work presents a continuing challenge for many businesses in terms of performance (Pundir *et al.*, 2019; Verhoeven *et al.*, 2018). Adopting SCT can help firms keep pace with these changes.

In this study, Supply Chain Technologies (SCT) Utilization is defined as the degree to which a business employs, uses, or implements supply chain technology in its internal and external business operations (Liu *et al.* 2010). According to the literature, the dissemination of these technologies can enable the integration of the supply chain, turning a theoretical concept into an actuality (Flynn *et al.*, 2010; Rudyanto *et al.*, 2021). Utilizing SCT can improve communication, synchronization, and collaboration across organizational boundaries, allowing firms to balance cost, real-time data, content, and broad channel deployment. Adopting SCT is an essential aspect of the supply chain operations strategy in today's market (Verhoeven *et al.*, 2018). However, some firms still struggle with effective utilization (Liu *et al.*, 2016).

While the focus of SCT has been widely addressed in the literature (Queiroz *et al.*, 2021), the utilization of SCT remains limited, and its relationship to supply chain performance or business performance is understudied (Queiroz *et al.*, 2021). Simply using SCT alone is not sufficient for enhancing performance, as it needs to be efficiently incorporated into business operations to produce capabilities and add value, as suggested by Liu *et al.* (2016) and Pundir *et al.* (2019).

Studies have shown that institutional pressures can play a significant role in shaping organizations' decisions on the adoption and utilization of supply chain technologies. For example, organizations may be motivated to adopt supply chain technologies in response to regulations that require the tracking and documentation of supply chain activities. On the other hand, institutional pressures

may also create barriers to the adoption of technology, such as the high cost of implementing and maintaining these systems.

Moreover, Supply chain performance has been regarded as a critical component of overall business performance, as it directly affects the ability of a firm to meet customer demands, respond to market changes, and maintain a competitive advantage. Effective supply chain management can lead to improved customer satisfaction, increased operational efficiency, reduced costs, and improved financial performance. In turn, these supply chain improvements can positively impact business performance by increasing profitability, market share, and customer loyalty.

However, the implementation of supply chain technologies and the achievement of improved supply chain performance is not always straightforward. Firms must balance the demands of institutional pressures with the benefits of technology utilization to achieve optimal results. Notably, while government regulations may require the use of specific technologies, these regulations may also impose additional costs and operational limitations that must be considered. Additionally, firms must be mindful of the potential negative impact of supply chain technology utilization, such as reduced flexibility and increased dependence on technology systems. To fully realize the benefits of supply chain technology utilization and improved supply chain performance, firms must carefully consider the institutional pressures and the potential consequences of technology adoption.

In that view, Wu *et al.* (2012) furthered institutional pressures can affect a firm's internal decisionmaking, and thus the firm's strategy needs to follow the requirements of the institutional environment. The institutional pressures notably may influence the operational activities and the ultimate performance of the enterprise. Thus, the conundrum relates to how much the pressures

influence the performance of the business. Ni and Sun (2019) argue that while it is vital to comprehend the impetuses of the effects of institutional pressures, it is equally imperative to appreciate the relative importance of technology adoption and utilisation on business performance. This can aid firms in selecting, adopting, and utilising precise technologies to facilitate the diffusion of SCT within the supply chain network.

Notwithstanding a vast amount of research on institutional pressures, there appears to be little or no extant literature that specifies the relationship between institutional pressures, supply chain performance and business performance, as well as the extent to which the adoption and utilisation of Supply Chain technology influence this relationship (Polák, 2017; Roy, 2018). Brynjolfsson *et al.* (2019) argues that the relationship between institutional pressures, supply chain performance, and business performance is better explained when SCT utilisation is considered rather than focusing on finding a direct relationship between institutional pressures, supply chain performance, and the business' overall performance. This empirical examination is rare in literature.

Additionally, several studies such as those (Liu *et al.*, 2010; Zeng *et al.*, 2017; Ahmed *et al.*, 2019; Ahmed *et al.*, 2020; Zhang *et al.*, 2020) typically focus on institutional pressures and environmental or sustainability perspectives, lacking the holistic view of the performance implications of Institutional Pressures and SCT utilisation. On the other hand, studies such as (Talluri *et al.*, 2013; Kumar *et al.*, 2015) have only focused on the appropriateness of specific technologies meant to improve firm performance. In theory, technologies facilitate solutions to problems and improve operational effectiveness. Thus, it is vital that the discussion move beyond simply exploring whether a specific technology is adequate or appropriate to comprehend how the

deployment of such technologies can mediate the relationship between institutional pressures and how it affects performance, the gap the current study seeks to address.

1.2 Statement of the Problem

The role of institutional pressures in influencing business operations and outcomes is increasingly recognized in the literature (Smith & Roberts, 2019; Lee & Davis, 2020). However, as firms continue to adapt to technological advancements, there exists a crucial intersection that remains underexplored: the nexus between institutional pressures, supply chain technology utilization, supply chain performance, and overall business performance. While institutional pressures undeniably drive companies to adapt and change, the dimension of how they propel firms to leverage technology within their supply chains is less understood (Jackson & Anderson, 2018). Supply chain technology, ranging from advanced analytics to Electronic Data Interchange (EDI), Enterprise Resource Planning (ERP), Warehouse Management System (WMS), has the potential to transform traditional supply chain operations, offering improved visibility, efficiency, and responsiveness (Chen & Lee, 2019). Yet, the extent to which institutional pressures facilitate or hinder this technological uptake remains unclear.

Further, while there is a consensus that an efficient supply chain can lead to enhanced business performance (Williams & Thompson, 2020), the role of institutional pressures in shaping this relationship, when mediated by technology utilization, is still an open question. Do institutional pressures indeed push firms towards optimal technology utilization, leading to improved supply chain and business performance? Or do these pressures sometimes lead to suboptimal technology choices due to external constraints and perceptions?

While extensive research exists on the role of institutional pressures in shaping firm performance (Kokotec et al., 2021; Ahmad & Karadas, 2021; Thien & Hung, 2021), this literature largely focuses on developed economies, with a dearth of studies in the African context and Ghana in particular (Ofori & Hinson, 2018). Previous studies have also predominantly examined how institutional pressures affect environmental and sustainability performance (Xing et al., 2022; Ahmad et al., 2022; Huang et al., 2022), thereby leaving a gap in understanding their impact on supply chain and overall business performance. This is a significant omission, given the crucial role of supply chain performance in meeting customer demand and achieving competitive advantage (Mahalleh et al., 2022; Kot et al., 2018).

It is obvious that the current literature provides fragmented perspective, lacking a comprehensive understanding of how institutional pressures, supply chain technology utilization, and supply chain performance collaboratively influence business outcomes. Addressing this gap is not just academically relevant but is also crucial for practitioners aiming to navigate the complex interplay of institutional expectations, technology choices, and supply chain strategies to drive optimal business performance.

Additionally, as supply chain technology utilization emerges as a pivotal factor in enhancing supply chain performance (Mathu, 2021; Abou-Moghli, 2018), the lack of research focusing on this relationship in the African and Ghanaian context becomes even more glaring. It raises questions about how technology could mediate the impact of institutional pressures on both supply chain and business performance. Therefore, this study aims to address these gaps by exploring the relationship between institutional pressures, supply chain technology utilization, and firm performance in Ghana. This will not only broaden the current understanding but will also offer invaluable insights for firms and policymakers in similar developing economies.

1.3 Research Objectives

1.3.1 General Objective

The study's main objective was to examine the relationship between institutional pressures, supply chain technology utilisation, supply chain and business performance of firms in the Accra Metropolis of Ghana.

1.3.2 Specific Objectives

Specific objectives include:

1. To determine the relationship between institutional pressures and supply chain performance.
2. To determine the relationship between institutional pressures and business performance.
3. To examine the extent to which supply chain technology utilisation influences the relationship between institutional pressure and supply chain performance.
4. To examine the extent to which supply chain technology utilisation influences the relationship between institutional pressure and business performance.

1.4 Research Questions

1. How does institutional pressures influence supply chain performance of firms in the Accra metropolis?
2. What is the relationship between institutional pressures and the business performance of the supply chain of firms?
3. What is the extent to which supply chain technology utilisation influences the relationship between institutional pressure and supply chain performance?

4. To what extent does supply chain technology utilisation influence the relationship between institutional pressure and business performance?

1.5 Justification of the Study

The justification for this study is rooted in the growing importance of supply chain management (SCM) in today's business environment, as well as the need for organizations to understand the factors that impact SCM performance in the Ghanaian context. While existing research on institutional pressures has shed some light on the factors that impact organizational behavior and performance, there is a lack of studies that specifically examine the relationship between institutional pressures, supply chain technology utilization, supply chain performance, and business performance in African countries, particularly in Ghana. This gap in the literature suggests a need for more empirical studies that investigate the specific impact of institutional pressures on SCM and overall business performance in the Ghanaian context.

In addition, most existing research on institutional pressures has primarily focused on the influence of these pressures on environmental and sustainability performance, with less attention given to their impact on supply chain performance and overall business performance. However, supply chain performance is a critical driver of organizational success, and supply chain technology utilization is a key factor in achieving this goal. By examining the complex interplay between institutional pressures, supply chain technology utilization, and SCM performance, this study seeks to fill these gaps in the literature and provide valuable insights that can inform organizational decision-making and contribute to the advancement of best practices in SCM.

The results of this study have significant implications for both academia and industry, as the result provide a deeper understanding of the impact of institutional pressures on SCM and guide

organizations in their efforts to enhance their SCM performance. Ultimately, this study represents a significant step forward in the field of SCM research, as it sheds light on the complex interplay between institutional pressures, technology utilization, and SCM performance in the Ghanaian context.

1.6 Scope of the study

The scope of this study is focused on exploring the relationship between institutional pressures, supply chain technology utilization, supply chain performance, and business performance in Ghana. Conceptually, the study draws on institutional theory, resource-based view theory, and practice-based theory to develop a framework that explains the impact of institutional pressures on supply chain and business performance.

The contextual scope of the study is limited to the Ghanaian context, with a particular focus on the Accra metropolis. The study seeks to fill a gap in the existing literature by examining the impact of institutional pressures on SCM and business performance in this specific context, and by investigating the mediating role of supply chain technology utilization in this relationship.

The geographic scope of the study is limited to firms operating in the Accra metropolis of Ghana. Managers of these firms were the main target, as they are the primary decision-makers responsible for shaping their organizations' strategic direction and operational activities. By limiting the study to this specific group of participants and geographic region, the findings provide valuable insights into the impact of institutional pressures on SCM in the Ghanaian context, while also ensuring that the results are generalizable to other developing countries.

1.7 Overview of methodology

This research like any other research, adopted a methodology that best fit for purpose in realizing the objectives of the study. The main objective of the study was to examine the linkage between institutional pressures, supply chain technology utilisation, supply chain performance and business performance of firms in the Accra metropolis of Ghana. In this study the quantitative survey design was considered appropriate. Data was obtained from 394 managers of varying sizes of 114 firms in the Accra metropolis. Descriptive statistics, correlation, regression, and structural equation model tools were used to analyse the data. Ethical standards in research was highly observed.

1.8 Limitations of the study

This study faced some limitations, including its limited generalizability and the use of self-reported data. The focus on firms in the Accra metropolis of Ghana may limit the applicability of the results to other regions or countries. The reliance on self-reported data may also introduce bias into the findings. Despite these limitations, the study provides valuable insights into the complex relationship between institutional pressures, supply chain technology utilization, supply chain performance, and business performance in the Ghanaian context.

The cross-sectional design nature of the study also presented a limitation. The study only captures data at one point in time, which limits the ability to make causal inferences and draw conclusions about the dynamic relationship between the variables. A longitudinal study design would have allowed for a more in-depth analysis of the relationships between the variables by tracking changes over time. Despite this limitation, the study provides valuable insights that guide future research and inform organizational decision-making.

Finally, some of the managers approached to participate in the study were unwilling to respond to the questionnaire due to time constraints and other reasons. This may have led to a biased sample, as the non-responding managers may have had different perceptions or experiences compared to the responding managers. This could affect the validity and reliability of the findings, as the nonresponding managers may have had a different perspective on the relationship between institutional pressures, supply chain technology utilization, supply chain performance, and business performance. Out of the 500 questionnaires distributed, 106 questionnaires were unanswered; significant enough to influence the direction of the results. To address this limitation, the researchers made efforts to reach out to as many managers as possible and used reminders to encourage participation, but some managers were still unable to participate. Despite this limitation, the study still provides valuable insights into the relationship between the variables in the Ghanaian context.

1.9 Organization of the study

The structure of this study is divided into five chapters. Chapter one presents the background of the study, including the statement of the problem, purpose, and objectives. This is followed up with Chapter two which comprises a comprehensive review of relevant literature in the field. Chapter three outlines the research methodology, including the design, target population, sample size and sampling methods, data collection procedures, and data analysis techniques. Chapter four presents the results of the study, including the analysis and interpretation of the findings. Finally, chapter five summarizes and concludes on the study findings, offer recommendations and suggest avenues for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The general objective of this study was to establish the relationship between institutional pressures, supply chain technology utilisation, supply chain performance and business performance of firms in the Accra metropolis of Ghana. This chapter presents the review of literature which comprises, concept areas, theoretical review, conceptual framework, and hypothesis development.

2.2 Conceptual Review

2.2.1 Institutional Pressures

Institutional pressure has long been recognized as a significant determinant of an organization's activities, as demonstrated by institutional theorists such as DiMaggio and Powell (1983) and Oliver (1991). Organizations facing increased environmental pressures are often compelled to conform to these pressures. However, the institutional environment is complex, and different organizational filters influence how organizations perceive and respond to these pressures. As a result, empirical evidence is needed to better understand the effects of institutional pressures and the role of legitimacy in the diffusion of organizational innovations, as highlighted by researchers such as Ramus *et al.* (2017), Chandler (2014), and Greenwood *et al.* (2011).

The essence of institutional theory is to understand how external pressures from the firm's environment impact its activities and decision-making. The theory suggests that an organization's actions are constantly evaluated by its institutional environment, including the institutions and individuals it interacts with. These actions are considered legitimate if they align with socially accepted values and norms (DiMaggio and Powell, 1983). Organizations seek legitimacy as they

believe it will increase their chances of survival and success by providing better access to valuable resources that enhance overall performance (Díez-Martín *et al.*, 2021).

Therefore, the pursuit of legitimacy prompts companies to adjust to the social expectations imposed by their institutional surroundings. However, institutional theory scholars acknowledge that organizations adopt different tactics in response to environmental demands. According to Oliver (1991), organizations are strategic in their approach and conform to institutional pressures as they anticipate greater monetary and non-monetary rewards from their environment in the future. Moreover, research indicates that an organization's public image influences the perceived benefits calculation and the extent of conformity (Zietsma *et al.*, 2014; Chiu and Sharfman, 2011).

Despite the importance of institutional pressures, there are some limitations to the theory. For example, the structure of an organization that arose from the rules of efficiency in the marketplace can no longer be determined a priori (DiMaggio and Powell, 1991). Organizations are still becoming more homogeneous through bureaucratisation and rationalisation, and structural shifts in the organization seem less and less driven by competition or the need for efficiency. This they referred to as (institutional isomorphism) (DiMaggio and Powell, 1991). The distinction between competitive and institutional isomorphism is useful for understanding the politics and ceremony that pervade much modern organizational life (DiMaggio and Powell, 1991).

Furthermore, DiMaggio and Powell (1991) identified three mechanisms within organizational fields that produce homogeneity across organizations: mimetic, normative, and coercive isomorphism. Coercive isomorphism is often ignored in empirical applications of institutional theory outcomes when organizations mutually confront equal political forces, legal environments, or resource deficiencies. Firms need to be accredited to receive vital resources is the most

prominent example of businesses. Thus, according to institutional theory, coercive pressure broadly implies multifactor complexities like internal behaviours (Testa *et al.*, 2018; Roxas and Coetzer, 2012).

In developing countries, trade dependence manifests coercive pressure and may emanate from international buyers, foreign investors, professional associations, and transnational institutions (Latif *et al.*, 2020; Alsaad and Taamneh, 2019). Coercive pressures, as indicated, affect firms' environmental performance. Government authorities impose these obligatory and mandatory protocols. Every firm is bound to follow these protocols subject to severe sanctions and punishments imposed by these authorities (Orehova, 2017). When businesses face coercive pressures, technology adoption aids them in enhancing performance and garnering government support and economic benefits.

Conversely, mimetic pressure is linked to conventional reactions to uncertainty (DiMaggio and Powell, 1983). This mechanism highlights the tendency of new organizations in uncertain environments to imitate the example of recognized successful organizations, such as adopting innovative technologies. For firms, supply chain technology utilization reduces uncertainty. Consequently, mimetic structural change is not explicitly implemented to attain efficiency. According to Leicht and Fennel (2008), mimetic pressures result from the establishment of conventional methods of organizing. When certain organizational practices become dominant in a given field, using those practices as the preferred solution to a problem becomes a matter of replicating what others do (Meyer and Höllerer, 2014; Liu *et al.*, 2010).

Mimetic pressure occurs when firms compete, seeking higher performance (DiMaggio and Powell,

1983). Supply chain technology adoption and utilization can be expensive but valuable. Firms need to respond to their competitors' activities and behaviours. Other firms should follow suit if competitors utilize supply chain technology (Falcone *et al.*, 2020; Ni and Sun, 2019). In emerging economies, mimetic pressure boosts better management in foreign and multinational organizations and is viewed as the best implement to guarantee superior performance since firms can respond to global demands by utilizing supply chain technology. Robust mimetic pressures can push governments and stakeholders to guarantee that firms adopt advanced environmental management and specific technologies, generating superior performance in their organizations. Thus, although high, supply chain technology utilization permits firms to respond to mimetic pressures and can lead to a competitive advantage.

Normative pressure originates from suppliers, clients, associations such as firms' trade unions, the mass media, and other social units. Trade unions and other associations are usually the primary entities that create normative pressures (Schmitz *et al.*, 2019; Hyatt and Berente, 2017; DiMaggio and Powell, 1983). In emerging economies, normative pressure is seen as a driving force prompting norms and responsibility because normative pressures impact socially compliant behaviours and activities. Thus, normative isomorphism in institutional pressures denotes the transmission of professional norms. These pressures guarantee that patrons and suppliers operate in the external environment, and firms operate in an acquiescent social manner, inspiring supply chain technology adoption (Chandler, 2014; Pache and Santos, 2013). In this study, the concept of institutional pressures is defined as the social, political, and economic systems under which organizations operate to attain legitimacy.

2.2.2 Supply Chain Management

The rapidly shifting environments, coupled with the move of competition from ‘among organisations’ to ‘between supply chains’, have occasioned a considerable challenge in handling an effective Supply Chain Management (SCM) practice in the hope of plummeting supply chain costs, securing competitive advantage as well as enhancing organisational performance (Hardy *et al.*, 2020; Nakornsri and Lee, 2008). Gopal *et al.* (2019) and Li *et al.* (2006) reinforced that SCM practices directly affect competitive advantage and overall business performance. Supply Chain Management (SCM) is a critical issue confronting several firms globally (Lambert and Enz, 2017). SCM is a vital area that aids in maximising profitability and competitiveness for the firm and other supply chain members, which coordinate and integrates across their entire extended network (Cheshmberah and Beheshtikia, 2020; Calatayud *et al.*, 2018; Lambert *et al.*, 1998).

Managing the supply chain has become a way of refining competitiveness by plummeting uncertainty and enhancing customer satisfaction. However, specific SCM characteristics must exist for organisations to succeed, survive, and sustain their competitive spot. In the long run, these SCM characteristics add value to the organisations, stakeholders, and supply chain partners (Wiedmer and Griffis, 2021). The Council of Supply Chain Management Professionals (CSCMP) notes that the SCM profession has continued to evolve and change to meet the desires of the increasingly global supply chain, and with the supply chain encompassing a wide range of disciplines, its definition could be unclear (CSCMP, 2016). However, the concept of ‘supply chain’ is well established in the literature and is commonly denoted as the alignment of organisations that bring products and services to market (Lambert *et al.*, 1998; Larson and Rogers, 1998).

