

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

INSTITUTE OF DISTANCE LEARNING

**EXAMINING THE MODERATING EFFECT OF SUPPLIER
RELATIONSHIP MANAGEMENT ON THE RELATIONSHIP
BETWEEN SUPPLIER SEGMENTATION AND PROCUREMENT
PERFORMANCE: EMPIRICAL EVIDENCE FROM FIRMS IN THE
SEKONDI-TAKORADI METROPOLIS**

BY

BOATENG, SAMUEL

*A Thesis Submitted To the Department of Department of Supply Chain and Information
Systems, Institute of Distance Learning, In Partial Fulfilment of the Requirements for
Award of the Degree of*

MASTER OF SCIENCE (PROCUREMENT AND SUPPLY CHAIN MANAGEMENT)

NOVEMBER, 2023

DECLARATION

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

Boateng, Samuel (PG9453621)
& ID

Signature




Date

Student

Certified by

Dr. Samuel Bruce Rockson
Supervisor



Signature

Date

Certified by

Prof David Asamoah
Head of Department

Signature

Date

DEDICATION

I dedicate this thesis to my son Joel Obrempong Boateng and my wife Catherine Dansowaah

Boateng.

KNUST



ACKNOWLEDGEMENTS

I am grateful to God Almighty for this wonderful, project put together. My sincere gratitude goes to my supervisor Dr. Samuel Bruce Rockson for his enthusiasm and guidelines, for making this

thesis reality.

I am also grateful to my spiritual mother, Mrs. Emma Tawiah-Wilson popularly called “Auntie Emma” for her prayers and support during my masters.

God bless you all immensely.



ABSTRACT

The conceptual development of supplier segmentation in supply management has only partially developed as a systematic approach to supplier classification with particular analytical objects

relating to a strategic supply management objective on the premise that differential value creation and risk mitigation strategies are relevant. The moderating role of supplier relationship management (SRM) on the relationship between supplier segmentation and procurement performance is a major contribution that this study sought to make. The study focused on firms in the Sekondi-Takoradi metropolis in Ghana using procurement officers and supply chain/logistics officers as respondents for the study. Simple random and convenience sampling techniques were used to select a sample of 100 respondents. The findings revealed that there is high level of supplier segmentation in terms of capability and willingness at the selected firms. From the overall average assessment of procurement performance, it was revealed that there is high level of procurement performance at the selected firms. From the findings, it was realised that supplier segmentation had a positive and significant effect on procurement performance. Similarly, the supplier segmentation capability also had a positive and significant effect on procurement performance. However, the effect of supplier segmentation willingness to procurement performance was positive, but it was not statistically significant. With the moderating effect of supplier relationship management on the two dimensions of supplier segmentation, supplier segmentation capability moderated with supplier relationship management had a positive but insignificant effect on procurement performance. Similarly, the path from supplier segmentation willingness moderated with supplier relationship management had a positive but insignificant effect on procurement performance. This implies that supplier relationship management do not moderate the relationship between supplier segmentation and procurement performance.

TABLE OF CONTENT

Content.....	Pag
e	

DECLARATION	i
DEDICATION	i
ACKNOWLEDGEMENTS.....	ii
ABSTRACT	iii
TABLE OF CONTENT	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
CHAPTER ONE	1
INTRODUCTION	1
1.1 Background to the Study	1
1.2 Problem of the Study	4
1.3 Objectives of the Study.....	6
1.4 Research Questions.....	6
1.5 Significance of the Study.....	7
1.6 Research Methodology	8
1.7 Scope of the Study	9
1.8 Limitations of the Study	9
1.9 Organization of the Study.....	9
CHAPTER TWO	11
LITERATURE REVIEW.....	11
2.1 Introduction.....	11
2.2 Definition and Overview of Supplier Segmentation.....	11
2.2.1 Supplier Segmentation Capability	13
2.2.2 Supplier Segmentation Willingness	14
2.3 Overview of Supplier Relationship Management.....	16
2.3.1 Selection of Suppliers	17
2.3.2 Supplier Evaluation	19
2.4 Supplier Assessment Criteria	20
2.5 Procurement Performance.....	21
2.6 Supplier Segmentation and Procurement Performance	22
2.7 Supplier Relationship Management and Procurement Performance	23
2.8 Theoretical Literature Review	25
2.8.1 Transaction Cost Economics (TCE) Theory	25