A supply chain may comprise transporters, manufacturers, suppliers, retailers, wholesalers, other intermediaries, warehouses, and customers (Ailawadi and Singh, 2021; LeMay *et al.*, 2017). In its

development from raw materials to finished products, any product traded on the consumer goods market undergoes a sequence of sequential dealings on the business-to-business market. Over time, there has been growing interest among theorists and concern among practitioners regarding supply chain management. This interest began to intensify in the 1980s when businesses recognized that they could no longer be successful while operating in isolation from their suppliers or other units in the supply chain. As a result, they began to realize the benefits of establishing collaborative relationships both within and beyond their organizations (Waller and Fawcett, 2014; Mentzer *et al.*, 2008).

Despite the extensive exploration of supply chain management (SCM) in various fields over the past few decades, and the various definitions proposed in the literature, there is still some uncertainty about its precise meaning (Zijm *et al.*, 2019; LeMay *et al.*, 2017). Consequently, despite its popularity in academic and business circles, there is still considerable confusion about what SCM really entails. As Habib (2011) notes, some define SCM operationally in terms of the flow of raw materials and products, while others view it as a management philosophy or as an integrated system.

Cooper and Ellram (1993), for example, presented different conceptualizations of SCM within the same article, describing it as both a management philosophy and as an integrated system. This ambiguity highlights the need to closely examine the processes associated with SCM in order to arrive at an appropriate terminology for the current economic reality. However, the task of developing and shaping new, adequate paradigms and cognitive models is not yet complete, as there is ongoing debate in academic circles about what exactly constitutes SCM, or whether the domain should even be labelled as SCM at all (Burgess *et al.*, 2006). Some scholars question

whether it is more appropriate to conceptualize SCM as a discipline, a domain of practice, or an entity that combines both approaches (Dwyer, 2011).

Chopra and Meindl (2007) defined a supply chain as encompassing all parties involved, either directly or indirectly, in meeting customer demand. Within each organization, the supply chain comprises all processes that contribute to fulfilling customer demand, such as new product development, marketing, operations, distribution, finance, and customer service. Chen and Paulraj (2004) described a typical supply chain as a network that includes materials, information, and services processing links with supply, transformation, and demand characteristics. Meanwhile, according to CSCMP (2016), SCM involves the planning and management of all activities related to sourcing and procurement, conversion, and logistics management. Notably, it entails coordination and collaboration with channel partners, suppliers, intermediaries, third-party service providers, and customers. At its core, SCM integrates supply and demand management both within and across companies.

According to Ensafian and Yaghoubi (2017), the supply chain is comprised of three main phases: procurement, production, and distribution, which can span across various locations globally. Mentzer *et al.* (2001) define a supply chain as a set of three or more organizations or individuals that are involved in the upstream and downstream flows of products, services, finances, and/or information from a source to a customer. The authors also identify three levels of supply chain complexity: direct, extended, and ultimate. The direct supply chain involves a central firm, its suppliers, and customers. The extended supply chain includes the suppliers of the immediate supplier and the customers of the immediate customer. The ultimate supply chain encompasses all organizations involved in all flows of products, services, finance, and information from the

ultimate suppliers to the ultimate customers, which includes functional intermediaries such as market research companies, financial and logistics services providers (Mentzer *et al.*, 2001).

The importance of supply chain management (SCM) to businesses is widely recognized, yet many firms do not appear to appreciate effective SCM practices and management. To succeed in today's competitive business environment, organizations must increase their collaborative behaviour to include customers and suppliers. This extension of cooperative behaviour is referred to as SCM. The practices of SCM consist of three sub-constructs: strategic supplier partnership, customer relationship, and information sharing, while supply chain responsiveness includes operations system responsiveness, logistics process responsiveness, and supplier network responsiveness. Moreover, competitive advantage is epitomized by five sub-constructs, namely price, quality, delivery dependability, time-to-market, and product innovation. Various studies have examined these SCM constructs, including Rasib *et al.* (2021), Latunreng and Nasirin (2019), Tarafdar and Qrunfleh (2017), Rao (2021), Nenavani and Jain (2021) and Tukamuhabwa *et al.* (2021).

2.2.3 Supply Chain Technology Utilization (SCTU)

In recent years, the business environment has undergone significant changes, prompting firms to rely on various supply chain technologies such as Enterprise Resource Planning (ERP), Advanced Planning and Optimization (APO), and Warehouse Management Systems (WMS) to communicate with their supply chain partners, deal with increasing levels of market competition, and create value for shareholders (Treber *et al.*, 2019; Calatayud *et al.*, 2019; Mishra *et al.*, 2013). Supply chain technologies (SCT) refer to the tools and techniques used to establish integrated SCM within or across organizational boundaries (Queiroz and Wamba, 2019).

Technology, in general, impacts speed, precision, and efficiency within the supply chain. By employing innovative technology, supply chain managers can utilise more data, automation, as well as other tools to make faster decisions, forecast demand more accurately, and prepare for unanticipated events throughout the supply chain (Fernández-Rovira *et al.*, 2021; Verhoeven *et al.*, 2018; Kumar *et al.*, 2015). Manufacturers, suppliers, retailers, shippers, and distributors, among others, are the key stakeholders in the supply chain of firms, which ends with product delivery to the consumer. With a growing emphasis on technological developments and shifts in customer expectations, the need for integrated supply management has become progressively vital.

SCTs such as blockchain, although primarily associated with cryptocurrencies, blockchain, the distributed ledger technology, rank high on the list of technologies poised to improve the visibility and transparency to supply chain processes (Queiroz *et al.*, 2021; Nandi *et al.*, 2020; Queiroz and Wamba, 2019; Cole *et al.*, 2019; Pundir *et al.*, 2019). Since blockchain produces an incontrovertible record of transactions, the technology is well-placed to track the derivation of products and establish trust in shared supplier information, particularly when the parties have opposing agendas and do not principally stimulate trust (Aslam *et al.*, 2021; Min, 2019; Sheel and Nath, 2019).

Consequently, blockchain's principal potential is enabling track-and-trace submissions that aid firms document the chain of custody of products which can avert leakages, assist in identifying imitation products and fraud, determine at-risk suppliers, establish that regulatory requirements are being met, and create transparency around sourcing (Nandi *et al.*, 2020; Queiroz and Wamba, 2019; Cole *et al.*, 2019; Pundir *et al.*, 2019). For most organisations to build considerable customer bases, digitising business processes has become more of an obligation than a value-add proposition

(Fan and Ouppara, 2021; Seyedghorban *et al.*, 2020; Ivanov *et al.*, 2019). This has amplified the obligation to create a digital environment that flawlessly integrates the processes carried out by various organisations in the supply chain. As pointed out by Manavalan and Jayakrishna (2019), technological improvements today empower organisations to build end-to-end supply chain solutions that accelerate processes and circumvent bottlenecks in the supply chain, and real-time or near real-time information is the crucial factor in SCM. Some SCTs are designed to manage and improve the exchange of information across various core supply chain partners to achieve outcomes such as just-in-time procurement, reduction of inventory, an increase of production efficiency and meeting client requirements promptly (Fernando *et al.*, 2020; Verhoeven *et al.*, 2018). Mostly, these technology solutions empower organisations to reach some level of ondemand or mass customisation in the production cycle.

2.2.4 Supply Chain Performance

To ensure efficiency and effectiveness in an organization's supply chain, Hausman (2004) defines SCP as the measurement of the supply chain qualitatively and quantitatively. Regarding SCP, Charan (2008) stated that SCP focuses on efficiency and effectiveness as two primary performance metrics for measuring the performance of a firm's SCP. To put it another way, SCP measures the efficiency and efficacy of the supply chain of a business organization. That said, a firm's strategy should be the starting point for any attempt to understand the full dimensions of SCP, according to Dolci *et al.* (2017).

Although the responsibility of organisational managers is to ensure the overall performance of their organisations, the success of the organisations is determined by the performance of their supply chains in which they function as partners (Rosenzweig, Roth and Dean, 2003). Green,

Inman, Brown and Willis (2005) have provided another definition of supply chain performance, describing it as the ability of the supply chain to deliver quality products and services in precise quantities and at precise times while minimizing the total cost of the products and services to the ultimate customers of the supply chain.

The ability of a supply chain to adapt to a dynamic environment is crucial to its performance (Cao and Zhang, 2011). Supply chain performance is directly linked to strategic, tactical, and operational planning and control. Customers' satisfaction is an essential measure of supply chain performance, as it determines the value created and costs incurred at the logistics level. To enhance supply chain performance, excess inventory should be eliminated, and the quality of parts improved to reduce set-up time, adjust capacity, enhance product quality, and respond quickly to the customer (Vonderembse, Uppal, Huang and Dismukes, 2006).

To guarantee that organisations realise their long-term goals, management must understand how its supply chain performs and comprehend the critical areas for improvement. As a result, there has been significant research and literature on SCMP since 1990 (Kurien and Qureshi, 2011). There is a wide range of perspectives on SCP measurements, including cost and non-cost, strategic, tactical, and operational, as well as business process and financial perspectives. From sales, finance, human resources, productivity, quality, and the entire product life cycle, measuring the SCP helps a firm realise its short- and long-term objectives (Wamba *et al.*, 2020; Hald and Kinra, 2019; Mani *et al.*, 2018). Furthermore, a firm needs to measure its SCP because the lack of a collaborative context to house metrics could significantly increase the possibility that resources will be misused to develop duplicate and inconsistent metrics (Otto *et al.*, 2020; Hald and Kinra, 2019; Mani *et al.*, 2018).

The performance of the supply chain is determined by the ability of the extended supply chain to meet customer needs, which includes aspects such as product availability, timely delivery, and the required inventory and capacity to deliver this performance in a responsive manner. This is referred to as Supply Chain Performance (SCP) (Estampe *et al.*, 2013; Shepherd and Günter, 2010). SCP crosses firm boundaries as it comprises basic materials, components, subassemblies and complete products and distribution through various channels to the end customer. SCP crosses traditional functional firm lines like procurement, manufacturing, distribution, marketing and sales, and research and development.

When measuring SCP, some metrics include collaboration between supply chain partners (AlDoori, 2019). Presently, the supply chain has become ever more competitive; nevertheless, collaboration in the supply chain can build trust with customers, ensure transparency, and maintain compliance with authorities (Shepherd and Günter, 2010). Another metric considered when measuring SCP is effective key performance indicators (KPI) (Moons *et al.*, 2019; Maestrini *et al.*, 2017). Effective KPI management begins with vital areas that both parties need to decide. The prime areas are the major ideologies that will guide the rest for more detailed and statistical KPIs embedded in the service level agreement. Risk management methods (Munir *et al.*, 2020; Shahbaz *et al.*, 2018; Ouabouch and Paché, 2014; Ritchie and Brindley, 2007) are also considered when measuring SCP.

As a firm's supply chain grows in complexity and regulations, it is vital to assess the extent of its resilience and how it relates to risk management and determine the types of changes that need to be made to enhance specific segments of the supply chain. Accordingly, many studies have suggested financial and non-financial indicators to measure an organisation's supply chain

performance. Other studies argued that dependability, flexibility, quality and efficiency are the key indicators for measuring supply chain performance (Angerhofer and Angelides, 2006).

The firm's ability to deliver products on time at an agreed price is referred to as reliability, while flexibility pertains to the company's capacity to respond to changing market conditions, customer needs, and new product developments. Quality refers to the degree to which products or services satisfy customer demands. Efficiency pertains to process improvements such as reduced inventory, manufacturing costs, and increased output. Due to heightened competition and increased globalization, many industries now operate on a much more international level, leading to a significant increase in the number of companies involved in the typical supply chain. (Seuring and Muller, 2008a).

2.2.5 Business Performance

The definition and measurement of organizational performance is a contentious issue in academic research (Yamin, Gunasekruan and Mavondo, 1999). While scholars have acknowledged the importance of performance and organizational effectiveness (Connally *et al.*, 1980), there is little consensus on the definitions of the concept (Venkatraman and Ramanujam, 1986). Business performance can be viewed through different lenses, including theoretical, empirical, and managerial perspectives (Cameron and Whetten, 1983).

A common approach to measuring business performance is to use financial indicators such as sales growth, profitability (as measured by ratios such as return on investment, return on sales, and return on equity), profits per share, and stock-market returns (Kumar and Dua, 2022). However, this approach is narrow in its focus and assumes the dominance and legitimacy of financial goals in the firm's system of goals. Non-financial indicators such as market share, new product launch, product

quality, marketing and manufacturing value-added effectiveness, and technical efficiency measurements can also provide valuable insights into a firm's performance (El-Garaihy, 2021). According to Silva *et al.* (2020), non-financial measurements are frequently used since traditional financial measures are often provided too late and in an excessively aggregated form (Lau and Sholihin, 2005).

SCM is considered to be an effective strategy that can improve a firm's overall performance. Its primary short-term objective is to enhance productivity, while its long-term goals are to increase market share and earnings for all supply chain members by reducing inventory levels (Tan, Kannan, and Handfield, 2008). Financial indicators have been commonly used as a tool for assessing and comparing firms' performance, as noted by Holmberg (2000). Different authors have proposed various measurements to evaluate a firm's performance through market, operational, and financial perspectives, which are summarized in Table 2.1.

Tables 2.1 Performance Measures

	Variable	Measure	Author
Financial Measures	Financial Performance	Financial Liquidity	Abbas <i>et al.</i> (2017); Li <i>et al.</i> (2017); Chang <i>et al.</i> (2016); Wang and Sarkis (2013); Kim (2009)
		Return on Investment	
		Return on Assets	
		ROI Growth	
		Total Cost Reduction	
	Net Profit		
	Market Performance	Sales Growth	Gandhi <i>et al.</i> (2017); Singh <i>et al.</i> (2014); Kim (2009)
Market Share Growth			
		Flexibility	

Non-Financial Measure	Operational Performance	Quality Delivery	Al-Shboul <i>et al.</i> (2017); Leuschner <i>et al.</i> , (2013)
		Manufacturing Lead Time	Truong <i>et al.</i> (2017);
		Percent defective products shipped	Bandaly <i>et al.</i> , (2016);
		Number of new patents	Lau and Sholihin (2005)
		Number of new products launched	

(Source: Silva *et al.*, 2020)

2.3 Theoretical Review

2.3.1 Institutional Theory

The fundamental building block of institutional theory is the notion of institutions, which has been expressed in economics, political science, and sociology. For instance, economic historian Douglas North defines institutions as human-formulated rules in a society that inform human interactions, or the ‘rules of the game’. Whereas formal rules comprise political, economic, and contracts, informal rules consist of taboos, customs, and traditions (Jepperson, 1991). Both formal and informal institutions provide a pattern to human or organizational behaviour by permitting and confining their activities (Donges and Nitschke, 2015).

In the framework of the sociology of organizational scholarships, the characterization of the institution has been extended by DiMaggio and Powell to embrace the unintentional activities of humans, a feature not included in the description of North. DiMaggio and Powell (1991) specified that, whereas institutions are certainly the consequence of human activity, they are not automatically the products of conscious design. Thus, from the sociological standpoint, Jepperson (1991) expounds on institutions noting that institutions characterize a social order or pattern that has achieved a specific state; institutionalization signifies the process of such attainment. In an

attempt to merge the multiplicity of characterizations provided by the different scholars, Scott (2001) provided a definition of institutions as social structures that comprise symbolic elements, social activities, and material resources. Additionally, Scott (2008) elaborated on the characteristics of institutions, highlighting their resistance to change and their transmission through different mechanisms across generations. Institutions consist of regulative, normative, and cultural-cognitive components that work together with related activities and resources to provide stability and significance to social life.

Thus, the institutional theory advocates that organizations' social, environmental, and economic performances are significantly affected by the institutional environment in which they operate (Van Wijk *et al.*, 2019; Scott, 2005; Zucker, 1987; DiMaggio and Powell, 1983). Contemporary institutional theorizing in the scope of organizations dates to about three decades. The neoinstitutional theory began with Meyer and Rowan's (1977) observation that, within any given institution, organizations use similar organizational forms. Meyer and Rowan describe this view by pointing to the influence of the social setting within which organizations are embedded. That context includes 'powerful institutional rules' that define appropriate and acceptable forms of organizing. Thus, organizations are encouraged to incorporate the systems and procedures set by prevailing rationalized theories of organizational work and institutionalized in society.

Organizations that do so enhance their legitimacy and survival chances, independent of the acquired practices and procedures (Meyer and Rowan, 1977). This was built on the social constructivist perspective of Berger and Luckmann (1966). Berger and Luckmann maintained that 'common-sense 'knowledge' rather than 'ideas' must be the central focus of the sociology of knowledge. It is precisely this 'knowledge' that constitutes the fabric of meanings without which

no society could survive. Therefore, the sociology of knowledge must involve itself in the social construction of reality. Scott (1987) and Meyer and Rowan (1977) advanced the ideas of Berger and Luckmann's conceptual framework and applied them to organizational institutions. Meyer and Rowan mentioned the motive of organizations for adhering to institutional rules, indicating it is adaptive for them to do so as their survival and resources depend on their conformity with institutional requirements.

Since the acquisition of resources essential for survival is dependent on the adoption of legitimated institutional rules, organizations embedded in institutionalized environments, for that matter - tend to duplicate existing structural forms virtually wholesale (Ramus *et al.*, 2017; Greenwood *et al.*, 2011; Scott and Davis, 2007). By so doing, it signals conformity with the established way of doing things, thereby satisfying the confidence of external stakeholders. These rules suggest accepted standards and organizational models, therefore, dictate conventional ways of organizing structure and core activities.

In effect, Meyer and Rowan (1977) point theorists to the fact that organizations are not merely production systems functioning in an environment comprised of appropriate stakeholders but social and cultural systems embedded within an 'institutional' context, involving a range of players, including the state, professions, interest groups and so forth. The performance of organizations, in consequence, cannot be explained without considering the impact of this institutional context. Moreover, this influence is resonant and resilient. Organizations are not freefloating islands of rationality or units of political expediency; instead, they are severely constrained by social expectations and the properties of legitimacy (Greenwood *et al.*, 2015; Smets *et al.*, 2015; Scott, 2014). In examining how or why individual organizations adopt new ideas or practices, it is necessary to understand the role and consequences of these field-level isomorphic

and policing mechanisms. Meyer and Rowan (1977) noted that organizations design their formal structures according to the prescriptions of myths in the institutional environment to acquire legitimacy, increasing their chances of survival.

From an institutional viewpoint, organizations operate in an environment dominated by rules, requirements, understanding, assumptions, beliefs and procedures about what constitutes proper or acceptable organizational forms and behaviour (Powell and DiMaggio 1991. Meyer and Rowan 1977; Oliver 1997). According to (Gornitzka 1999), several studies and seminal theoretical contributions to institutional theory emphasize the survival value of organizational conformity to the institutional environment. Gornitzka noted that conformity is often ritualistic, where organizations construct compliance symbols to environmental change. Thus, critical institutional rules and regulations, procedures and processes act as rationalized myths (Scott, 2005). These rationalized myths are required in an organization to gain legitimacy and knowledge, become more balanced, and increase survival prospects. The fact that firms conform to these rationalized myths is recognized as isomorphism.

Isomorphism in the institutional environment means that organizations align their structure with gaining legitimacy rather than organizational efficiency (Fernando and Lawrence, 2014; Meyer and Rowan, 1977). In this regard, organizations strive to combine environmental opportunities with organizational stability. Most organisational transformations originate from relatively gradual responses that relate organizations more closely to their environment. These changes are usually seen in well-developed institutions with established interests, values, perceptions, and resources. This institutional stability is the basis for institutional flexibility even when confronted with externally proposed reform initiatives (Scott, 2005).

2.3.2 Theory of Technology Diffusion

The Technology Diffusion theory is a body of research that seeks to explain the process and factors that influence the adoption and spread of new technologies within organizations and societies. The theory originated in the late 19th and early 20th centuries and has been extensively developed and modified in the decades since (Rogers, 2003).

The first formal models of technology diffusion were developed in the late 1960s and early 1970s and were based on the assumption that the rate of diffusion is influenced by a combination of individual-level factors (such as the adopter's perception of the technology's relative advantage, compatibility, complexity, and observability) and network-level factors (such as the size and structure of the social network through which the technology is diffusing) (Rogers, 1995).

Recently, the theory of technology diffusion has been extended to include the role of institutions and their impact on the diffusion process. It has been argued that institutions can shape the direction, speed, and outcome of technological change by providing the necessary infrastructure, rules, and norms for the diffusion of new technology (Lundvall, 1992). Additionally, the theory has been extended to include the impact of external factors, such as the economic and regulatory environment, on the adoption and spread of new technologies (Venkatesh *et al.*, 2003). Many times, the institutional environment in which a firm operates can play a significant role in shaping its technology adoption decisions. This is where institutional pressures come into play, as they can drive or constrain the adoption of new technologies, and thus have an impact on supply chain performance (Venkatesh *et al.*, 2003).

Furthermore, the theory avers that, the adoption of technologies occurs in several stages, including knowledge, persuasion, decision, implementation, and confirmation (Rogers, 2003). At each stage,

different factors influence the likelihood of adoption, including individual characteristics, organizational culture, and the technology itself (Venkatesh *et al.*, 2003). Research has found that one of the key contributions of the Technology Diffusion theory is its emphasis on the role of interpersonal networks in the spread of technologies (Rogers, 2003).

The theory further posits that individuals are more likely to adopt new technologies if they are exposed to positive information about the technology from trusted sources, such as friends, family, or colleagues (Rogers, 2003). This idea has been supported by empirical research, which has shown that the use of new technologies tends to spread through social networks, rather than through mass media campaigns or other forms of marketing (Venkatesh *et al.*, 2003). Innovation systems are defined as the network of actors, institutions, and their interactions that determine the rate and direction of technological change in a particular industry or sector (Nelson, 1993). This perspective emphasizes the importance of understanding the interactions between firms, governments, universities, and other stakeholders in shaping the diffusion of new technology.

Another area of recent research has been the study of the role of networks in technology diffusion. Network theory argues that the structure and properties of social networks have a significant impact on the rate and direction of technological change (Burt, 1992). For example, research has shown that the adoption of new technology is influenced by the strength of ties between individuals, the degree of homophily (the extent to which individuals are similar to each other), and the centrality of individuals within the network.

Overall, the theory of technology diffusion continues to be an active area of research, and new insights are emerging because of advances in both methodology and theory. To date, the literature has largely focused on understanding the factors that influence the rate and direction of

technological change, and how these factors can be leveraged to enhance the diffusion process. The theory of technology diffusion provides a valuable framework for understanding the process by which new technology spreads through organizations. It has been the subject of extensive research, and has evolved to include the role of institutions, innovation systems, and networks in shaping the diffusion process.

2.3.3 Resource-Based View (RBV)

The firm's Resource-Based View (RBV) comprises a rising and dominant area of the strategy literature that discourses the issue of a firm's identity, and it is predominantly concerned with the source and nature of strategic capabilities. The resource-based viewpoint has an intraorganizational motivation and asserts that performance results from firm-specific resources and capabilities (Barney, 1991; Wernerfelt, 1984). The basis of the RBV is that successful organizations will discover their competitiveness through the advancement of distinctive and exclusive capabilities, which may frequently be implicit or intangible in nature. Thus, the crux of success should be expressed by the organization's unique resources and capabilities (Chen *et al.*, 2021; Armstrong and Shimizu, 2007).

Additionally, the value-creating potential of policy, that is, the organization's capacity to create and sustain a profitable market position, depends critically on the rent-producing capacity of its primary resources and capabilities (Nason and Wiklund, 2018; Saqib and Rashid, 2013). Barney (1991) pointed out that if all businesses were identical regarding resources, there would be no success differences since any organization in the same industry could apply any strategy. Basic logic holds that the sustainability of the effects of a competitive advantage rests mainly on the cost of resources, such as technology and capabilities employed for executing the strategy pursued. The

RBV advocates that competitive advantage and performance outcomes result from firm-specific resources and capabilities that are expensive to copy by other competitors (Barney, 1991; Wernerfelt, 1984). Such resources and capabilities can be vital elements of sustainable competitive advantage and superior organizational performance if they hold specific unique characteristics.

Therefore, consistent with the Resource-Based View (RBV), a firm's resources are the core determinant of a firm competitive advantage and performance (Amit and Schoemaker, 1993; Wernerfelt, 1984). Barney (1991) describes resources as all assets, competencies, organizational processes, firm characteristics, information, knowledge, and so on, controlled by an organization that allows it to conceive of and execute strategies that enhance its efficiency and effectiveness (p. 101). Thus, RBV advocates that manager primarily concern themselves with selecting, obtaining, and handling resources superior to their competitors (Madhani, 2010). Resource-Based View (RBV), thus, analyses and interprets firms' resources to comprehend how they realize sustainable competitive advantage (Miller, 2019; Wernerfelt, 1984).

The RBV of the firm emphasizes the notion of difficult-to-imitate qualities of an organization as sources of superior performance and competitive advantage (Barney *et al.*, 2001). Resources that cannot be effortlessly transferred or procured that entail an extended learning curve or a major shift in the firm's environment and culture are likely to be exclusive to the firm and, thus, more challenging to imitate by competitors (Armstrong and Shimizu, 2007). The RBV of the firm acknowledges that qualities related to past experiences, organizational culture, and competencies are vital for the firm's success (Nason and Wiklund, 2018).

However, RBV scholars have classified the different resources of the firm as tangible and intangible (Simó and Sallán, 2021; Saqib and Rashid, 2013). Not all resources of the firm are

sources of competitive advantage. Some resources are required to conduct business, while others are not sourcing superior returns. According to Barney (1991), resources that are sources of sustainable competitive advantage are strategic assets, and strategic assets are resources that are at the same time valuable, rare, imperfectly imitable, and non-substitutable.

Lately, RBV researchers have begun to distinguish that strategic asset are commonly not tangible (Godfrey and Hill, 1995). The firm's tangible resources are physical properties, like property, plant, equipment, and other physical technologies, which are often not rare as they can often be easily acquired. Consequently, tangible-resource-based advantages are susceptible to imitation. Conventional thinking implies that internally developed technologies may be vital to organizational success. However, in this contemporary fast-changing competitive setting, physical technologies can rapidly become obsolete or effortlessly re-engineered by competitors (Michalisin *et al.*, 2000).

The failure of these resources to deliver a sustainable competitive advantage is inconsistent with the characterization of strategic assets. Undeniably, internally-developed physical technologies can be given legal protection against imitation through intellectual property rights. These intellectual property rights, including copyrights, patents, and trademarks, constitute intangible resources signifying and protecting an innovative idea, the name of an idea, or embodiment of an idea (Hall, 1993). However, the idea and knowledge are embodied and protected by the intangible resource that characterizes the strategic asset, not the physical form (Smith and Offodile, 2007; Michalisin *et al.*, 2000).

Besides, the resource-based advantage is only maintainable owing to the legal protection afforded by that intangible resource. This leads to a vital variance between tangible and intangible resources,

their imitability, or lack thereof (Madhani, 2010; Barney, 1991). Godfrey and Hill (1995) pointed out that imitability is a considerable part of observability. Explicitly, the level at which resourcebased advantages are imitable is a function of the observability of the underlying resources. Hence, the more unobservable the resources drive competitive advantage, the more undefeatable the limitations to imitation, and the more sustainable the advantage (Michalisin *et al.*, 2000).

2.3.4 Practice-Based View Theory (PBV)

In the supply chain literature, researchers have utilized the Resource-Based View of the firm (RBV) (Barney, 2012) to investigate the effectiveness of technology (e.g., Fawcett *et al.*, 2011). The RBV posits that organizations that possess valuable, rare, inimitable, and non-substitutable resources can attain competitive advantages over their rivals (Barney, 2012). As time has passed, the RBV has been extended to underscore an organization's approach to utilizing resources (Priem and Swink, 2012). This extension is consistent with the practice-based view (PBV) proposed by Bromiley and Rau (2014), which suggests that organizations can leverage imitable activities or practices to enhance operational competencies and improve operational performance (Bromiley and Rau, 2014).

Several studies in strategic management have attempted to explain macro-level organizational behaviours and the influence of these behaviours or characteristics on organizational performance. Contrast this approach with the method in operations research. Operations research principally advances techniques projected to assist managers (Bromiley and Rau, 2014). Nevertheless, contemporary strategy scholarship seldom deliberates specific, existing systems that managers could utilize to advance strategies or commonly relevant firm practices. Bromiley and Rau (2016)

describe a practice as a distinct activity or array of activities that different organizations can implement. In contrast with the RBV emphasizing things other organizations cannot imitate, the PBV explores imitable practices frequently practised in the public domain and are amenable to transfer across firms (Lockett *et al.*, 2009; Newbert, 2007; Wernerfelt, 1995).

The interest in the PBV emanates from the literature demonstrating that publicly acknowledged common practices influence organizational performance. Whereas some contentions in the RBV assume that publicly acknowledged techniques cannot offer organizations reliable performance advantages (Peteraf, 1993; Barney, 1991; Wernerfelt, 1984), several empirical research across different fields discover that organizations differ in their use of available management practices, and these differences partly explicate organizational performance (Collins, 2021; Bloom and Van Reenen, 2010). Bloom and Van Reenen (2010) and Bloom *et al.* (2013, 2012, 2007) examined the association of performance and the utilization of management practices in large models of firms from several countries. They considered regular practices, including setting goals, having clear performance measurement criteria, attracting brilliant individuals, rewarding excellent performance, and eliminating low performers. None of these practices is clandestine or scientifically complex, nor do they entail some hard-to-transfer resources or competencies. The outcomes are consistent across studies (Bromiley and Rau, 2014).

Whether measuring performance by sales, return on capital, sales growth, or bankruptcy, standard management practices positively influence firm performance, and such practices differ widely across firms (Carter *et al.*, 2017; Bromiley and Rau, 2016). Whereas U.S. companies in their samples utilized these management practices more often than organizations in other nations, several U.S. organizations do not utilize many of the practices (Bloom *et al.*, 2012). Their most persuasive evidence emanated from an empirical study using an example of Indian textile plants

(Bloom *et al.*, 2013). The study employed professional consultants to afford varied advice to erratically assigned treatment and control groups of organizations. The consultants recommended the treatment group in practices like consistent machinery maintenance, recording details for machine failures, getting rid of trash from the plant floor, and having a detailed account of raw materials inventory. The control group in the study received less instruction advice. The treatment group stimulated to follow these practices improved their average output by 11%, which equated to businesses in the control group, and provided more general advice (Bloom *et al.*, 2013).

These studies demonstrate that organizations vary in their usage of modest and seemingly obvious practices, and these differences lead to performance variances across organizations. While Bloom *et al.*'s (2013) experimental research studied simple practices, practices in the PBV are not simple or obvious; they could be intricate and extend across various substantive domains (Shaw *et al.*, 2021; Collins and Clark, 2003). Some practices in the PBV deal with strategy design and application, while others deal with explicit activities that impact performance.

2.4 Conceptual Framework

Based on the literature review, the various concepts underlying this research study have been developed into a pictorial framework to depict the interrelationships between the various variables in the topic. The framework also shows the hypothesized paths of the nexus between the variables being studied. In the conceptualised research model,

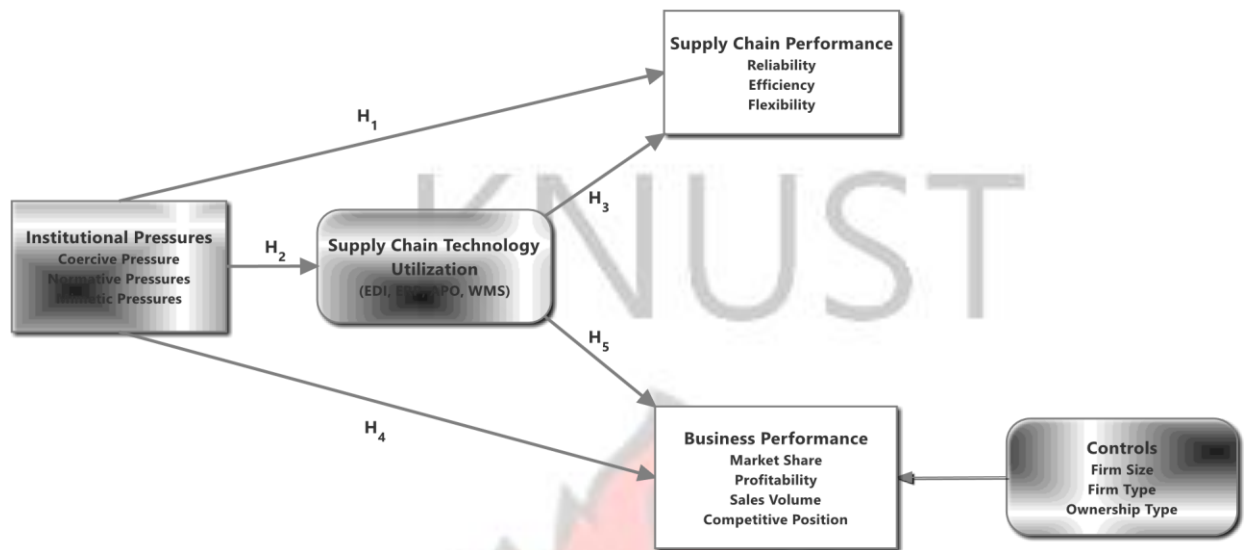


Figure 2.1 Research Model (Source: Researcher's construct)

2.5 Hypothesis Development

2.5.1 Nexus between Institutional Pressures and Supply Chain Performance

Various studies have reported significant and direct effects of institutional pressures on environmental practices among firms (Handfield *et al.*, 2002; Green *et al.*, 1998) and supply chain performance (Rao and Holt, 2005). In accordance with institutional theory, it is important for a company to not only seek profit, but also prioritize achieving social responsibility and environmental integrity, such as reducing emissions and preventing waste disposal, as these institutional pressures are related to greater supply chain performance (King and Lenox, 2002; Suchman, 1995). DiMaggio and Powell (1983) explained that institutional theory theorised that institutional pressures stimulate certain business practices where coercive pressures usually play a vital role in forcefully promoting acceptable industry behaviour by actors in the supply chain.

Institutional pressures play a crucial role in ensuring that organizations comply with social and legal concerns in their business practices, which can come from external stakeholders directly or indirectly involved in the business. Social standards and growth expectations of customers and the market are the primary prescriptive pressures, and regulatory bodies and customers may force companies to adopt operational strategies and reorganize their resources to align with these strategies. External pressures in the context of institutional theory encourage companies to follow similar strategic actions, and many studies have shown how businesses comply with institutional norms to improve supply chain performance by adopting industry standards. For example, Zhang and Yang (2016) found a positive impact of institutional pressures on supply chain performance in their examination of the drivers and performance outcomes of green adoption in China. Scott (2008) noted that institutional pressures are related to greater supply chain performance in reducing emissions and waste disposal. Thus, companies not only seek to achieve profitability but also recognize the importance of achieving environmental integrity and complying with social and legal concerns.

Similarly, Carter *et al.* (1998), in a study on environmental purchasing and firm performance, found that a combination of institutional pressures on firms to adopt green practices directly influences the efficiency of the supply chain. Droge *et al.* (2004) argued that the relationship between institutional pressure and supply chain performance is positive. Against this, the relationship between institutional theory and supply chain performance is theorised as follows:

H1: *Institutional pressures positively relate supply chain performance.*

2.5.2 The link between Institutional Pressures and Supply Chain Technology Utilisation

In accordance with the institutional theory, the business environment is highly competitive, leading to the establishment of social expectations and norms that take on a rule-like form with regard to appropriate organizational structures, practices, behaviours, and operations (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). Adhering to these expectations and norms is critical for a firm to maintain its legitimacy in the industry and ensure its access to critical and scarce resources (DiMaggio and Powell, 1983; Heugens and Lander, 2009). Consequently, when an organization considers implementing technology, it will seek out information about institutional norms and expectations, assess the potential costs and benefits of adopting the technology, and position itself in a manner that mitigates uncertainties (DiMaggio and Powell, 1983; Zsidisin *et al.*, 2005).

According to DiMaggio and Powell (1983), institutional pressures arise from the institutional environment and prompt firms to adopt shared notions and routines. They further categorize institutional pressures into normative, mimetic, and coercive pressures to analyze why firms adopt similar practices, a process called "isomorphism." These pressures come from constituents in the industry, such as customers, suppliers, and competitors, and the business's perception of these pressures affects its interpretation of the environment in general and technology utilization (Zsidisin *et al.*, 2005). Generally, the prevalence of a practice in an industry creates and strengthens related norms, which, in turn, generate pressures on the business and compel them to utilize the prevailing practice of systems utilization (John *et al.*, 2000).

In the current research context, the Theory of Technology Diffusion posits that the adoption and implementation of new technologies are not solely determined by technical feasibility and economic viability, but are also influenced by various social, political, and institutional factors (Rogers, 2003). Thus, institutional pressures can play a critical role in shaping a firm's technology adoption decisions. These pressures can either drive or constrain the adoption of new technologies

and, as a result, have an impact on supply chain technology utilization. Additionally, businesses learning of the benefits their competitors derive from the utilisation of supply chain technologies will, in turn, pressure them to imitate their successful counterparts (Mitra and Singhal, 2008). That notwithstanding, when a major channel member equally prefers to use a particular technology in its supply chain operations, such a member is likely to push its partner to utilise that technology coercively. This implies that a deviant channel member risks its survival in the network. Therefore, to avoid being locked out of competitive corporate relationships and to ensure continued access to resources, businesses will choose to conform to such pressures and be inclined to adopt and utilize supply chain technologies in their supply chain operations. This relationship is hypothesized as given below;

H2: Institutional pressures positively relate to supply chain technology utilization

2.5.3 Mediation Role of SCT Utilization in the linkage between Institutional Pressures and Supply Chain Performance

As indicated, the importance of SCT utilisation has increased over the past few decades (Agrawal and Narain, 2018). Today, technology has paved the way for organizations to increase output and advance interaction with stakeholders, transforming how firms operate and bringing innovation to the production process (AlMulhim, 2021). Also, SCT Utilization has converted organizations' supply chains to digital SCM to afford their customers the best service possible (Fernández-Rovira *et al.*, 2021). Technological utilization increases performance suggestively by affording innovative techniques in the supply chain operation (Chege *et al.*, 2020; Basheer *et al.*, 2019). Bag, Rahman, Srivastava, Chan and Bryde (2022) found that, at its simplest, technology that can support SC operations is one that leads to improvements in productivity, routine operations, and logistical

activities in the SC network. As a result, Martín-Peña *et al.* (2020) and Windahl (2015) posited that the technological modernization of an organization improves its supply chain performance and generates more returns. Thus, businesses must adopt and utilize innovation and technology in their production processes. Primarily, SCT utilization aids in increasing the visibility and transparency of information across supply chains, as indicated earlier, which can be valuable for companies to advance their supply chain performance (Windahl, 2015). The enhanced visibility of information across supply chain partners enables firms to improve their efficiency, reliability and flexibility in the supply chain (Banerjee, 2018; Attaran, 2020; Asamoah *et al.*, 2019).