2.8.2 Resource Based View (RBV) Theory	27
2.9 Conceptual Framework.....	28
2.9.1 The Study Conceptual Model	29
2.10 Hypothesis Development.....	30
2.10.1 Relationship between Supplier Segmentation and Procurement Performance	30
2.10.2 Moderating Role of Supplier Relationship Management in the Relationship between Supplier Segmentation and Procurement Performance.....	31
CHAPTER THREE	33
RESEARCH APPROACH AND METHODOLOGY	33
3.1 Introduction.....	33
3.2 Research Design	33
3.3 Population of the Study	33
3.4 Sample Size and Sampling Technique	34
3.5 Data Source and Collection Procedures.....	34
3.6 Measurement Instruments.....	35
3.7 Data Analysis	35
3.7.1 Multiple Regression Analysis	36
3.8 Validity and Reliability	37
3.8.1 Validity.....	37
3.8.2 Reliability	37
3.9 Ethical Consideration.....	38
3.10 Profile of Study Area	38
CHAPTER FOUR	41
FINDINGS, ANALYSIS AND DISCUSSIONS.....	41
4.1 Introduction.....	41
4.2 Demography of Respondents of the Study	42
4.3 Descriptive Statistics of Variables	44
4.3.1 Supplier Segmentation Practices	44
4.3.1.1 Supplier Segmentation Capability	44
4.3.1.2 Supplier Segmentation Willingness	45
4.3.2 Supplier Relationship Management.....	46
4.3.3 Procurement Performance.....	48
4.4 Tests of Reliability and Validity	49

4.4.1 Tests of Reliability	49
4.4.2 Exploratory Factor Analysis	50
4.5 Correlation Analysis	52
4.6 Regression Analysis.....	53
4.6.1 Hypothesis Testing and Findings	56
4.7 Discussion of Findings	57
4.7.1 Effect of Supplier Segmentation Practices on Procurement Performance.....	58
4.7.2 Moderating Effect of Supplier Relationship Management on the Supplier Segmentation Practices-Procurement Performance Link	59
CHAPTER FIVE	60
SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS	60
5.1 Introduction.....	60
5.2 Summary of Findings	60
5.2.1 Extent of usage of Supplier Segmentation among Firms in Ghana	60
5.1.2 Extent of Procurement Performance among Firms in Ghana	60
5.2.3 The Effect of Supplier Segmentation on Procurement Performance	61
5.2.4 The Moderating Effect of Supplier Relationship Management on the Relationship between Supplier Segmentation and Procurement Performance	61
5.3 Conclusion	62
5.4 Implications of the Study.....	64
5.4.1 Theoretical Implications	64
5.4.2 Practical Implications	64
5.4.2.1 Focus on Willing Suppliers.....	64
5.4.2.2 Supply Chain Collaboration among Suppliers.....	65
5.4.2.3 Recognizing the Role of IT in Supplier Segmentation	65
5.4.2.4 Training of Procurement Staff on Supplier Segmentation	65
5.4.3 Suggestions for Further Research	65
References.....	66
Appendix I	74
Appendix II.....	78
Appendix III.....	81

LIST OF TABLES

Table.....	Page
Table 4.1: Demography of Respondents	43
Table 4.2: Extent of Supplier segmentation Capability among Firms	45
Table 4.3: Extent of Supplier segmentation Willingness among Firms	46
Table 4.4: Extent of Supplier Relationship Management among Firms	47
Table 4.5: Extent of Procurement Performance among Firms	48
Table 4.6: Reliability of Measures	50
Table 4.7: EFA Results for Supplier segmentation Variables	51
Table 4.8: EFA Results for Supplier Relationship Management and Procurement Performance Variables	52
Table 4.9: Correlation Test Results	53
Table 4.10: OLS Regression Results	54
Table 4.11: Summary of Results	58

LIST OF FIGURES

Figure.....	Page
Figure 2.1: Conceptual Framework	30



KNUST



CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Among the factors that have contributed to the creation of the relationship model that seeks and works out ways to build long-term relationships between suppliers and consumers are technological growth, rapid globalization, innovation and technology and the implementation of deregulation policies (Muller, 2010). Subsequently, the relationship model is a composition of all activities channelled to the state, creation and preservation of positive relationship exchanges, Stevens argues (2011). In addition, the emergence of the customer-supplier dyad has changed the essence of the supplier-customer relationship dramatically. In comparison to obtaining value from exchanges based on a full exploration of what each party has to deliver in the trade and value development process, the indigenous supplier customer relationship focuses on obtaining quality at a reduced cost (Gudrun, 2009).

The most popular supply chain management activities, according to Cheng (2009), are supplier selection, assessment, segmentation, and development. These activities are guided by certain concepts such as trust, dedication, organizational culture, knowledge sharing and the capacity of chain parties to fulfill their responsibilities (Field & Meile, 2008). However, the chain is faced with hurdles that obstruct a smooth supply chain management process. Moore (2012) stresses that the partnership produced in the new model of supplier relationship management creates value in two ways: first, collaborative examples have the ability to generate value in working relationships, which in the long term enhances the value generated from each partner. Second, costs and

uncertainties are minimized and synergies in the supply chain can also create greater value relative to those in the industry.

It has been established that proper supply chain management reduces the potential risks and uncertainty a business can incur, leading to inventory level optimization and process cycle time, this performance is enhanced by happy customers and increased profit margins (Moore, 2012). Reasonable consideration must be given to the purchasing role in the case of manufacturing firms, since the costs of outsourcing and purchasing assume a greater proportion of the total cost of the manufacturing method.

A supply base's strategic segmentation is also a prerequisite for deciding the future direction in which various buyer-supplier exchanges will move forward and is an important operational 'input' feature of strategic procurement (Day et al., 2010). It is the stage at which decisions on the selection of suppliers can be calculated based on previous interactions with a supplier and the production of future value. Segmentation thus plays a key role in combining the operational supply management capabilities of the business with suppliers to optimize sustainable valuecreating opportunities (Sausen et al., 2005). It is also a one-way view of the relationship that is taken into account for both current and prospective suppliers (the customer reviewing the supply base, the supply network or the supplier), where the evaluation criteria (we refer to them as the segmentation bases) are used for group suppliers. This provides an insight into the structuring of various types of inter-company relationships and governance structures that vary from the duration of the contract to “broad and deep interactions among highly dependent relationship companies, going far beyond contractual obligations” (Gulati & Sytch, 2007, p. 38). A sound basis for segmenting, prioritizing and selecting suppliers in a network is therefore important because the choice of an inter-company governance

system is an integral component in creating and appropriating value from the supply base (Duffy, 2008).

Taking into account the importance of supplier relationship management as described above, attention is given to SRM system management (Stevens, 2011) and until recently the emphasis has been on specific topics such as purchasing strategy, supplier selection, collaboration and development of supplier segmentation, but there have been little studies that delves into the relationship and networking aspect (Field & Meile, 2008). Recent research has shown that within their own supply network, production organizations are a unit or actor. In particular, the business of the organization should be viewed from a network viewpoint, taking into account the importance of the commodity they produce in the upstream supplier network (Stevens, 2011).

This research would analyze the supplier classification approaches and establish a taxonomy of segmentation bases focused on the consumer evaluating the supply base from a purchase perspective. The current supplier classification literature, though limited in scope (Cox et al., 2002; Gelderman & Van Weele, 2005), provides a starting point for a holistic examination of current frameworks by evaluating the theoretical basis of their structures.

The study then examines how this supplier segmentation influence procurement performance. This has not been an area which has been examined empirically in Sub Saharan African context and Ghana in particular. As such, the findings of this study would unravel the extent to which supplier segmentation influence procurement performance among firms in Ghana. The contribution of the study would delve in to how the direct relationship between supplier segmentation and procurement performance is moderated by the extent of supplier relationship management. Existing studies in most situations look at the relationship between SRM and performance, but

SRM is not much considered as a moderating variable on any SCM relationship. The study would conclude with summary of findings, conclusions, recommendations and further research opportunities as well as managerial implications.

1.2 Problem of the Study

With rising global competition, several businesses concentrate on perfecting the core business while outsourcing supplier sub-processes (Muller, 2010). This has contributed to the recognition of the need for long-term partnership growth and maintenance through supplier relationship management activities (Ochieng 2014). The relationships of the length of the arm are based on relationships of confrontational negotiations that follow competitive terms and conditions as a means of generating economic efficiencies through cost reduction and quality considerations, among other things (Gordon, 2008).

According to Swink and Zsidisin (2006), as a structured approach to supplier classification with particular analytical objects relating to a strategic supply management goal, the conceptual implementation of supplier segmentation in supply management has only partially evolved on the assumption that differential value creation and risk reduction strategies are important. In the past, the leverage for organizations has been their ability to change suppliers at any time and retain no or minimal link with their suppliers (O'Brien, 2014).