Moreover, enhanced data accuracy made available through SCT utilization permits a decrease in waste that accrues in supply chains due to poor inventory records (Hofer *et al.*, 2021; Mishra *et al.*, 2013) and thereby improving a businesses' supply chain performance. The literature has further shown that unparalleled levels of SCT utilization further smoothen up the order and product flow, permitting decision-makers to react quickly and effectively, and offering synchronized and consistent responses (Banerjee, 2018).

SCT utilization can help organizations improve supply chain performance by creating an efficient system of information and product flows within and across organizations (Núñez-Merino *et al.*, 2020). The extent to which an organization meets this objective is likely to be reflected in its SCT utilization and its ability to deliver products and services accurately, quickly, and on time (Pundir *et al.*, 2019; Vanpoucke *et al.*, 2017; Vijayasathy, 2010). SCT utilization can also enhance knowledge management capability across the supply chain, allowing decision-makers to monitor customer behavior and detect demand shifts in real-time, thereby enabling organizations to provide timely delivery of products and better serve customers (Schniederjans *et al.*, 2020; Wu and Chiu, 2018; Yu *et al.*, 2021; Jermstiparsert and Rungsisawat, 2019; Fawcett *et al.*, 2011). Additionally,

IT adoption can significantly minimize costs and enhance operational agility (Hassan, Haussain and Rahman, 2013; Lu and Ramamurthy, 2011).

One of the foundational theories employed in this study is Institutional Theory, which has been pioneered by scholars like DiMaggio and Powell (1983) and Meyer and Rowan (1977). This theory is particularly relevant to our exploration as it provides a conceptual scaffold for understanding how organizations respond to various external pressures, including societal norms, regulations, and competition. In the context of supply chain management, these pressures often manifest as an urgent need to adopt and implement innovative supply chain technologies (SCT). Institutional Theory provides a lens to understand not only why organizations adopt SCT but also how they utilize it in the face of these external pressures.

While a direct relationship between SCT Utilization and improved supply chain performance has been established in prior studies, the mediating role of SCT Utilization is less explored but extremely relevant. Here's why: organizations do not operate in a vacuum. The decision to adopt and effectively employ SCT is often a response to the institutional pressures they face. This includes conforming to industry standards, adhering to regulatory requirements, or maintaining a competitive edge. Consequently, SCT Utilization is not merely an internal strategy to boost performance; it is an adaptive response to external institutional pressures that govern an organization's behaviour.

Empirical research also supports this mediation model. A study by Asamoah et al. (2019) found that the utilization of inter-organizational systems, a form of SCT, effectively mediated the relationship between competitive pressures and supply chain capabilities and performance. This evidence suggests that institutional pressures do not directly impact performance but do so through

their influence on SCT Utilization. As a result, technology serves not just as an operational tool but as a strategic asset that can navigate the complexities of institutional pressures. Therefore, the linkage is hypothesized as;

H3: Supply Chain Technology Utilization mediates the relationship between Institutional pressures and supply chain performance

2.5.4 Link between Institutional Pressures and Business Performance

Multiple studies have reported a positive relationship between institutional pressures and sustainable firm performance, particularly waste reduction (Liu *et al.*, 2016; Ahmed *et al.*, 2019; Zhang *et al.*, 2020). Zhu *et al.* (2008) highlighted that normative and coercive pressures significantly impact the financial performance of organizations. On the other hand, Simpson (2012) argued that businesses that do not realize the benefits of technology innovation are at a disadvantage in the market competition. Utilizing technological resources can enable a business to better predict and respond effectively to institutional pressures, thus enhancing its overall performance. In the current competitive environment, the pressure to adopt technology is a driving force for organizations to improve their performance.

It has been shown by several studies that institutional pressures have a positive impact on business performance. Ye *et al.* (2013) found that institutional pressures, top managers' posture, and reverse logistics had a positive impact on firm performance. Additionally, other studies have also identified a relationship between institutional pressures and social and economic performance of businesses (Hong *et al.*, 2021; Jela, 2013; Li *et al.*, 2006). In a study conducted by Hu *et al.* (2014), with 248 enterprises as effective samples, it was found that institutional pressures positively influenced business performance. From the researcher's perspective, the Institutional Theory largely explains

the influence of institutional pressures on business performance. Therefore, this study hypothesizes that;

H4: Institutional pressures positively influences to business performance.

2.5.5 Mediation Role of SCT Utilization in the Linkage between Institutional Pressures and Business Performance

The institutional theory suggests that social expectations and norms create a rule-like form in the competitive business environment regarding appropriate organizational structures, operations, behaviors, and practices (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). It is critical for an organization to conform to these expectations and norms to maintain its legitimacy in the industry and secure access to vital and scarce resources (DiMaggio and Powell, 1983; Heugens and Lander, 2009). According to Jela's (2013) study, institutional pressures are likely to enhance the performance of an organization. The existing institutional structures and practices can also have the potential to improve an organization's overall performance.

Tarafdar and Qrunfleh (2017) and Zhang and Wang (2011) suggest that technology utilization directly contributes to organizational performance. IT efficiency has a significant impact on production success and profitability in businesses (Harland, Lamming and Cousins, 1999). From an organizational perspective, technology is an essential enabler of key processes by streamlining business operations (Henderson and Venkatraman, 1990). According to Barney (2018), supply chain technology adoption enhances organizational capabilities that can enable the firm to outperform its competitors. However, the adoption of technology alone may not provide a competitive advantage because of its widespread availability in the market; only when technology is embedded into the organizational strategy can it provide sustainable benefits. Fink and Neumann

(2007) have suggested that technology utilization has direct and positive effects on organizational agility performance.

The present study adopts the Resource-Based Theory (RBT) to support the hypothesis that the utilization of supply chain technology mediates the relationship between institutional pressures and business performance. RBT emphasizes the significance of a firm's resources, capabilities, and competencies in determining its competitive advantage and performance. In the context of the relationship between institutional pressures, supply chain technology utilization, and supply chain performance, the RBT posits that the utilization of supply chain technology can act as a crucial resource that mediates the connection between institutional pressures and business performance. The institutional environment can influence the accessibility and acquisition of supply chain technology resources. The institutional pressures confronted by a firm can either facilitate or constrain the development and implementation of supply chain technology, consequently impacting the firm's supply chain performance. Nonetheless, the utilization of supply chain technology as a resource can offer the firm with a competitive advantage and improve its supply chain performance, thus mediating the adverse effects of institutional pressures on business performance. Therefore, this study hypothesizes that;

H5: Supply chain technology utilisation mediates the relationship between institutional pressures and business performance

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter provides the methodological considerations of this study. It outlines and describes the processes used in data collection and analysis and addresses ethical concerns relative to data collection in Ghana. It also defines the approach adopted and the conditions under which the various phases of the research was conducted. The chapter comprises of the research design, population, Sampling, data collection method, ethical considerations and data analysis.

3.2 Research Design

Research design refers to a structured plan that links collected data with a study's key research questions and ultimately leads to the drawn conclusions. Bakerm (2000) defined research design as a blueprint for conducting a study that aims to have maximum control over factors that may negatively affect the study's outcomes. The research design addresses four key issues in a study: what questions to study, what kind of data is relevant, what manner of data to collect, and how to analyse the data (Yin, 2003). A research design goes beyond just a work plan, rather its primary objective is to avoid a situation where the findings do not reflect the fundamental research questions being asked.

The research design thus deals with a rational problem and not a logical issue. It also defines how the researcher intends to address the crucial issues of representation and legitimization (Saunders *et al.*, 2009). The study adopted the survey research design. Survey research designs involve the assessment of feelings, opinions, and thoughts of study subjects through the administration of questionnaire instruments (Kankam, 2021; Kumatongo & Muzata, 2021).

The survey research design was chosen primarily because of the nature of the research questions the researcher seeks to find answers to. Again, the research design was chosen because it is less

costly to use, relative to reaching a large number of respondents in different geographic locations. Additionally, the design was chosen because it offers the assurance of producing honest responses due to the anonymity of respondents and is less likely to be influenced by the characteristics of the researcher (Behrend *et al.*, 2011).

3.3 Population/Sample and Sampling Technique

According to Naseri (2021), the study population refers to all elements that satisfy the criteria for inclusion in a study. It is generally a reference given to a large collection of items or objects representing the main focus of the study and the main reason for the research being conducted (Rahi, 2017). Researchers are often unable to test or survey every single person in a population due to time and cost constraints. As a result, the study focused on all managers of firms operating in the Accra metropolitan area.

The selection of Accra Metropolitan area as the focal point for this research study was motivated by its role as an economic and technological hub of Ghana. Accra houses a diverse range of businesses across various sectors, making it an ideal location to explore the complex interplay between institutional pressures, supply chain technology utilization, and performance. Its status as both the political and economic capital means that it is often at the forefront of policy decisions and technological innovations, offering a rich context for studying supply chain practices.

In addition, Accra's advanced infrastructure simplifies the logistics of data collection, ensuring both cost-effectiveness and timeliness. The city's concentration of target managerial roles relevant to supply chain activities also enhances the study's external validity. Taken together, these factors make Accra not just a convenient choice but a strategically significant one, enabling the generation of insights that are both locally grounded and broadly generalizable.

3.3.1 Sampling

Collins, Onwuegbuzie and Jiao (2007) pointed out that in determining the sample size, researchers need to take into consideration the nature of the research, the number of variables involved, how the analysis is to be done, sample sizes as used in similar studies, completion rate and resource constraints. Since this research sought to measure the performance implications of the institutional pressures and supply chain technology utilization, the researcher's focus in this study was on the supply chain of businesses of all sizes operating in the Accra Metropolitan Assembly. Thus, the unit of analysis for this study was the managers whose operations directly relate to their organizations' supply chain activities. As a result, this comprised managers from the company's procurement, stores, warehouse, operations and finance. The researcher reasoned that the presence of supply chain technology utilization in the study required the inclusion of ICT managers.

In this study, 394 questionnaires were distributed across all sizes including both small, medium and large-scale businesses operating in the Accra metropolis. The sample size was deemed relatively acceptable for conducting structural equation modelling. (Wolf *et al.*, 2013), offered sample size guidelines for analysing structural equation models, suggesting that a sample of 100 is considered small, 100 to 200 is medium, and then over 200 is considered significant. To select the right sample size for the study, a proper sampling technique is critical (Pandey and Pandey, 2021). Sampling techniques are classified into either probability or nonprobability techniques. Probability sampling gives each member of the population an equal opportunity to be selected in the sample, including random sampling, systematic sampling, and stratified sampling.

On the contrary, the nonprobability samples give some members of the population better chances of being selected in the sample than other members of the population, and these include snowball

sampling, purposive and convenience sampling (Rueda *et al.*, 2020). The random sampling technique was adopted in this study.

The most basic sampling technique is simple random sampling, which involves selecting a group of study participants (a sample) from a larger group for research (Pandey & Pandey, 2015). Each person is picked totally by chance, and every member of the population has an equal chance of being chosen. Freedom from any form of classification errors and researcher biases are the biggest advantages of using the simple random technique, as it offers each element of the population the equal opportunity of being fairly chosen to represent the population (Mashiloane, 2015). The random sampling technique was chosen because businesses in the metropolis were randomly selected, and questionnaires were distributed randomly to different businesses irrespective of their size and core business, how long the business has been in operation, and their number of workers.

3.4 Data Collection Methods

Burns and Grove (2010) describe data collection as a structured way of collecting information related to the purpose of the analysis. Interviews, questionnaires and observation are just a few of the strategies that can be used to obtain survey data (Kothari, 2004). According to Mashiloane (2015), data collection is a crucial process of systematically gathering and measuring information on specific variables to answer research questions and evaluate outcomes. It is a critical component of research in all fields, with methods varying across disciplines but the focus on ensuring accurate and honest collection remaining consistent. The primary objective of data collection is to capture high-quality evidence that can facilitate in-depth data analysis and enable the generation of a convincing and credible response to research questions. In view of this, questionnaires were chosen as the sole instrument for primary data collection in this study.

According to Burns and Grove (1993), a questionnaire is a printed self-report form devised to elicit information through written responses from selected cases. Data collection with the aid of questionnaires was used to collect data on institutional pressures, supply chain technology utilisation, supply chain performance and business performance. Questionnaires were administered and collected personally by the researcher to ensure a high response rate. Most of the items in the questionnaires were closed-ended, which made it easier to compare the responses to each question. To measure the variables in this study, a 5-point Likert scale was used, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). This scale assumes that each statement has equal value, weight, or significance in representing opinions about the issues being measured (Kimberlin and Winterstein, 2008).

A structured questionnaire was deployed in this study. The questions were developed and adopted from previous studies. The questionnaire consisted of five sections; information on the business in Section A, institutional pressures in Section B, supply chain technology utilisation in Section C, supply chain performance and business performance in Section D and the demographic profile of the respondents in Section E. Institutional pressures categorised into three sub-variables, Coercive, Mimetic and Normative, were measured using 12 questions adopted from (Teo *et al.*, 2003; Khalifa and Davison, 2006). Section B focused on the utilisation of supply chain technology using five items adapted from the literature. On the other hand, Section C focused on supply chain performance was measured by three main categories; supply chain reliability, flexibility and efficiency, all together measured using 14 items adopted from (Asamoah *et al.*, 2019). Also, Section D measured business performance, measured with four questions adapted from (Li *et al.*, 2006). Finally, Section E section focused on the demography of the respondents.

3.5 Reliability and Validity

The Cronbach Alpha and the composite reliability value were utilized to examine the reliability of the measurement devices in this investigation. Scales with multi-point items can be reliably assessed using the Cronbach Alpha method in quantitative studies. The measure's level of reliability is indicated by the Alpha value, which varies from 0 to 1. In general, the closer alpha is to 1 (or 0), the more reliable the test is. Composite reliability was used to test the instrument's internal consistency (Fornell and Larcker, 1981).

Additionally, the discriminant validity was evaluated using the Fornell and Larcker Criterion and HTMT. The method uses the correlations among the variables of the study to evaluate the validity of the instrument. The requirement is for the square root of the minimum average variance extracted to be greater than the largest inter-construct correlation (Fornell & Larcker, 1981). However, the Fornell and Larcker Criterion alone does not provide conclusive evidence for discriminant validity, according to Henseler *et al* (2015). Therefore, three Heterotrait-Monotrait Ratio (HTMT) criteria were used to support the validity. HTMT (Heterotrait-Monotrait Ratio) is a statistical method used to assess the discriminant validity of a set of measures. To use HTMT, the researcher first estimates a set of confirmatory factor analysis (CFA) models, with each model testing the discriminant validity between two constructs. The HTMT ratio is then calculated as the heterotrait-monotrait ratio of correlations between the constructs in the model. The HTMT ratio should be less than 0.85 to demonstrate discriminant validity.

3.6 Ethical Considerations

The researcher has a moral obligation to strictly respect the rights of participants who are expected to provide the relevant information needed for this study (Streubert-Speziale and Carpenter, 2011).

Merriam (2013) emphasizes the need for contemporary researchers to give adequate attention to ethical issues related to research. The primary concerns in setting codes of ethics in social investigations and ethical considerations in the presentation of findings and protecting the rights of participants, according to Hesse-Biber and Leavy (2011). Creswell and Creswell (2017) state that ethical considerations are an important component of any research study.

To ensure ethical considerations were employed in this study, the principle of participant protection was adhered to. Trust was established between participants and the researcher, and their rights were respected, enabling them to provide the appropriate data required. The nature of this study made ethical consideration an important aspect, as access to information or knowledge about a specific firm or enterprise may result in the loss of a specific advantage or level of insecurity if revealed to others.

Other ethical issues employed in this study included, but were not limited to, informed consent, confidentiality, anonymity, and privacy. Informed consent was essential for participants to receive a clear statement of what this research is about, what it involves, and what their part in it will be, and a request for permission to administer questionnaires was sought before the instrument was administered.

Confidentiality and anonymity were also ensured to protect the identity of participants. Polit and Beck (2017) suggest that confidentiality means no information that the participant discloses is made public or available to others, and everyone involved in the interview was offered the option of remaining anonymous. Permission was also sought from all participants before recording an interview, and the anonymity of participants included in this study was protected. These were further resolved by making it impossible to link aspects of data to a particular person or firm.

Participants were also given the freedom to determine the time, extent, and general circumstances under which the information required was shared. In this study, no names were attached to the information obtained, and participants were informed that the outcome of this study would be used for research purposes only.

3.7 Data Analysis

The data analysis for this research is grounded in a systematic, multi-phase approach designed to ensure rigor, reliability, and validity of the findings. The methodology consists of five primary phases, each with a unique role in the overall data analysis process. The goal of this detailed breakdown is to clearly outline each phase and how it contributes to the research aims.

Phase 1: Data Entry

The first phase involved the data entry process, where all the collected survey responses were entered into a Microsoft Excel spreadsheet. Each row in the spreadsheet corresponded to an individual respondent's answers, while each column signified a specific question or variable in the research. This organizational structure provided a clear and efficient way to manage the raw data, making subsequent steps smoother and less prone to errors.

Phase 2: Data Cleaning

Once all the data was entered, the second phase of data cleaning began. At this stage, the dataset was meticulously reviewed to identify any discrepancies, outliers, or missing values that could compromise the integrity of the analysis. Inconsistent or inaccurate entries were either corrected

or removed, depending on the nature of the error and its impact on the research objectives. This phase was crucial for enhancing the accuracy and reliability of the study's findings.

Phase 3: Descriptive Statistics

After ensuring the data's cleanliness, the next step was to generate descriptive statistics using IBM's Statistical Package for Social Sciences (SPSS) version 26. This software allowed for a comprehensive overview of the key research variables, such as institutional pressures, technology utilization, and supply chain performance. Moreover, it provided basic statistics like mean, standard deviation, and frequency distributions that offered preliminary insights into the characteristics of the sample population and the variables under study.

Phase 4: Confirmatory Factor Analysis (CFA)

Before testing the structural relationships among the variables, it was essential to validate the measurement model. This is done using Confirmatory Factor Analysis (CFA) executed in STATA. This phase was designed to assess the construct validity of the research instrument, ensuring that the questions actually measured the variables they were intended to measure. Factor loadings, Cronbach's alpha, and other statistical measures were evaluated to confirm the validity and reliability of the instrument.

Phase 5: Model Testing

Finally, the research model fit was tested using Structural Equation Modeling (SEM) techniques, again using STATA. This advanced statistical procedure allowed for simultaneous examination of multiple interrelated dependence relationships. Specifically, the SEM tests how well the observed data fits the hypothesized measurement and structural model, including direct and indirect

(mediating) relationships between variables. This phase is the pinnacle of the analysis, as it reveals the extent to which institutional pressures and technology utilization impact supply chain performance.

KNUST

CHAPTER FOUR

PRESENTATION OF RESULTS, ANALYSIS AND DISCUSSION

4.1 Introduction

The principal objective of the study was to examine the relationship between institutional pressures, supply chain technology utilisation, supply chain and business performance of firms in the Accra metropolis of Ghana. This chapter presents the analysis of the data gathered. The presentation is done in two main sections where the descriptive statistics are presented first and followed by the inferential statistics. The descriptives include the profile of the respondents as well as the firms surveyed as well as the descriptive analysis of the items measuring the various constructs of the study. Inferential statistics covered the validation of the constructs through Confirmatory Factor Analysis (CFA) and assessment of the measurement model.

4.2 Response Rate of the Study

In this study, a total of 500 questionnaires were distributed to various firms to gather data on their supply chain technology utilization and performance. Out of the 500 questionnaires sent out, 394 were considered valid and used for the analysis. This results in a response rate of 78.8%, which is

considered a relatively high response rate in survey research. A high response rate is desirable as it increases the representativeness of the sample and reduces the potential for bias in the results. In this case, the high response rate indicates that the sample used in the analysis is likely to be representative of the population of firms in the study area, providing a high level of confidence in the findings.

However, the response rate alone cannot guarantee the quality of the data collected. Other factors such as the design of the questionnaire, the sampling technique used, and the characteristics of the respondents should also be considered. Overall, the study achieved a good response rate which is a positive indication of the representativeness of the sample and the reliability of the results. Hair *et al.* (2010) further proposed that for structural equation modelling (SEM) as utilized in this study, the minimum sample size for a meaningful analysis should be 200 respondents or more.

Therefore, the valid responses of 394 (78.8%) as in this study was considered valid in relation to all the recommended minimum criteria proposed in the literature given the number of variables in the structural model analysis for evaluating the hypothesis of the study.

4.3 Descriptive Analysis

In this section, an initial analysis of the data obtained from the field was carried out to observe differences in the elements measuring institutional pressures, supply chain technology utilisation, supply chain performance and business performance. The presentation begins with the descriptive statistics of variables used in the study starting with the profile of respondents and the firms surveyed.

4.3.1 Demographic Result

Data was collected from individuals representing respondent firms. Specifically, the data collected included gender, age, educational qualification, position and working experience. Additionally, the demographics include the profile of the organizations surveyed which included information on the firm size, approximate revenue, industry, organizational type, and ownership. The results are presented in Table 4.1 and Table 4.2.

Table 4.1 Socio-Demographic Characteristics

Variable	Category	Frequency (<i>n</i>)	Percentage (%)
Gender	Male	293	74.4
	Female	101	25.6
Age (years)	20 - 30	14	3.6
	31 – 40	52	13.2
	41 – 50	198	50.3
	51 – 60	105	26.6
	61 and above	25	6.3
Educational Qualification	HND	39	9.9
	Bachelor’s degree	164	41.6
	Masters’ Degree	173	43.6
	PhD	1	.3
	Other	17	4.3
Position	CEO	59	15.0
	Director	94	23.9
	Deputy Director	88	22.3
	Manager	131	33.2

	Supervisor	22	5.6
Length of Service (years)	< 1	24	6.1
	1 – 3	12	3.0
	4 – 6	81	20.6
	7 – 9	107	27.2
	10 and above	170	43.1
<i>Total</i>		<i>394</i>	<i>100.0</i>

Source: Fieldwork 2022

The sample for this study was composed of managers of businesses of all kinds ranging from micro to large-scale enterprises operating in the Greater Accra Metropolis of Ghana (Table 4.1). To be included in the sample, however, the respondent must first be a manager in the firm and in addition, his role in the enterprise must be related to the operations, supply chain and or logistics activities of the enterprise. This requirement, therefore, allowed the researcher to eliminate those responses from persons whose role directly or indirectly had no relation to the operations and supply chain activities of the enterprise. For instance, persons who indicated they were the Human Resource Managers and Public Relations Officers of the enterprises surveyed were all deleted from the database.

The demographic result shows that out of 394 respondents utilized for the study, 293 (74.4%) were males whilst 101 (25.6%) were females. This shows the dominant nature of males within the selected firms for the study and by far the industry at large. This shows that the gender distribution in the supply chain industry in Ghana is heavily skewed in favour of the males against the females additionally pointing to the fact that there are more male managers of businesses in Ghana. This could be because of unconscious biases of boards when it comes to the selection of a person to

occupy managerial positions and also it could be that boards see such positions as demanding hence, prefers males over females.

In relation to age, the majority of them were between 41-50 years, representing 198 (50.3%), followed by 51 – 60 years representing (26.6%) and the least represented are those between 31 – 40 years representing 52(13.2%). The results of the study indicate that most of the participants were managers of enterprises between the ages of 41-50, representing 50.3% of the total sample. This suggests that the sample may be skewed towards a specific age demographic, potentially limiting the generalizability of the findings to other age groups. Additionally, the low representation of participants between the ages of 31-40 may also suggest a lack of participation from this demographic, which could also impact the generalizability of the results. It is important to consider these limitations when interpreting and drawing conclusions from the study's findings.

Concerning educational qualification, the result shows that the majority of the respondents hold master's degree representing 173 (43.6%), followed by those with first degree representing 164 (41.6%) and the least represented are those who are other representing 17 (4.3%). This result implies that most of the respondents in this study were highly educated, with a significant proportion holding a master's degree. This suggests that the population surveyed in this study is a group of managers who have a high level of education and likely have the knowledge and skills necessary to effectively implement and utilize supply chain technology. Additionally, this result also implies that the respondents in this study may have the ability to make informed decisions regarding the adoption and utilization of supply chain technology within their organizations. However, it is important to note that educational qualification alone does not necessarily guarantee effective technology adoption and utilization, other factors such as experience, job function and organizational culture also play a critical role.

Further, the result regarding the position shows that majority of the sampled respondents were managers representing 131 (33.2%), followed by directors representing 94 (23.9%) and the least represented are those who are supervisors representing 22 (5.6%). The implication of the result regarding the position of the respondents is that a significant number of the sampled population are in management positions. This implies that the population surveyed is experienced and has a good understanding of the subject matter being studied. This can be considered as a strength of the study as it increases the chances of getting accurate and reliable responses.

In relation to length of service, the result shows that majority of worked in their respective firms for over 10 years representing 170 (43.1%), followed by those with 7 – 9 years representing 107 (27.2%) and the lowest are those less than 1 year representing 24(6.1%). The results suggest that the majority of the respondents have a significant amount of experience working in their firms.

This may indicate that they have a good understanding of the organization's operations and can provide valuable insights on the supply chain performance. Additionally, a large percentage of the respondents have been working in the company for over 10 years, suggesting that they have a good understanding of the company's operations, and its supply chain processes. This could potentially lead to more accurate and reliable responses in the survey, as they are well-versed with the company's operations.

4.3.2 Firm Level Demography

Table 4.4 presents a detailed analysis of the firm level profile or organizational level results. The data shows that out of the total firms surveyed, 103 (26.1%) have employees between 100-500, 78 (19.8%) have employees between 60 – 99, and the least represented are those with less than 2000

employees, with only 23 (5.8%) firms falling under this category. The results suggests that that most of the firms surveyed have a moderate to large size workforce, with over 60 employees.

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Table 4.2 Firm Level Profile

Variable	Category	Frequency (<i>n</i>)	Percentage (%)
Number of employees	< 6	30	7.6
	6 – 29	50	12.7
	30 – 59	53	13.5
	60 – 99	78	19.8
	100 – 500	103	26.1
	501 – 2000	57	14.5
	> 2000	23	5.8
Approximate Ann. Income (.000.00)	< 40	21	5.3
	40 – 79	31	7.9
	80 - 199	83	21.1
	200 - 999	96	24.4
	1000 - 4999	58	14.7
	5000 – 20,000	31	7.9

	Above 20,000	74	18.8
Industry	Service Based	176	44.7
	Manufacturing	125	31.7
	Both	93	23.6
Ownership status	Sole Proprietorship	58	14.7
	Limited Liability	295	74.9
	Partnership	41	10.4
<i>Total</i>		<i>394</i>	<i>100.0</i>

Source: Fieldwork 2022

Table 4.2 presents the results on the demographic profiling of the firms surveyed. In terms of annual income, most firms surveyed (96 or 24.4%) have an approximate annual income of 200999. This is followed by those with an annual income of 1000-4999 (17.9%) and those with an annual income of 5000-9999 (16.3%). On the other hand, the least represented category is those with an annual income of less than 40, with only 21 (5.3%) firms falling under this category. The results suggests that the majority of the firms surveyed fall within the mid-size range in terms of annual income; suggesting that the study sample is primarily composed of medium-sized firms. Furthermore, it would be beneficial to conduct more research to understand the characteristics and performance of small and large firms in the industry.

The data also shows that most of the respondents were sampled from limited liability companies, with 295 (74.9%) of the firms surveyed falling under this category. This is followed by those in service-based industries, with 176 (44.7%) firms surveyed. The least represented category is those who are in partnership businesses, with only 41 (10.4%) of the firms surveyed falling under this category. The result implies that limited liability companies are the dominant business structure

among the firms surveyed, service-based industries are well represented, indicating that they may have some impact on the results of the study. On the other hand, partnership businesses are underrepresented, which may limit the generalization of the findings to this type of business structure.

The information is useful for understanding the economic and organizational characteristics of the firms in the region and provides a context for interpreting the results of the study. By analysing the distribution of the various factors such as number of workers, annual income, industry and so forth, provides gainful insights into the overall economic environment and the specific characteristics of the firms surveyed.

4.4 Descriptive Statistics

The next sections provide an overview of the study variables using descriptive analysis. As per the study framework, the study includes supply chain performance and business performance as the dependent variable and 2 independent variables. Participants responded to all the items on a 5point Likert scale, where 1 represents "strongly disagree" and 5 represents "strongly agree". To assess the levels of agreement for the variables, the study used mean scores along with the minimum and maximum values and the standard deviations. Scores below 2.99 were considered as indicating general disagreement, scores ranging from 3.00 to 4.00 were considered as neither agreement nor disagreement, and scores above 4.00 were considered as indicating general agreement.

Likert scales, where participants indicate their agreement or disagreement with a statement or a set of statements, are frequently used in social science research, such as this study (Saunders *et al.*,

2012). Research tends to use Likert scales with 4 to 7 points. Likert scales measure attitudes by requiring participants to express the level of their feelings towards the topic of interest. However, there is a debate surrounding the interpretation of responses obtained through these scales (Sullivan and Artino, 2013) because ordinal scale responses can be rated or ranked, but the distance between the responses is not quantifiable. This means that even though the responses are assigned numerical values, it is not possible to determine the distance between them, unlike with interval data where scores represent actual actions.

The debate surrounding the use of ordinal data lies in whether it can be treated as interval data. Means, standard deviations, and parametric statistics, which rely on data that are normally distributed, are commonly used to analyse interval data. However, when applied to Likert scale responses, these descriptive statistics may not be a clear representation of the data. For example, what does the average between "likely" and "nearly likely" mean? Additionally, if the responses are densely concentrated at either extreme, the mean may appear to be a neutral response, but this may not accurately reflect the data. Non-normal distributions of the response data can also result in a mean score that is not a reliable indicator of the data's central tendency.

The use of Likert scale data in social science research has been debated over the years due to its nature as ordinal data. While some researchers argue for using the median as the measure of central tendency, others propose using frequencies, contingency tables, chi square tests, the spearman rho assessment, or the Mann-Whitney U test instead of parametric tests that require interval data. However, it has been shown by Norman (2010) that if the sample size is adequate and the data is normally distributed or close to it, parametric tests can be used and are generally more robust than non-parametric tests. Despite any violations of statistical assumptions such as a normal distribution of data, parametric tests tend to give the correct result. Researchers typically handle the limitations

of Likert scale data by creating multiple items and grouping them into a survey scale to calculate a total or mean score.

The result from descriptive statistics is presented in congruence with the major variables of the study namely institutional pressures, supply chain technology utilization, supply chain performance and business performance. The results are presented as follows.

Table 4.3 Descriptive Statistics –Institutional Pressures

Institutional Pressures	N	Mean	±SD
CP1: Our main customers that matter to us believe that we should use supply chain technologies.	394	4.08	1.11
CP2: We may not retain our important customers without supply chain technologies.	394	3.95	1.20
CP3: Our main suppliers that matter to us believe that we should use supply chain technologies.	394	4.19	1.09
CP4: Our suppliers that are crucial to us hotly wish us to use supply chain technologies.	394	4.16	1.07
CP5: Industry groups and associations encourage the use of supply chain technologies.	394	4.10	1.04
NP1: Supply chain technologies has been widely adopted by our suppliers currently	394	3.75	1.03
NP2: Supply chain technologies has been widely adopted by our customers currently	394	4.02	1.07

NP3: Supply chain technologies has been widely adopted by our competitors currently	394	4.17	1.07
MP1: Our main competitors that have adopted supply chain technologies benefited greatly.	394	4.14	1.04
MP2: Our main competitors that have adopted supply chain technologies are perceived favourably by customers	394	3.99	1.02
MP3: Our main competitors that have adopted supply chain technologies are more competitive	394	4.06	.99
MP4: The best performing firms in our industry use supply chain technologies	394	4.10	1.05
<i>Composite Mean</i>		4.05	

Source: Fieldwork 2022

Table 4.3 describes the results of the descriptive statistics for institutional pressures among firms in Accra Metropolis, Ghana. A 5-point Likert scale, ranging from strongly agree (5) to strongly disagree (1) was used to evaluate the responses given by the respondents. The "CP" prefix stands for "Coercive pressure", the "NP" prefix stands for "Normative pressure", and the "MP" prefix stands for "Mimetic pressure". The composite mean is 4.05, indicating that the participants generally agreed with the statement that institutional pressures favour the use of supply chain technologies.

The highest mean scores are for customer and supplier pressure (CP1, CP2, CP3, CP4), with mean values ranging from 4.08 to 4.19 and standard deviations from 1.09 to 1.20. This suggests that the participants believe that their main customers and suppliers are significant influencers in encouraging the use of supply chain technologies. The mean scores for norm pressure (NP1, NP2, NP3) have a mean value ranging from 3.75 to 4.17 and standard deviations from 1.03 to 1.07. The results indicate that the participants generally agree that the wider industry has adopted supply chain technologies.

The mean scores for market pressure (MP1, MP2, MP3, MP4) have a mean value ranging from 3.99 to 4.14 and standard deviations from .99 to 1.05. The results show that the participants believe that the main competitors who have adopted supply chain technologies are perceived favourably by customers, more competitive, and benefit greatly.

Overall, the results suggest that firms in Accra Metropolis may be facing a high level of pressure from various institutions, such as government, regulatory bodies, and industry associations and that is compelling them to adopt various forms of technologies. These pressures may include compliance with laws and regulations, pressure to meet industry standards, and pressure to conform to societal norms and expectations.

Table 4.4 Descriptive Statistics –Supply Chain Technology Utilization

Supply Chain Technology Utilization	N	Mean	±SD
SCTU1: Electronic Data Interchange (EDI)	394	1.93	1.342
SCTU2: Enterprise Resource Planning (ERP)	394	2.00	1.346
SCTU3: Advanced Planning and Optimization (APO)	394	1.91	1.318
SCTU4: Data Capture Systems (e.g., barcode scanning)	394	1.93	1.262
SCTU5: Warehouse Management System	394	1.99	1.284
<i>Composite mean</i>		<i>1.95</i>	

Source: Fieldwork 2022

Table 4.4 presents the results of the descriptive statistics for supply chain technology utilization among firms in Accra Metropolis, Ghana. The participants were asked to rate their utilization of

various technologies on a scale of 1 to 5, where 1 means "not at all" and 5 means "to a very large extent".

The composite mean score of 1.95 suggests that the participants generally do not utilize these technologies to a large extent. The mean scores for each technology range from 1.91 to 2.00, with standard deviations ranging from 1.262 to 1.346, which indicates that the participants have low to moderate utilization of these technologies. The technology with the highest mean score is Warehouse Management System (WMS) with a mean score of 1.99, followed by Enterprise Resource Planning (ERP) with a mean score of 2.00. This suggests that these two technologies have higher utilization compared to the others. The lowest mean score is for Advanced Planning and Optimization (APO) with a mean score of 1.91.

This indicates that firms in Accra Metropolis have a weak level of supply chain technology utilization. This suggests that most of the firms in Accra Metropolis may not be fully utilizing technology to improve their supply chain processes, which could lead to inefficiencies and increased costs.

Table 4.5 Supply Chain Performance

Supply Chain Performance	N	Mean	±SD
SPREL1: Our firm with supply chain partners offers products that are highly reliable	394	3.42	1.21
SPREL2: Our firm with supply chain partners offers high quality products to our customers	394	3.65	1.28
SPREL3: Our firm and supply chain partners have helped each other to improve product quality	394	2.76	1.29
SPREL4: Our firm with supply chain partners increases the rate at which we fulfil customer orders	394	3.89	1.51
SPREL5: Our firm with supply chain partners increases our inventory turns	394	2.96	1.42
SPEFF1: Our firm with supply chain partners reduces inbound and outbound cost of transport	394	3.04	1.48

SPEFF2: Our firm with supply chain partners reduces warehousing and inventory holding costs	394	3.78	1.23
SPEFF3: Our firm with supply chain partners meets on-time delivery requirements for all product	394	4.17	1.24
SPEFF4: Our firm with supply chain partners reach agreed costs per unit as compared with industry	394	3.31	1.22
SPFLX1: Our firm with supply chain partners offers a variety of products and services efficiently	394	3.61	1.31
SPFLX2: Our firm with supply chain partners offers customized products and services with different features	394	3.55	1.26
SPFLX3: Our firm with supply chain partners meets different customer volume requirements efficiently	394	4.10	1.20
SPFLX4: Our firm with supply chain partners has short customer response time as comparison to industry	394	3.95	1.35
SPFLX5: Our firm with supply chain partners responds to and accommodates demand variations	394	2.90	1.41
<i>Composite mean</i>		<i>3.51</i>	

Source: Fieldwork 2022

Table 4.5 presents the results of the descriptive statistics for supply chain performance among firms in Accra Metropolis, Ghana. Using a 5-point Likert scale, ranging from strongly agree (5) to strongly disagree (1). The performance was evaluated using three key indicators: Reliability (SPREL), Efficiency (SPEFF), and Flexibility (SPFLX). The survey consisted of 14 items, each item measuring a specific aspect of the supply chain performance. The results show that the composite mean score was 3.51, which indicates a generally positive evaluation of the supply chain performance. The mean scores for Reliability (SPREL), Flexibility (SPFLX) and Efficiency (SPEFF) indicators are 3.48, 3.51 and 3.53 respectively.

In terms of Efficiency, the highest mean scores are for SPEFF3 (4.17), indicating that the firm's "supply chain partners meet on-time delivery requirements for all products". In addition, the firm's supply chain partners reduce inbound and outbound cost of transport (SPEFF1, M=3.04, \pm SD=1.48), reduce warehousing and inventory holding costs (SPEFF2, M=3.78, \pm SD=1.23), meet

on-time delivery requirements for all products (SPEFF3, $M=4.17$, $\pm SD=1.24$), and reach agreed costs per unit compared with the industry (SPEFF4, $M=3.31$, $\pm SD=1.22$). This suggests that the supply chain partners are contributing to the firm's cost-effectiveness and efficiency.

In terms of Flexibility, the firm's supply chain partners “offer a variety of products and services efficiently” (SPFLX1, $M=3.61$, $\pm SD=1.31$), “offer customized products and services with different features” (SPFLX2, $M=3.55$, 1.26), and meet different customer volume requirements efficiently (SPFLX3, $M=4.10$, $\pm SD=1.20$). The firm's supply chain partners also have a short customer response time compared to the industry (SPFLX4, $M=3.95$, $\pm SD=1.35$), which can lead to increased customer satisfaction and loyalty. This suggests that indicating that the firm's supply chain partners have room for improvement in responding to and accommodating demand variations.

In terms of reliability, the firm's supply chain partners offer products that are highly reliable (SPREL1, $M=3.42$, $\pm SD=1.21$) and high-quality products to customers (SPREL2, $M=3.65$, $\pm SD=1.28$). The lowest mean scores are for SPREL3 ($M=2.76$, $\pm SD=1.29$), indicating that the firm and its supply chain partners have not helped each other much in improving product quality. This indicates a strong commitment to product quality and reliability by the supply chain partners. It can be inferred that the firm's supply chain performance is generally positive, as the mean values for all 14 indicators are higher than 2.5 (except for SPREL3 and SPFLX5). The composite mean value of 3.51 is also higher than the benchmark value of 2.5, indicating an overall positive supply chain performance.

However, there is room for improvement in some areas, such as the firm and supply chain partners' ability to help each other improve product quality (SPREL3, $M=2.76$, $\pm SD=1.29$) and respond to

and accommodate demand variations (SPFLX5, $M=2.90$, $\pm SD=1.41$). These areas should be targeted for improvement to enhance the firm's overall supply chain performance.