This meant that the client was competitive with the different suppliers and faced the productivity of others. Cheng (2009) suggests that the mind of rivalry and not the mind set of partnership is the mind set in this relationship. Therefore, most of the time, the mutuality that would increase the

value of the exchanges lacks the need for successful supplier segmentation in such a relationship that would lead to good strategic supplier management and thus procurement performance.

Realization has come to businesses that need to work together for mutual gain to ensure their sustainability, consumers, suppliers, retailers and a host of business organizations that focus on value transfer with less power play. This study explores how this situation has impacted companies in Ghana and how they treat their suppliers. Trust, commitment to long-term collaboration and the willingness to share risks, as well as the advantage that comes with the venture, are among the supply chain attributes required to segment suppliers and strengthen supplier relationship management (O'Brien, 2014).

Studies by Reinartz et al. (2004) show that the introduction of SRM processes is associated with improved firm performance in two out of three points. In the business sector in Ghana, these stages were not explored and no research tested the strong and the low results. Shin et al. (2000) concludes that an increase in the SRM increases both suppliers and buyers' efficiency with a winwin situation still to be explored for the supply chain in Ghana.

Kuei et al. (2001) show that perceived changes in organizational performance are related to improvements in quality management activities of the supply chain and there is a statistically significant correlation between improvements in quality management of suppliers, customer relationships and supplier selection and quality trend groups. The expectations of performance themselves are not factual and further research may be needed. Supply chain management involves the simultaneous control of multiple relationships and researchers have come up with ways to create these business networks relationships as a way of keeping up with this pattern that will lead to value development.

Taking this into account, partnerships are intertwined as one influences the other much of the time in a contingent manner. This is why this study sought to explore the moderating role of supplier relationship management in the relationship between supplier segmentation and performance of procurement. This is an area which has not been explored in Ghana, and this study seeks to fill this gap in literature to make theoretical and managerial contributions.

1.3 Objectives of the Study

This study has a general objective of examining the moderating role of supplier relationship management on the relationship between supplier segmentation and procurement performance among firms in Ghana. However, the specific objectives are as follows;

1. To examine the extent of supplier segmentation practices adopted by selected firms in Sekondi-Takoradi metropolis in Ghana.
2. To examine the extent of procurement performance selected firms in Sekondi-Takoradi metropolis in Ghana.
3. To determine the effect of supplier segmentation practices on procurement performance among selected firms in Sekondi-Takoradi metropolis in Ghana.
4. To determine the moderating effect of supplier relationship management on the relationship between supplier segmentation practices and procurement performance among selected firms in Sekondi-Takoradi metropolis in Ghana.

1.4 Research Questions

1. What is the extent of adoption of supplier segmentation practices by selected firms in

Sekondi-Takoradi metropolis in Ghana?

2. What is the extent of procurement performance selected firms in Sekondi-Takoradi metropolis in Ghana?
3. What is the effect of supplier segmentation practices on procurement performance among selected firms in Sekondi-Takoradi metropolis in Ghana?
4. What is the moderating effect of supplier relationship management on the relationship between supplier segmentation practices and procurement performance among selected firms in Sekondi-Takoradi metropolis in Ghana?

1.5 Significance of the Study

A study on supplier segmentation and its effect on procurement performance is relevant as it would provide the needed information for policy makers of business organisations in the country about the extent of supplier segmentation and how they influence on their procurement performance. The findings would contribute immensely for different stakeholders of the business arena in Ghana.

The moderating role of supplier relationship management (SRM) on the relationship between supplier segmentation and procurement performance is a major contribution that this study seeks to make. Most prior studies look at either the direct effect of supplier relationship on firm performance or the direct effect of supplier segmentation on firm performance. Moderation or moderation effects have not been much explored. Therefore, this study seeks to bridge this gap and suggest managerial and theoretical contributions of the relationships explored.

Second, the study's significance is to fill the gap in literature in Ghana and other developing countries by providing other researchers with an insight into extensive field research to delve into supplier segmentation practices among firms and how it influences procurement performance. This study is also important because it is expected to contribute massively to efforts aimed at supplier segmentation policies at both departmental and corporate levels in organizations.

Lastly, the study would bring to light critical information and academic breakthrough that would fill the literature gap in sub-Saharan Africa with regard to the subject. The study would be of great benefit to the various stakeholders, particularly in the business sector and to academia as a whole.