In conclusion, it is worth noting that the supply chain of most firms in Accra Metropolis are performing well in terms of their supply chain processes and are able to meet customer demands, maintain efficient operations, and achieve their desired level of profitability. This indicates that the supply chain industry in Accra Metropolis is operating efficiently and effectively, which can contribute to the overall competitiveness of the business environment. However, there are areas that needs improvement.

Table 4.6 Descriptive Statistics-Business Performance

Business Performance	N	Mean	±SD
BP1: Our firm’s level of sales volume has increased over the past three years	394	3.22	1.63
BP2: Our firm’s profitability has improved over the past three years	394	3.52	1.44
BP3: Our firm’s market share has grown over the past three years	394	3.12	1.56
BP4: Our firm’s competitive position in the industry has increased over the past three years	394	3.16	1.57
<i>Composite Mean</i>		3.26	

Source: Fieldwork 2022

Table 4.6 shows the results of the descriptive statistics for business performance among firms in the study area. The responses were evaluated along a 5-point Likert scale, ranging from strongly agree (5) to strongly disagree (1). The overall mean score for the evaluation is [M = 3.26]. From the responses it could be observed all the individual indicators (BP1-BP4) have means greater than 3, which suggests that the majority of the participants perceive that the firm has experienced growth in sales volume, profitability, market share, and competitive position over the past three years. This indicates that firms in Accra Metropolis have a low level of business performance. The results suggest that most firms in Accra Metropolis may be struggling to achieve their desired level of profitability and growth and may be facing challenges in areas such as sales, customer satisfaction, and overall financial performance. This can be a significant burden for businesses and may limit their ability to grow and compete effectively.

4.5 Reliability/Validity and Confirmatory Factor Analysis (CFA)

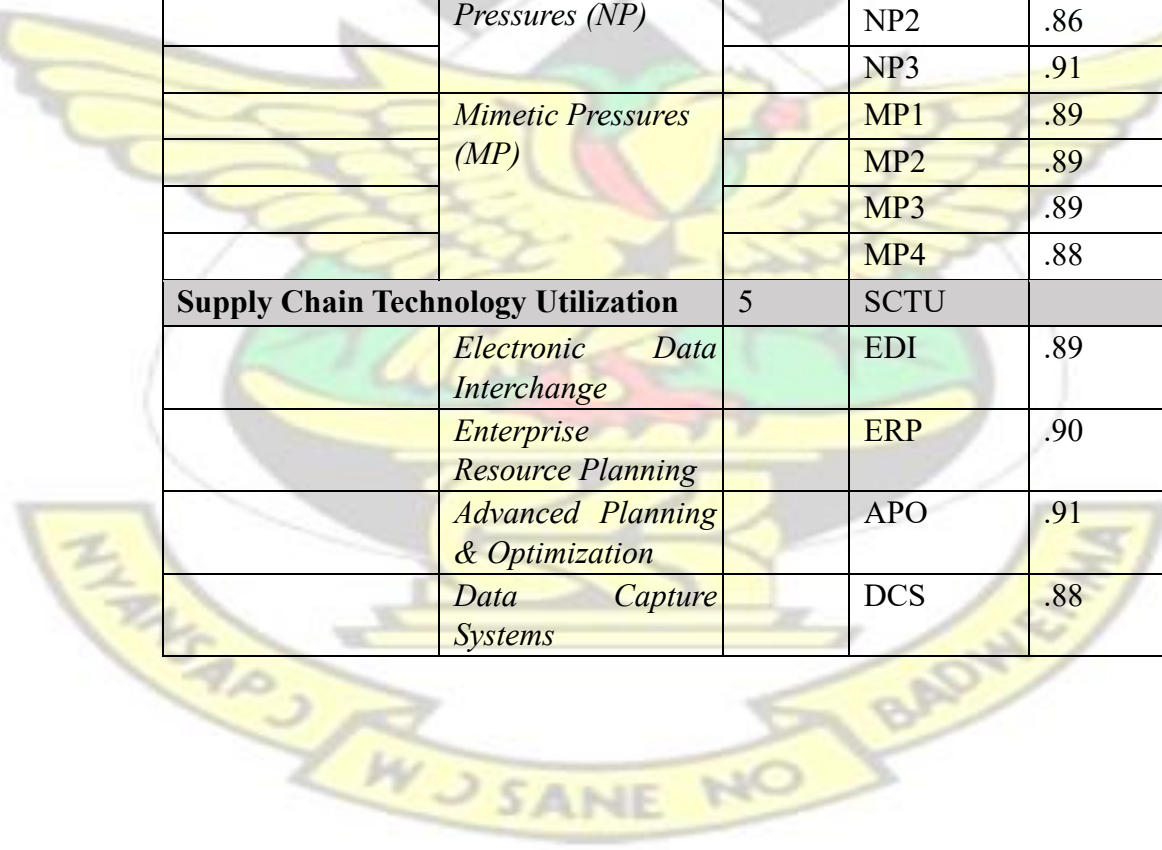
The study conducted several tests to ensure the reliability and validity of the data collected. This included a confirmatory factor analysis (CFA) to evaluate the measurement fit of the study variables, namely institutional pressures, supply chain technology utilization, supply chain performance, and business performance. The goodness of fit of the model was evaluated using various indices such as the ratio of chi-squared to the Degrees of Freedom (df), Root Mean Square Error of Approximation (RMSEA), Normed Fit Index (NFI), Comparative Fit Index (CFI), and Goodness-Of-Fit Index (GFI). These indices were used to assess the overall fit of the model. The results of the tests are summarized in Table 4.7.

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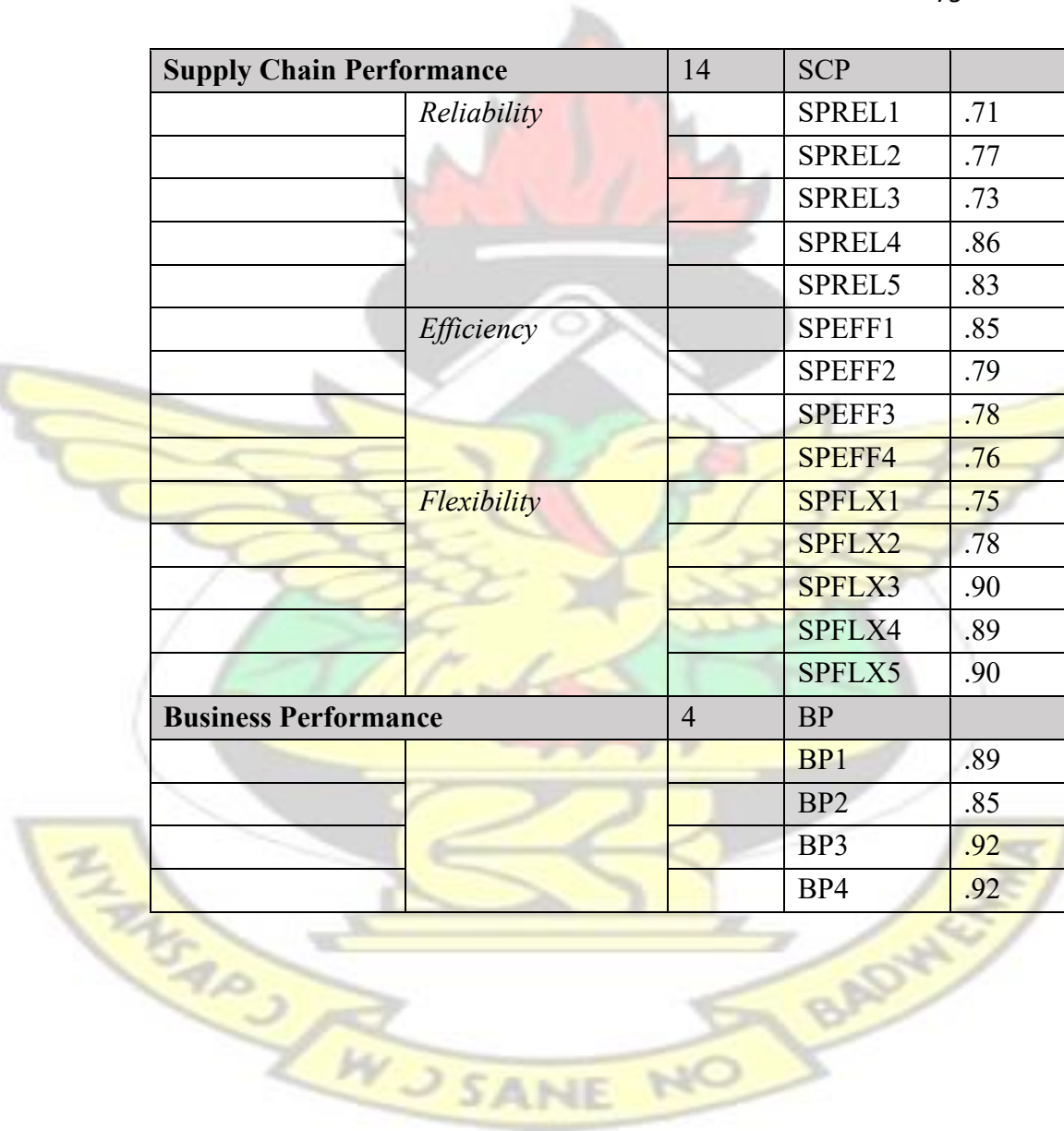
Table 4.7 Confirmatory Factor Analysis

Fit indices: [@=0.937; $\chi^2 = 1710.05$; d.f. = 299; $\chi^2/d.f.= 2.799$; RMSEA = .057; GFI = .961; CFI = .998, NFI =.973 and IFI = .992]								
Constructs	Constructs Categories	No of items	Item Code	Loading	Cronbach's Alpha	Composite Reliability	AVE	\sqrt{AVE}
Institutional Pressures		12	INP		.937	.845	.772	.861
	<i>Coercive Pressures (CP)</i>		CP1	.84	.939			
			CP2	.84	.939			
			CP3	.92	.936			
			CP4	.89	.936			
			CP5	.81	.936			
	<i>Normative Pressures (NP)</i>		NP1	.81	.937			
			NP2	.86	.936			
			NP3	.91	.936			
	<i>Mimetic Pressures (MP)</i>		MP1	.89	.936			
			MP2	.89	.936			
			MP3	.89	.936			
			MP4	.88	.936			
Supply Chain Technology Utilization		5	SCTU		.935	.836	.765	.853
	<i>Electronic Data Interchange</i>		EDI	.89	.935			
	<i>Enterprise Resource Planning</i>		ERP	.90	.935			
	<i>Advanced Planning & Optimization</i>		APO	.91	.935			
	<i>Data Capture Systems</i>		DCS	.88	.935			



	<i>Warehouse Management System</i>		WMS	.84	.935			
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Supply Chain Performance		14	SCP		.934	.810	.743	.821
	<i>Reliability</i>		SPREL1	.71	.935			
			SPREL2	.77	.935			
			SPREL3	.73	.934			
			SPREL4	.86	.935			
			SPREL5	.83	.934			
	<i>Efficiency</i>		SPEFF1	.85	.934			
			SPEFF2	.79	.933			
			SPEFF3	.78	.935			
			SPEFF4	.76	.935			
	<i>Flexibility</i>		SPFLX1	.75	.934			
			SPFLX2	.78	.934			
			SPFLX3	.90	.935			
			SPFLX4	.89	.934			
			SPFLX5	.90	.934			
Business Performance		4	BP		.937	.869	.798	.879
			BP1	.89	.937			
			BP2	.85	.935			
			BP3	.92	.937			
			BP4	.92	.937			



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Table 4.7 presents the results of the Confirmatory Factor Analysis (CFA) in terms of fit indices for the model. The main indicators of the study are institutional pressures (INP), supply chain technology utilization (SCTU), supply chain performance (SCP), and business performance (BP). The table shows that the adopted model fits the data, with the results indicating [$\chi^2 = 1710.05$, $df. = 299$, $\chi^2/df. = 2.799$, RMSEA = .057, GFI = .961, CFI = .998, NFI = .973, and IFI = .992]. The loading results for each of the main constructs as well as the items for evaluating each of the specified constructs were all significant at ($p < .001$, $p < .005$, $p < .010$), supporting the dimensionality of the constructs, as indicated by Creswell (2017).

The Cronbach's alpha test was also used to evaluate the reliability of the data. The composite reliability of the constructs was calculated by dividing the square of the sum of the factor loadings by the sum of the factor loadings and the sum of the error variables, following Creswell (2017). According to the CFA results, all factor loadings for items and constructs are above 0.6 and the Cronbach's alpha scores are higher than 0.7, which is considered acceptable for exploratory research. Anderson (2015) suggested that convergent validity examines the correlation between a new scale and other variables or measures of the same construct. The results from Table 4.7 show that all composite reliabilities for the study's main indicators or constructs are above 0.7 and the average variance extracted estimates are all above 50%.

The results of the study as presented in Table 4.7 demonstrate strong evidence of both convergent validity and reliability. According to Anderson (2015), convergent validity is measured by how well a scale is related to other variables and other measures of the same construct. The results in Table 4.7 show that the composite reliabilities for the major constructs or indicators are all above

0.7 and the average variance extracted estimates are all above 50%. Hair *et al* (2016) and Creswell (2017) also support these findings, suggesting that the results provide a clear indication of the study's validity and reliability.

Additionally, the discriminant validity was evaluated using the Fornell and Larcker Criterion and HTMT, as shown in Table 4.8. The results indicate that the constructs have moderate correlations with each other. The square root of the minimum average variance extracted is greater than the largest inter-construct correlation, meeting the requirement for discriminant validity (Fornell & Larcker, 1981). However, the Fornell and Larcker Criterion alone does not provide conclusive evidence for discriminant validity, according to Henseler *et al* (2015). Therefore, the researcher used three Heterotrait-Monotrait Ratio (HTMT) criteria to support the validity. The HTMT specificity ratio was 0.09, the HTMT specificity ratio was 0.85, and the HTMT inference score was between -1 and 1 ($-1 < \text{HTMT} < 1$), all indicating distinctiveness. The results in Table 4.8 show that all HTMT correlations for the constructs fall within the established range of ($-1 < \text{HTMT} < 1$), establishment of discriminant validity for the four key constructs of the study or model.

Table 4.8 Discriminant Validity

Fornell and Larcker Criterion				
Constructs	1	2	3	4
BP	0.963			
SCP	0.069	0.903		
SCTU	0.252	0.173	0.897	
INP	0.544	0.526	0.398	0.925
Heterotrait-Monotrait Ratio (HTMT)				
BP	0.075			
SCP	0.410	0.310		
SCTU	0.563	0.321	0.120	
INP	0.167	0.211	0.066	0.512

Source: Fieldwork 2022

4.6 Objective 1: Institutional Pressures and Supply Chain Performance

4.6.1 Introduction

The first study objective was to determine the relationship between institutional pressures and business performance. Table 4.9 provides the summary of the results from the regression analysis of the effect of institutional pressures on supply chain performance. The results highlight the importance of understanding how institutional pressures impact supply chain performance and can help businesses better understand and respond to the pressures they face.

4.6.2 Coefficients Result

The regression tool was employed to test the relationship between institutional pressures and supply chain performance. The study controlled for demographic variables in the estimation of coefficients result. This is presented in Table 4.9.

Table 4.9 Estimated Coefficients Result

Constructs	Hypothesized path	Direct Effect or Coefficient	T-value	Hypothesis testing
Control Variables				
Firm Size	Firm Size→ SCP	-.025	-.347	
Firm Type	Firm Type→ SCP	-.100	-1.354	
Ownership Type	Ownership Type→ SCP	.021	.277	
Key Variables				
Inst. Pressure (INP)	INP→ SCTU	.015	.288	Not Supported
Inst. Pressure (INP)	INP→ SCP	.256***	3.694	Supported

Notes: Dependent Variable (DV): Supply Chain Performance **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed).

Table 4.9 provides the summary of result from the regression analysis of the effect of institutional pressure on supply chain performance. The result shows that all the demographic variables such as firm size, firm type and ownership type failed to significantly impact on supply chain performance. The result shows that institutional pressure failed to exert significant effect on supply chain technology utilization indicated as [$\beta = .015$, $t = 3.694 > 0.01; 0.05; 0.10$]. This means the second study hypothesis that *H2: Institutional pressures positively relate to supply chain technology utilization* was not supported by the data. However, the result shows that institutional pressure exert significant positive effect on supply chain performance indicated as [$\beta = .256$, $t = 3.694 < 0.01; 0.05; 0.10$]. This shows that 25.6% of variance explains such impact. This support first study objective that *H1: Institutional pressures positively relate supply chain performance*.

The findings of this study have several implications for businesses and stakeholders in the supply chain industry. The study results suggest that firm size, firm type, and ownership type did not significantly impact supply chain performance. However, institutional pressure was found to have a significant positive effect on supply chain performance. The institutional pressure had a direct effect of 25.6% on the performance, which is supported by the results of the hypothesis testing ($t = 3.694$, $p < 0.01$). This suggests that businesses can benefit from improving their compliance with institutional pressures, as it can lead to improved supply chain performance. These results can inform the development of supply chain policies and practices, as well as provide guidance for firms looking to enhance their supply chain performance.

4.7 Objective 2: Institutional Pressures and Business Performance

4.7.1 Introduction

The study used a quantitative research approach to achieve its objective, and the data was collected from 394 companies in the Accra Metropolis in Ghana. The data was collected using questionnaires and analyzed using regression analysis. The results of the analysis are presented in Table 4.10 and Table 4.11.

4.7.2 Coefficients Result

The regression tool was employed to test the relationship between institutional pressures and business performance. The first estimated coefficient result covered the level of institutional pressures and business performance whilst controlling for demographic variables whilst the second estimated coefficient result covered the overall institutional pressure indicator and business performance.

Table 4.10 Estimated Coefficients Result

Constructs	Hypothesized path	Direct Effect or Coefficient	T-value
<i>Control Variables</i>			
Firm Size	Firm Size→ BP	.033	.738
Firm Type	Firm Type→ BP	-.038	-.790
Ownership Type	Ownership Type→ BP	.066	1.378
<i>Key Variables</i>			
CP	CP→ BP	.399***	7.586
NP	NP→ BP	.300*	3.370
MP	MP→ BP	.598***	6.260

*Notes: Dependent Variable (DV): Business Performance **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed).*

Table 4.10 summarizes the results of the regression analysis on the impact of institutional pressure on business performance. The results indicate that demographic factors like firm size, firm type, and ownership type have no significant effect on business performance. However, the results highlight the impact of institutional pressures on business performance, with coercive pressure having a significant impact [$\beta = .399$, $t = 7.586$, $p < 0.01$]; normative pressure also having a significant impact [$\beta = .300$, $t = 3.370$, $p < 0.01$]; and mimetic pressure having a significant impact [$\beta = .598$, $t = 6.260$, $p < 0.01$].

The results suggest that the presence of institutional pressure in the form of coercion is having a positive effect on business performance in the Accra metropolis. This is because the firms can effectively comply with the rules and regulations governing their respective industries. By doing so, they can improve their reputation and credibility, and avoid fines and other penalties that could harm their business performance. Similarly, the normative institutional pressure is helping organizations align their practices with industry standards and values. This is also leading to an improvement in their reputation and credibility. The mimetic institutional pressure is enabling firms in the Accra metropolis to imitate the behaviours and practices of major competitors and successful organizations in their industry. This is helping them maintain a competitive edge and improve their business performance.

The results implies that generally institutional pressures are positively impacting the business performance of firms in Accra Metropolis. Compliance with rules and regulations, aligning with industry standards and values, and mimicking successful behaviours and practices of competitors

all contribute to improved reputation, credibility and competitiveness, thus positively impacting the business performance.