1.6 Research Methodology

In an attempt to measure the effect of supplier segmentation on procurement performance, the study adopted a survey research design and a quantitative research methodology. Since quantitative research aims to measure a specific phenomenon, the study thus develops a conceptual framework that describes the relationships that the study aims to measure and test.

Supplier segmentation is the study's independent variable, while procurement performance is the dependent variable with supplier relationship management. Sampling techniques used for this study were purposive and convenience techniques to pick a sample of respondents for the study with firm-level as unit of analysis. In addition, secondary data were collected in the form of, among others, a review of key literature on supplier segmentation and procurement performance publications including journal articles, organizational policies and reports. Primary data, however, were the dominant source of data by using the questionnaire administered. Using relevant statistical tools such as frequency tables, location measurements and dispersion among others, the data collected were analyzed quantitatively. To check the relationships among the variables,

multiple regression was adopted. Finally, the data were interpreted and summarized to draw conclusions, and some useful recommendations were suggested.

1.7 Scope of the Study

The study was limited to examining the effect of supplier segmentation on procurement performance. The respondents to the study were top and middle managers in firms' procurement, logistics, manufacturing and warehouse departments in the Sekondi-Takoradi metropolis of Ghana. The study considered supplier segmentation as the independent variable with two dimensions including capability and willingness and procurement performance was the dependent variable. The moderating variable was the supplier relationship management, as it directly affected the procurement performance of supplier segmentation.

1.8 Limitations of the Study

Firstly, there was a challenge of apathy of some respondents in taking part of the study. As a result, the study only focused on firms in the Sekondi-Takoradi metropolis. Secondly, time constraints and inadequate financial and material resources are expected to be challenges that somehow limited the depth of coverage of the research work. A longer time and enough resources would help to unearth more findings especially within the entire Western region and the whole country at large determine how supplier segmentation practices affect procurement performance.

1.9 Organization of the Study

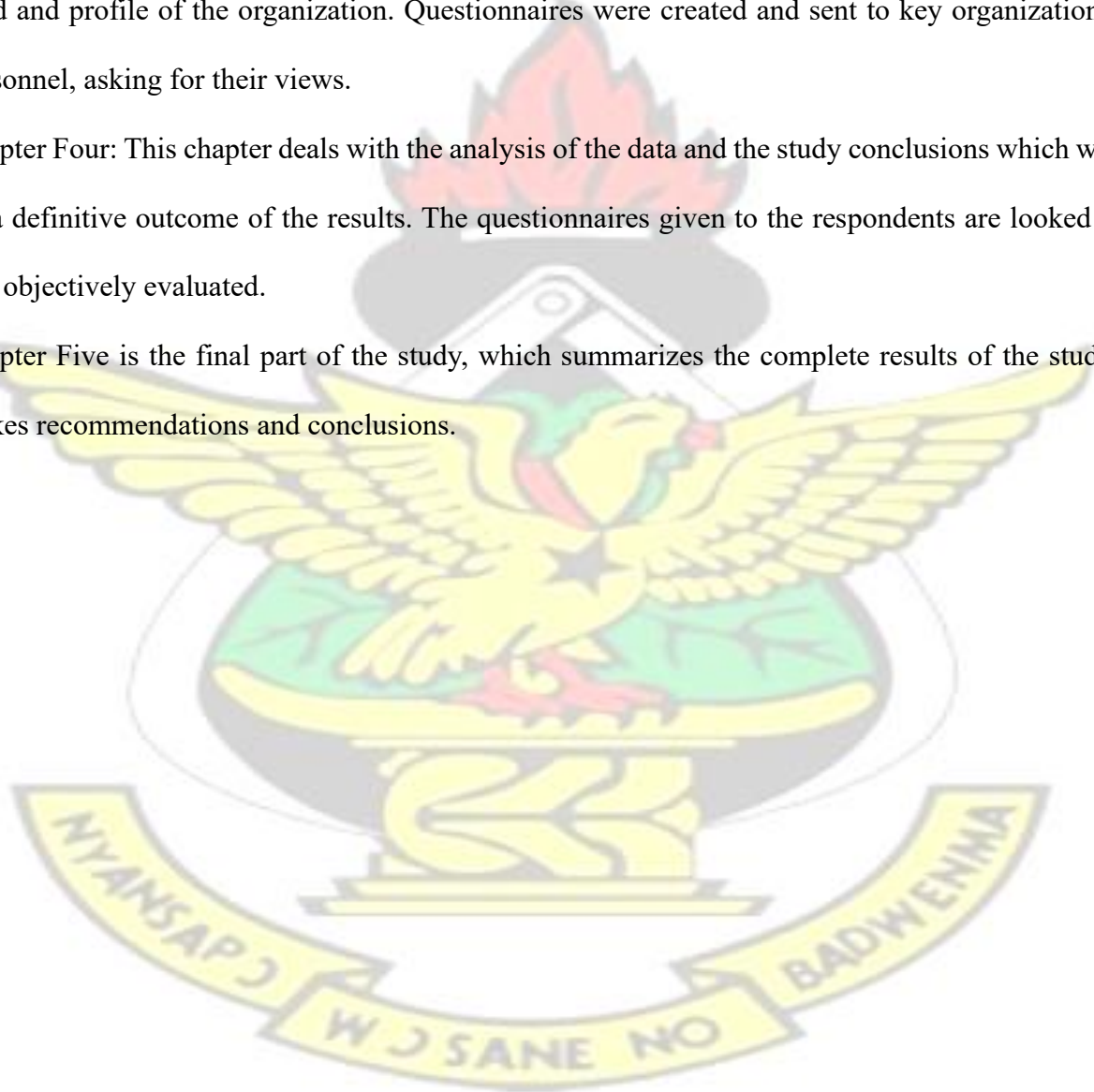
This research work is organized into five (5) chapters. These are briefly described below: Chapter One: This chapter covers the introduction, background of the study and statement of the problem, objectives of the study, research questions, justification of the study, brief of methodology, study scope, study limitations and organization of the study.