Table 4.11 Estimated Coefficients Result

Constructs	Hypothesized path	Direct Effect or Coefficient	T-value	Hypothesis testing
Control Variables				
Firm Size	Firm Size→ BP	.025	.362	N/A
Firm Type	Firm Type→ BP	.017	.232	N/A
Ownership Type	Ownership Type→ BP	.064	.874	N/A
Key Variables				
Institutional Pressure (INP)	INP→ BP	.353***	5.248	Supported

Notes: Dependent Variable (DV): Business Performance **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed).

Table 4.11 provides the summary of result from the regression analysis of the effect of institutional pressure on business performance. The result shows that all the demographic variables such as firm size, firm type and ownership type failed to significantly impact on business performance. The result shows that institutional pressure exert significant effect on business performance indicated as [$\beta = .353, t = 5.248 < 0.01; 0.05; 0.10$]. This shows that 35.3% of variance explains such impact. This discovery supports the fourth study hypothesis that; H4: *Institutional pressures positively relate business performance.*

The results of the regression analysis have significant implications for the firms operating in the Accra metropolis. The findings highlight the importance of being able to effectively respond to institutional pressures to improve business performance. This implies that firms should pay close attention to the rules and regulations governing their respective industries and take steps to comply with these regulations. In doing so, they will avoid potential fines and penalties and improve their reputation and credibility. Additionally, the findings suggest that firms should align their practices

with industry standards and values to maintain their competitiveness. Furthermore, the results demonstrate that mimicking the behaviours and practices of successful organizations in the industry can have a positive effect on business performance. Overall, the results emphasize the importance of firms' proactive response to institutional pressures and the role this response can play in improving business performance.

4.8 Objective 3: Mediation Role of SCTU, INP and SCP

4.8.1 Introduction

The third study objective is to examine the extent to which supply chain technology utilisation influence the relationship between institutional pressure and supply chain performance. To achieve this objective data was obtained from 394 respondents from selected companies in the Accra Metropolis. Regression tools from structural equation model were carried out to analyse the data. The result is presented as follows;

4.8.2 Mediation Result

The result from the mediation analysis was carried out to test the third study hypothesis.

Table 4.12 Estimated Coefficients Result

Constructs	Hypothesized path	Direct Effect or Coefficient	T-value	Hypothesis testing
Control Variables				
Firm Size	Firm Size→ SCP	-.074	-1.273	-
Firm Type	Firm Type→ SCP	-.075	-1.213	
Ownership Type	Ownership Type→ SCP	.053	.855	
Key Variables				
Inst. Pressure (INP)	INP→ SCP	.281***	4.908	Supported

SCTU	SCTU→ SCP	.550**	9.488	Supported
Mediation				
SCTU	INP→SCTU→ SCP	.507***	8.342	Supported

Notes: Dependent Variable (DV): Supply Chain Performance **. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed).

Table 4.12 summarizes the results from the regression analysis examining the impact of institutional pressure on supply chain performance through supply chain technology utilization. The results indicate that demographic variables such as firm size, firm type, and ownership type did not significantly impact supply chain performance. The results show that institutional pressure has a significant effect on supply chain performance, as indicated by [$\beta = .281, t = 4.908, p < 0.01; 0.05; 0.10$]. Furthermore, the results also show that supply chain technology utilization (SCTU) has a significant effect on supply chain performance, as indicated by [$\beta = .550, t = 9.488, p < 0.01; 0.05; 0.10$].

Also, from the results it could be observed that, supply chain technology utilization (SCTU) mediates the relationship between institutional pressures (INP) and supply chain performance (SCP), as indicated by [$\beta = .507, t = 8.342, p < 0.01; 0.05; 0.10$]. This implies that 50.7% of the variables explain the mediation effect of supply chain technology utilization on the relationship between institutional pressures (INP) and supply chain performance (SCP). This supports the third study hypothesis: H3: *Supply Chain Technology Utilization mediates the relationship between Institutional pressures and supply chain performance.*

The study's outcomes reveal that institutional pressure has a meaningful and affirmative impact on supply chain performance. On the other hand, the firm's demographic characteristics, such as size, type, and ownership, do not significantly affect the supply chain performance. The study also finds

that the use of supply chain technology significantly and positively affects the supply chain performance and serves as a mediator in the link between institutional pressure and supply chain performance. The results suggest that businesses should adopt and utilize supply chain technology to improve supply chain performance, especially in the face of institutional pressure.

4.9 Objective 4: Mediation Role of SCTU, INP and Business Performance

4.9.1 Introduction

The fourth objective of the study was to investigate the impact of supply chain technology utilization on the relationship between institutional pressure and business performance. To accomplish this goal, data was collected through a questionnaire from 394 respondents of companies located in the Accra Metropolis. The data was analysed using regression techniques from a structural equation model.

4.9.2 Mediation Result

The result from the mediation analysis was carried out to test the fifth study hypothesis. The results are presented as follows;

Table 4.13 Estimated Coefficients Result

Constructs	Hypothesized path	Direct Effect or Coefficient	T-value	Hypothesis testing
Control Variables				
Firm Size	Firm Size→ BP	.018	.267	
Firm Type	Firm Type→ BP	.020	.278	
Ownership Type	Ownership Type→ BP	.068	.930	
Key Variables				
INP	INP→ BP	.356***	5.292	Supported
SCTU	SCTU→ BP	.071	1.038	Not Supported
Mediation				

H5. Supply chain technology utilisation mediates the relationship between institutional pressures and business performance.				
SCTU	INP→SCTU→ BP	.171***	4.309	Supported

Notes: Dependent Variable (DV): Business Performance **. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed). ***. Correlation is significant at the 0.10 level (2-tailed).

Table 4.13 summarizes the results of the regression analysis examining the impact of institutional pressure on business performance through supply chain technology utilization. The results indicate that demographic variables such as firm size, firm type, and ownership type have no significant effect on business performance. However, institutional pressure has a significant impact on business performance, as indicated by [$\beta = .356, t = 5.292, < 0.01; 0.05; 0.10$]. Unfortunately, supply chain technology utilization (SCTU) fails to have a significant effect on business performance. Nonetheless, the results suggest that supply chain technology utilization (SCTU) mediates the relationship between institutional pressures (INP) and business performance (BP) as indicated by [$\beta = .171, t = 4.309, < 0.01; 0.05; 0.10$]. This implies that 17.1% of variables explain the mediation effect of supply chain technology utilization on the relationship between institutional pressure and business performance. The findings therefore support the study hypothesis that: *H5: Supply chain technology utilisation mediates the relationship between institutional pressures and business performance.*

The study's results have real-world implications for businesses and supply chain management. They indicate that institutional pressure has a noticeable effect on business performance, but supply chain technology utilization (SCTU) does not. Nevertheless, the study found that SCTU mediates the link between institutional pressure and business performance. Therefore, SCTU may not have a direct influence on business performance, but it can alleviate the adverse impacts of institutional pressure on business performance. This information can be valuable for firms in

formulating strategies to enhance their supply chain management and business performance when facing institutional pressure.

4.10 Discussion of Findings

The study investigates the effect of institutional pressures and supply chain technology utilization (SCTU) on organizational performance, utilizing theories such as the Resource-Based View (RBV), Theory of Technology Diffusion, Institutional Theory, and Practice-Based View. The RBV asserts that organizations with valuable, rare, unique, and non-substitutable resources can gain a competitive advantage over their competitors. The Institutional Theory and Practice-Based View offer a theoretical basis for exploring the relationship between institutional pressures and SCTU on performance. Wu *et al.* (2012) suggest that institutional pressures can influence a firm's internal decision-making processes, necessitating alignment of their strategies with the requirements of the institutional environment.

While there has been significant research on institutional pressures, there is a lack of literature that explores the relationship between institutional pressures, supply chain performance, business performance, and the utilization of supply chain technology. Previous studies have suggested that institutional pressures can have a significant impact on a company's operational activities and overall performance. However, Brynjolfsson *et al.* (2019) argue that it is essential to examine this relationship while considering the utilization of SCT, rather than solely examining the direct relationship between institutional pressures, supply chain performance, and overall business performance. Despite this, there is limited research on this topic. The current study sought to bridge this gap by investigating the relationship between institutional pressures, SCT utilization, supply chain performance, and business performance in Ghana.

The results of the study indicate that institutional pressures have a notable influence on the performance of an organization, which aligns with the conclusions reached in earlier research by Handfield *et al.* (2002) and Green *et al.* (1998) that revealed how institutional pressures shape the environmental practices of firms. This supports the fourth hypothesis which states that institutional pressures positively influence business performance. This highlights the critical role those regulatory institutions play in ensuring that companies adhere to established standards and improve their operations. By implication, the result clearly shows the importance of institutional pressures from regulatory institutions in ensuring the business organizations do what is required to improve their operations. On the other hand, it could be argued that through the pressures firms prioritize compliance over other goals, such as sustainability or innovation which could have negative impacts on their long term performance. More so it is thought that firms may also face ethical dilemmas as they attempt to balance compliance with other values or goals. The result succinctly shows that pressure whether coercive, normative or mimics enhance the operations of firms thereby impacting on their performance.

Institutional theory by DiMaggio and Powell (1983) theorised that institutional pressures stimulate a certain kind of business practices where coercive pressures usually play a vital role in forcefully promoting acceptable industry behaviour by actors in the supply chain. More so, institutional pressures ensure that organizations comply with the concerns of social legality in business practices thereby enhancing the performance. The findings also support the study by Scott (2008) who reported that, within the context of institutional theory, external pressure encourages companies to follow and adhere to similar strategic actions.

The second objective of the study is to determine the relationship between institutional pressures and supply chain performance. The result shows that institutional pressure failed to exert

significant effect on supply chain technology utilization. This means the second study hypothesis that *H2: Institutional pressures positively relate to supply chain technology utilization* was not supported by the data. This clearly shows the weak level of utilization of supply chain technology amongst the organizations in the Accra Metropolis. This also suggests that despite pressure from regulatory institutions, supply chain technology utilization is weak in relation to operations of firms in Accra Metropolis. Furthermore, the findings is suggestive that there may be other factors of the firm that are more influential in driving organizations' decisions to adopt and utilize supply chain technology.

Contrary, the result shows that institutional pressure exert significant effect on supply chain performance. This support first study objective that *H1: Institutional pressures positively relate supply chain performance*. The results of the study demonstrate that institutional pressures have a significant impact on the supply chain performance of firms in the Accra Metropolis. This is consistent with the findings of previous research conducted by Droge *et al.* (2004) who reported a positive relationship between institutional pressure and supply chain performance. Institutional theory, as proposed by DiMaggio and Powell (1983), posits that institutional pressures can encourage certain business practices, and coercive pressures may compel supply chain actors to behave properly. Studies have shown that businesses adhere to institutional norms to improve their supply chain performance through the adoption of industry standards (Sarkis *et al.*, 2010). Zhang and Yang (2016) investigated the drivers and performance outcomes of green adoption in China and found a positive impact of institutional pressures on supply chain performance. These findings suggest that firms that effectively respond to institutional pressures are more likely to achieve better supply chain outcomes, potentially due to their ability to comply with regulations and industry standards, which may improve the efficiency and effectiveness of their supply chain.

The third study objective was to examine the extent to which supply chain technology utilisation influence the relationship between institutional pressure and supply chain performance. The study found that institutional pressure exerts significant effect on supply chain performance. In addition, the result also shows supply chain technology utilization (SCTU) exerted significant effect on supply chain performance. Despite this, the result shows that supply chain technology utilization (SCTU) mediates the relationship between institutional pressures (INP) and supply chain performance (SCP). This therefore supports the third study hypothesis that; *H3: Supply Chain Technology Utilization mediates the relationship between Institutional pressures and supply chain performance*. By implication the finding suggests that supply chain technology utilization is very critical when it comes the linkage between institutional pressures and supply chain performance. This implies that supply chain technology utilisation plays a key role in the relationship between institutional pressures and supply chain performance such that supply chain technology utilization pave way for organizations to increase their output and advance with stakeholders, which have transformed the way firms operate, bringing innovation to the production process (AlMulhim, 2021).

The finding supports the study that technological utilization increases performance suggestively by affording innovative techniques in the supply chain operation (Chege *et al.*, 2020; Basheer *et al.*, 2019). Obara *et al* (2015), found that at its simplest, technology that can support SC operations is one that leads to improvements in productivity, routine operations, and logistical activities in the SC network. As a result, Martín-Peña e al. (2020) and Windahl (2015) posited that technological modernization of a firm improves its supply chain performance and generates more returns. Again, SCT utilization expands organizations' knowledge management capability across the supply chain,

which, in turn, can be beneficial for firms to improve their delivery performance (Schniederjans *et al.*, 2020; Wu and Chiu, 2018).

Ultimately, firms that are able to effectively implement and utilize supply chain technology may be able to better respond to institutional pressures and achieve better supply chain performance as a result. Additionally, firms be able to leverage on the technologies to mitigate any negative impacts of institutions pressures on the performance of the supply chain.

The fourth study objective is to examine the extent to which supply chain technology utilisation influence the relationship between institutional pressure and business performance. The study found that institutional pressure exerts significant effect on business performance. However, the result also shows supply chain technology utilization (SCTU) failed to exert significant effect on business performance. Despite this, the result shows that supply chain technology utilization (SCTU) mediates the relationship between institutional pressures (INP) and business performance (BP). The findings therefore support the study hypothesis that: *H5: Supply chain technology utilisation mediates the relationship between institutional pressures and business performance.* By implication it is clear that supply chain technology utilization is important in enhancing institutional pressure and business performance.

The finding supports the study by Jela (2013), claimed that institutional pressures has the propensity of enhancing the business performance of an organization. Existing institutional structures and practices also has the propensity of enhancing the overall performance of an organization. Despite this, Tarafdar and Qrunfleh (2017) and Zhang and Wang, 2011), claimed that technology utilisation directly relates to organizational performance. Barney (2004) points out that supply chain technology adoption cultivates organizational capabilities that enable the firm to

outperform its competitors. Jela (2013), observed that the increasing role of supply chain technology contributes significantly to supply chain performance.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The relationship between institutional pressures, the utilization of supply chain technology, supply chain performance, and business performance is a crucial area of investigation (Handfield *et al.*, 2002; Green *et al.*, 1998). Institutional pressures play a significant role in shaping the operations of companies and their overall performance (Oliver, 1991). These pressures can be seen as either normative, mimetic or coercive, and organizations must adjust their practices to conform to these expectations (Zietsma *et al.*, 2014; Chiu and Sharfman, 2011).

Supply chain technology utilization is a critical aspect of business operations that can improve supply chain performance and enhance overall business performance (Handfield *et al.*, 2002). The integration of technology into the supply chain process can streamline operations, increase efficiency, and provide valuable insights into performance (Green *et al.*, 1998). In recent years, advancements in technology such as EDI, ERP and others have enabled even greater supply chain optimization and improved performance (He *et al.*, 2019; Guo *et al.*, 2021).

The link between institutional pressures and supply chain technology utilization can have a positive impact on supply chain performance and business performance (Oliver, 1991). Firms that align their supply chain practices with institutional expectations and leverage technology to improve their operations are more likely to achieve superior performance outcomes (Zietsma *et al.*, 2014; Chiu and Sharfman, 2011). This has been supported by recent studies that have found a positive

correlation between institutional pressures, technology utilization, and supply chain performance (Zhang *et al.*, 2020; Wang *et al.*, 2021).

The connection between institutional pressures, supply chain technology utilization, supply chain performance, and business performance is a vital area of inquiry (Handfield *et al.*, 2002; Green *et al.*, 1998). A better understanding of this relationship can provide valuable insights into how organizations can improve their operations, enhance supply chain performance, and drive business success (Oliver, 1991; Zietsma *et al.*, 2014; Chiu and Sharfman, 2011). The integration of advanced technologies and alignment with institutional expectations are key factors in achieving these goals (He *et al.*, 2019; Guo *et al.*, 2021; Zhang *et al.*, 2020; Wang *et al.*, 2021).

This study seeks to establish the linkage between institutional pressures, supply chain technology utilisation, supply chain performance and business performance of firms in the Greater Accra Metropolis of Ghana.

To this end, the quantitative research survey design was adopted, and questionnaires used as the main data collection instrument. Data was obtained from 394 supply chain managers of firms in the study area. The scale items used to measure the various constructs of the study were adopted from literature and verified for consistency.

In addition, the results of the study were analyzed and interpreted using a combination of descriptive statistics and inferential statistics. Descriptive statistics were used to summarize the characteristics of the sample and the central tendency and dispersion of the data. Inferential statistics were used to test the research hypotheses and to determine the relationships between the variables of the study. The structural equation modeling (SEM) approach was chosen to test the

hypotheses because it allows for a simultaneous examination of the relationships between multiple variables and provides estimates of the direct and indirect effects of the independent variables on the dependent variable. The findings of the study have implications for both practitioners and researchers and provide insights into the impact of institutional pressures on supply chain technology utilization, supply chain performance, and business performance. This chapter of the thesis presents the conclusion and recommendations of the study.

5.2 Summary of findings

The summary of the findings from the study is presented below in line with the specific objectives of the study.

5.2.1 The Relationship between institutional pressures and supply chain performance

Numerous research studies have shown the direct influence of institutional pressures on the environmental practices of firms (Handfield *et al.*, 2002; Green *et al.*, 1998) and supply chain performance (Rao and Holt, 2005). For example, King and Lenox (2002) found that institutional pressures aimed at reducing emissions and waste disposal lead to improved supply chain performance.

According to institutional theory, organizations should not only strive for profit, but also prioritize ethical considerations (Suchman, 1995). Institutional theory further posits that institutional pressures drive businesses to conform to socially acceptable practices (DiMaggio and Powell, 1983).

In this context, the study found that institutional pressure has a positive impact on supply chain performance. In testing this relationship, the impact of firm size, type and ownership were on

supply chain performance was also analyzed. The results indicated that neither firm size, type nor ownership had any notable effect supply chain performance of the firms surveyed.

5.2.2 The relationship between institutional pressures and business performance

The impact of institutional pressures on business performance has been widely studied and discussed in the academic literature. Many studies have reported a direct relationship between institutional pressures and waste reduction and shown that such pressures have a positive impact on sustainable firm performance (Liu *et al.*, 2016; Ahmed *et al.*, 2019; Zhang *et al.*, 2020). At the same time, the role of technology innovation in driving business performance cannot be ignored.

Simpson (2012) argues that businesses that do not take advantage of technological innovation are disadvantaged in the market competition. The increasing pressure to use technology to enhance competitiveness drives organizations to improve their performance. By leveraging technological resources, firms can better predict and effectively respond to institutional pressures, ultimately boosting their overall performance. In this study, it was found that institutional pressures have a positive impact on business performance. However, the effect of firm size, firm type, and ownership type on business performance was also tested. The results showed that these variables did not have a statistically significant effect on the performance of the firms surveyed.

5.2.3 The mediating effect of SCTU on the relationship between INP and SCP

SCT utilization has gained significance in recent times (Agrawal and Narain, 2018). Technology has transformed the way organizations operate by increasing output and improving interaction with stakeholders (AlMulhim, 2021). SCT utilization has also transformed supply chains into digital SCM to provide better services to customers (Fernández-Rovira *et al.*, 2021). Technological utilization has been shown to significantly improve supply chain performance through innovative

techniques (Chege *et al.*, 2020; Basheer *et al.*, 2019). The simplest technology that supports SC operations leads to productivity and efficiency improvements (Bag *et al.*, 2022). The technological modernization of an organization improves its supply chain performance and generates higher returns (Martín-Peña *et al.*, 2020; Windahl, 2015).

Against this background, the results indicate that SCTU mediates the relationship between INP and SCP; with SCTU influencing about 51% of the relationship between INP and SCP. Moreover, in examining this relationship the effect of firm size, firm type and ownership types on the SCP was also tested and the results showed that none of the variables had any significant impact on the performance of the supply chain of the firms surveyed.

5.2.4 The mediating role of SCTU on the relationship between INP and BP

Institutional theory suggests that in a competitive business environment, there are established social expectations and norms that serve as rules for appropriate organizational structures, operations, behaviors, and practices. Adherence to these expectations and norms is vital for an organization to maintain its legitimacy in the industry, as this guarantees its access to essential and limited resources (DiMaggio and Powell, 1983; Heugens and Lander, 2009). The study by Jela (2013) claimed that institutional pressures have the propensity to enhance the business performance of an organization. Existing institutional structures and practices also have the propensity to enhance an organisation's overall performance.

Against this background, the study found that SCTU mediates the relationship between INP and BP; with SCTU defining 17% of the relationship between Institutional Pressures and Business Performance. Again, the firm size, firm type and ownership types were also tested against business

performance and the results showed that firm size, type and ownership type of the firms had no statistically significant impact on the performance of the businesses.

5.3 Conclusion

Generally, the study attempts to shift the discourse beyond how institutional pressures influence firms' environmental and sustainability performance to how they impact supply chain performance and overall business performance in other jurisdictions, especially in Africa, specifically Ghana. The adoption of Institutional Theory (INT), Resource Based View Theory (RBV), and PracticeBased View Theory (PBV) shows a significant level of gaps existing in the literature. In view of this, the study discovered that institutional pressure significantly affects business performance. It was also found that institutional pressures positively relate supply chain performance. It was discovered that supply chain technology utilization mediates the relationship between Institutional pressures and supply chain performance.

Moreover, the study discovered that supply chain technology utilisation mediates the relationship between institutional pressures and business performance. The finding supports the institutional, Resource and Practice-based view theories. The finding shows the importance of institutional pressures and supply chain technology utilization in the operations of firms in Ghana. The way and manner in which regulatory institutions regulate firms' operations, and the firm's utilization of supply chain technology enhances their supply chain operations and overall performance. It suggests that technology utilization directly relates to organizational performance since it cultivates organizational capabilities that enable the firm to outperform its competitors.

5.4 Managerial Implications of the study

The findings of this study would have several important implications for managers. First and foremost, it was discovered that institutional pressure has a positive impact on supply chain performance. The managerial implication of this finding is that managers should take advantage of institutional pressures to improve their supply chain performance. This can be done by incorporating the social expectations and norms set by the institutional environment into their operations and practices. Firms that can effectively conform to these expectations and norms can benefit from increased legitimacy in the industry and greater access to important and scarce resources. Additionally, businesses should make efforts to maintain a positive reputation and attract public attention, as this has been shown to increase the perceived benefits of conforming to institutional pressures. As a result, managers should prioritize investments in technology innovation to meet institutional pressures and improve supply chain performance.

Furthermore, the finding that institutional pressures have a positive impact on business performance suggests that managers should be proactive in seeking to conform to institutional pressures in their operations. This may involve understanding the institutional norms and expectations in their respective industries, as well as the values and expectations of key stakeholders, such as customers, suppliers, regulators, and community members. By aligning their operations with these expectations, managers may be able to improve their legitimacy and reputation, which could, in turn, lead to better access to resources, increased customer trust and loyalty, and improved business performance.

Moreover, the finding is also suggestive that managers should consider the influence of institutional pressures in their supply chain technology utilization decisions. For instance, if a

particular technology is seen as aligned with the expectations of key stakeholders, it would to adopt and utilize, resulting in improved supply chain performance and business performance. Therefore, managers should consider the institutional context when making decisions about supply chain technology utilization, and work to ensure that the technologies they adopt and utilize align with the institutional expectations of the environment in which they operate.

Furthermore, the study results revealed that SCTU mediates the relationship between INP and SCP; with SCTU influencing about 51% of the relationship between INP and SCP. The managerial implications of this finding suggest that managers should prioritize the utilization of supply chain technology to effectively address institutional pressures and improve supply chain performance. These results highlight the importance of technology in mediating the relationship between institutional pressures and supply chain performance, with the utilization of supply chain technology accounting for a significant portion of that relationship. This emphasizes the need for managers to invest in technology and strive to effectively implement and utilize it to maximize its impact on supply chain performance. Additionally, the study's results can inform managers about the importance of monitoring and adapting to changes in institutional pressures, and continuously evaluating and optimizing their supply chain technology utilization strategies to drive business performance.

The study found that SCTU mediates the relationship between INP and BP; with SCTU defining 17% of the relationship between Institutional Pressures and Business Performance. This finding suggests that the adoption and utilization of supply chain technology can play a significant role in mediating the impact of institutional pressures on business performance. Managers can use this information to prioritize investment in technology solutions that can help mitigate the effects of institutional pressures and improve overall business performance. The results also indicate that

managers should focus on effectively using and integrating technology into their supply chain processes to optimize the relationship between institutional pressures and business performance. Additionally, managers may also consider reviewing their current technology utilization strategies to ensure they are aligned with institutional pressures and can effectively mediate their impact on business performance.

5.5 Theoretical Implications of the study

The study's results hold important theoretical implications for the areas of supply chain management and business performance. The study's findings provide concrete proof of the correlation between institutional pressures and supply chain performance, consistent with institutional theory. According to institutional theory, organizations are influenced by the institutional environment in which they function, and they must conform to the environment's norms, values, and expectations to be considered legitimate and gain access to important resources. The study's results confirm the notion that institutional pressures can have a favorable impact on supply chain performance, aligning with the institutional perspective on business performance.

Furthermore, the study indicates that the Resource-Based View (RBV) theory and the Technology Diffusion Theory offer theoretical support for the relationship between institutional pressures and supply chain technology utilization on supply chain performance. The RBV theory suggests that firms with valuable and unique resources can achieve a competitive advantage over their rivals, while the Technology Diffusion Theory posits that the institutional environment influences the adoption and use of technology. The study results suggest that the utilization of supply chain technology mediates the effect of institutional pressures on supply chain performance, providing further evidence of the importance of technology in enhancing organizational outcomes.

Furthermore, the results also contribute to the literature on the relationship between supply chain technology utilization and business performance. By showing the mediating role of supply chain technology utilization in the relationship between institutional pressures and business performance, this study adds to the growing body of literature on the role of technology in shaping business performance. This highlights the importance of considering the institutional context when making decisions about technology utilization and implementation, as well as the need to effectively use and integrate technology into business operations to optimize its impact on performance.

The findings of this study have important theoretical implications, as they contribute to our understanding of the relationships between institutional pressures, supply chain technology utilization, and business performance. These findings can inform future research in this area and can be used to develop new theories and models that take into account the interplay between institutional pressures and technology utilization in shaping business performance.

5.6 Recommendations

Based on the findings of the study, the following practical or policy recommendations are provided.

Firstly, for firms to be competitive, it is recommended that since supply chain technology utilisation among firms was found to be weak; firms should invest highly in innovative technologies to enhance their overall supply chain and business performance. By investing in innovative supply chain technologies, firms can enhance their supply chain and overall business performance, creating a competitive advantage in the market. Moreover, addressing institutional pressures through strategies and systems to contain such pressures and taking advantage of the benefits associated with these pressures, can also enhance the firm's competitiveness. Managers of

firms should, therefore, implement technologies such as ERP and CPFR systems which can help them to share information, coordinate activities, and collaborate more effectively, ultimately improving their supply chain and business performances.

Furthermore, it is recommended that managers of firms should consider the potential barriers to the adoption and utilization of these technologies, as well as the ethical implications of their responses to institutional pressures. Managers should also, ensure that their staff are trained in the application of supply chain technologies. Training sessions for staff and benchmarking against industry standards can help them to identify areas for improvement and potential opportunities for responding to institutional pressures. By effectively utilizing their resources and addressing institutional pressures, firms can create a sustained competitive advantage and improve their supply chain and business performance.

5.7 Suggestions for further Studies

Based on the findings, the following future research recommendations are provided.

- Future researchers should consider examining the linkage between institutional pressures on supply chain technology utilization and supply chain performance in the context of specific sectors of the economy.
- Additionally, future researchers should consider widening the scope to cover other geographic regions of the country to have a nationwide perspective on how institutional pressures impact technology utilisation and its intended influence on supply chain performance in other regions of the country.

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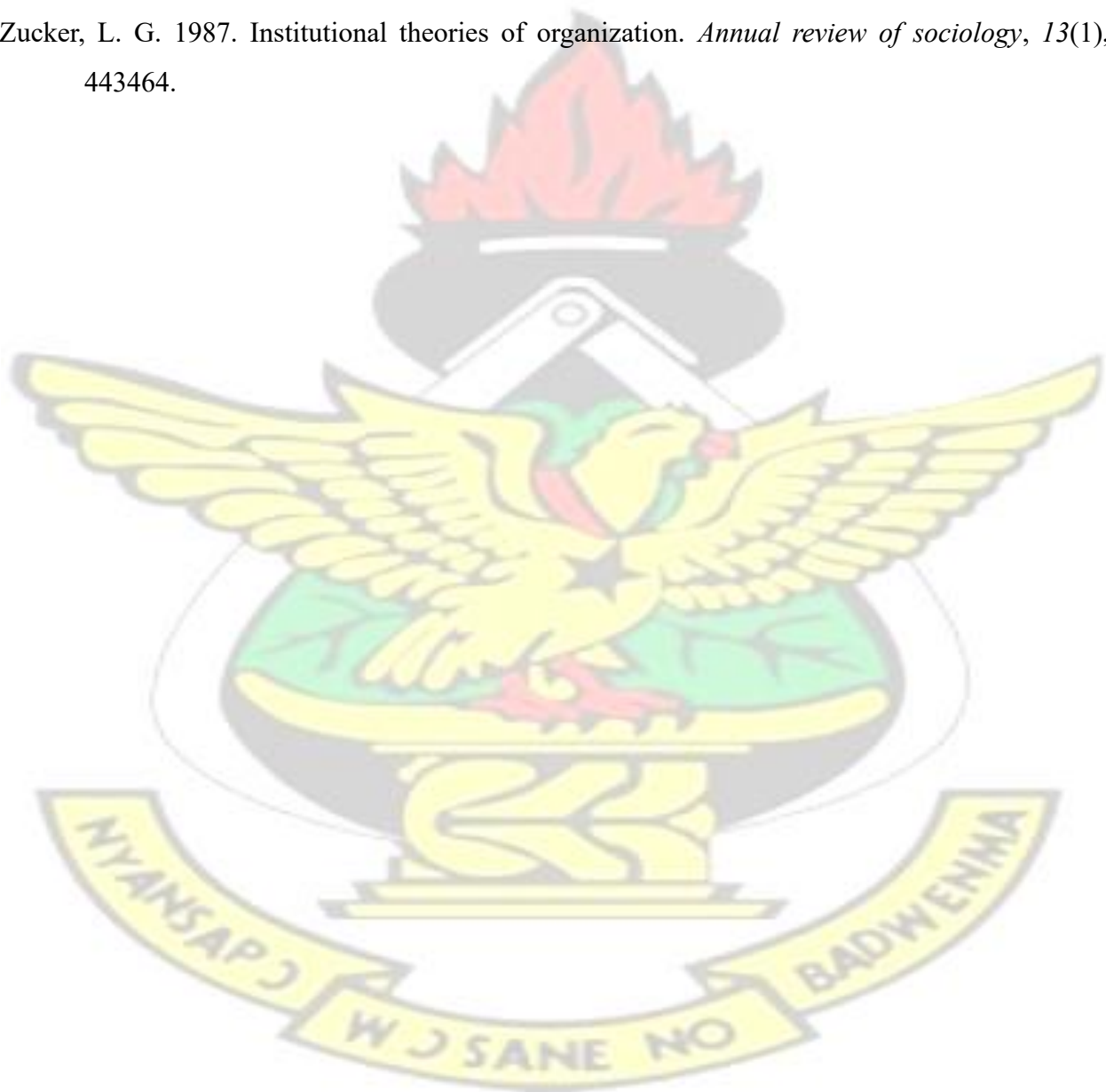
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APPENDIX A

QUESTIONNAIRE FOR MANAGERS

DESCRIPTION

This study is being conducted as part of an MPhil course being undertaken at KNUST. The main objective of this study was to examine the supply chain and business performance implications of institutional pressures and supply chain technology utilization among Ghanaian firms.

The study aims to obtain empirical evidence to advance knowledge and support public policy regarding how the pressures from regulatory institutions, agencies, and social entities impact on the businesses as well as how it influences the extent to which organizations adopt technology in their operations. Thus, your active participation as a manager of your organization would be appreciated as your responses will aid the researcher to contribute to knowledge and policy formulation.

PARTICIPATION

Your participation in this research is voluntary. You can withdraw anytime if you so wish. Your participation will only involve and related to the completion of this instrument. Just be rest assured you suffer no injury nor harm as you participate in this survey.

EXPECTED BENEFITIS

The information you provide will assist policymakers in policies that will better influence the level of pressures exerted on businesses such that it rather helps businesses grow; please contact the researcher via email at: boahenseth870@gmail.com or the supervisor on abusamgh@gmail.com.

PRIVACY AND CONFIDENTIALITY

All comments, as well as responses emanating from this survey will be treated confidentially. Your name or title is not required in any part or section of this survey. Please note that data gathered from this study may be used as comparative data in future studies or for a publication.

CONSENT TO PARTICIPATE

Submitting the completed survey is assumed to be an indication of your consent to participate in this study. If you have any enquiries, please do not hesitate to request my assistance. You can use a [✓] mark to indicate your responses for items with alternative responses.

Thank you for your time.

Seth Boahen

**SECTION A
FIRM DEMOGRAPHIC INFORMATION**

INSTRUCTIONS: *Please provide the following demographic information.*

Name of Company:	_____
Number of Employees:	<input type="checkbox"/> <6; <input type="checkbox"/> 6-29; <input type="checkbox"/> 30-59; <input type="checkbox"/> 60-99; <input type="checkbox"/> 100-500; <input type="checkbox"/> 501-2000; <input type="checkbox"/> 2000+
Approximate annual revenue in GHC:	<input type="checkbox"/> <40,000; <input type="checkbox"/> 40,000-80,000; <input type="checkbox"/> 80,001-200,000; <input type="checkbox"/> 200,001-1,000,000; <input type="checkbox"/> 1,000,001-5,000,000; <input type="checkbox"/> 5,000,001-20,000,000; <input type="checkbox"/> >20,000,000
Industry:	<input type="checkbox"/> Manufacturing; <input type="checkbox"/> Financial Services (Banking and Investments); <input type="checkbox"/> Oil and Gas; <input type="checkbox"/> Health; <input type="checkbox"/> Retail; <input type="checkbox"/> Construction; <input type="checkbox"/> Transportation; <input type="checkbox"/> Telecommunication; <input type="checkbox"/> Electronics and Computing Machinery; <input type="checkbox"/> Mining and Minerals; <input type="checkbox"/> Pharmaceuticals; <input type="checkbox"/> Automobile and Heavy Equipment; <input type="checkbox"/> Other (specify) _____
Organization type:	<input type="checkbox"/> State owned; <input type="checkbox"/> Privately owned
Organization Ownership:	<input type="checkbox"/> Sole Proprietorship; <input type="checkbox"/> Limited Liability Company; <input type="checkbox"/> Partnership; <input type="checkbox"/> Other (specify)
Job Position/Title of respondent:	_____

INSTITUTIONAL PRESSURES

INSTRUCTIONS: Indicate your opinion for the following statements by ticking in the right column under the 5-point Likert Scale with 1 = STRONGLY DISAGREE; 2 = DISAGREE; 3 = NEITHER AGREE OR DISAGREE; 4 = AGREE; 5 = STRONGLY AGREE

1 = Strongly Disagree; 2 = Disagree; 3 = Neither Disagree or Agree; 4 = Agree; 5 = Strongly Agree	1	2	3	4	5
CP1: Our main customers that matter to us believe that we should use supply chain technologies.					
CP2: We may not retain our important customers without supply chain technologies.					
CP3: Our main suppliers that matter to us believe that we should use supply chain technologies.					
CP4: Our suppliers that are crucial to us hotly wish us to use supply chain technologies.					
CP5: Industry groups and associations encourage the use of supply chain technologies.					
NP1: Supply chain technologies has been widely adopted by our suppliers currently.					
NP2: Supply chain technologies has been widely adopted by our customers currently.					
NP3: Supply chain technologies has been widely adopted by our competitors currently.					
MP1: Our main competitors that have adopted supply chain technologies benefited greatly.					
MP2: Our main competitors that have adopted supply chain technologies are perceived favourably by customers.					
MP3: Our main competitors that have adopted supply chain technologies are more competitive.					
MP4: The best performing firms in our industry use supply chain technologies.					

SECTION B

SUPPLY CHAIN TECHNOLOGY UTILIZATION

INSTRUCTIONS: Please indicate to what extent your company has been using the following technologies in the business operations with 1 = NOT AT ALL; 2 = TO A LITTLE EXTENT; 3 = TO AN AVERAGE EXTENT; 4 = TO A HIGH EXTENT; 5 = TO A VERY HIGH EXTENT

1 = Strongly Disagree; 2 = Disagree; 3 = Neither Disagree or Agree; 4 = Agree; 5 = Strongly Agree	1	2	3	4	5
Electronic Data Interchange (EDI)					
Enterprise Resource Planning (ERP)					
Advanced Planning and Optimization (APO)					
Data Capture Systems (e.g. barcode scanning)					
Warehouse Management System					

SECTION C

SUPPLY CHAIN PERFORMANCE

INSTRUCTIONS: Indicate your opinion for the following statements by ticking in the right column under the 5-point Likert Scale with 1 = STRONGLY DISAGREE; 2 = DISAGREE; 3 = NEITHER AGREE OR DISAGREE; 4 = AGREE; 5 = STRONGLY AGREE

1 = Strongly Disagree; 2 = Disagree; 3 = Neither Disagree or Agree; 4 = Agree; 5 = Strongly Agree	1	2	3	4	5
SPREL1: Our firm with supply chain partners offers products that are highly reliable					
SPREL2: Our firm with supply chain partners offers high quality products to our customers					
SPREL3: Our firm and supply chain partners have helped each other to improve product quality					

SPREL4: Our firm with supply chain partners increases the rate at which we fulfill customer orders					
SPREL5: Our firm with supply chain partners increases our inventory turns					
SPEFF1: Our firm with supply chain partners reduces inbound and outbound cost of transport					
SPEFF2: Our firm with supply chain partners reduces warehousing and inventory holding costs					
SPEFF3: Our firm with supply chain partners meets on-time delivery requirements for all product					
SPEFF4: Our firm with supply chain partners reach agreed costs per unit as compared with industry					
SPFLX1: Our firm with supply chain partners offers a variety of products and services efficiently					
SPFLX2: Our firm with supply chain partners offers customized products and services with different features					
SPFLX3: Our firm with supply chain partners meets different customer volume requirements efficiently					
SPFLX4: Our firm with supply chain partners has short customer response time as comparison to industry					
SPFLX5: Our firm with supply chain partners responds to and accommodates demand variations					
BP1: Our firm's level of sales volume has increased over the past three years					
BP2: Our firm's profitability has improved over the past three years					
BP3: Our firm's market share has grown over the past three years					
BP4: Our firm's competitive position in the industry has increased over the past three years					

SECTION D
RESPONDENT'S DEMOGRAPHY

1. Your Gender?
Male [] Female []
2. What is your age?

Less than 20 years [] 20-30 years [] 31-40 years [] 41-50 years 51
and above []

3. How long have you worked for your organization?

Less than 1 year [] 1-3 years [] 4-6 years [] 7-9 yrs [] 10
years and above []

4. What is your level of education?

SHS [] HND [] 1st Degree [] Master's degree [] Other []

Thank You