Chapter Two: Chapter Two also includes the theoretical structure for study and the literature review. Extensive work will be carried out by reading books related to this study; excerpts from other lengthy essays, articles, newspapers and other similar sources.

Chapter Three: The techniques used in this analysis are discussed here. The approach will include study architecture, population, sample size, sampling process, test instrument, analytical methods used and profile of the organization. Questionnaires were created and sent to key organizational personnel, asking for their views.

Chapter Four: This chapter deals with the analysis of the data and the study conclusions which will be a definitive outcome of the results. The questionnaires given to the respondents are looked at and objectively evaluated.

Chapter Five is the final part of the study, which summarizes the complete results of the study; makes recommendations and conclusions.



CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter is a summary of the related literature. It explains the history and progress of logistics, supplier segmentation practices, challenges in supplier segmentation, organizational performance, theoretical and empirical literature reviews and the study's conceptual framework.

2.2 Definition and Overview of Supplier Segmentation

Supplier segmentation is characterized as a process involving the division of suppliers into separate groups with different needs, characteristics or behaviour, requiring different types of inter-company relationship structures to realize exchange value (Kotler et al., 2005).

Once introduced, for supplier sustainability management, supplier segmentation as a marketing technique is suitable. Stratification as an instrument means classifying all suppliers on the basis of a different set of criteria in order to gain a clearer understanding of the supply base of a buyer and its important aspects and to make adjustments to the resource allocation in response to the results (Young, 2012). It involves providing all suppliers with a detailed and comprehensive image so that a buyer can divide them into meaningful groups, after which the buyer can concentrate their limited commitment resources on the appropriate group (Tania, 2011).

One can discriminate between the suppliers that offer you the highest risk or opportunity with a useful segmentation framework. Supplier segmentation enables an organization to divide suppliers into different groups with particular specific criteria, features or behavior (Thomas, 2012). Supplier stratification is part of the main components of supply relationship management strategies that include the differentiation between suppliers, the formation of supplier stratification teams, the cross-checking of supplier segments, the establishment of supplier opportunities, the promotion of

product and service agreements, the conclusion of agreements, the quantification of performance findings.

Supplier stratification helps organizations to build a structure that is assisted by multiple methods that can be applied to better handle diverse suppliers. In the development of a supplier relationship management system, it is of much relevance. One of the key performance obstacles is internal management silos, organizational challenges, and the consequent poor performance (SupplyChainBrain, 2013). It is also used as a resource allocation tool (Freytag & Clarke, 2001), with segmentation considered to be one of the most critical tasks for business marketers (Palmer & Millier, 2004). As a systematic approach to supplier classification with simple analytical objects linked to a strategic supply management goal, the conceptual evolution of supplier segmentation has only partially grown on the assumption that differential value creation and risk mitigation strategies are important (Swink & Zsidisin, 2006).

Suppliers segmentation may be a prerequisite for sustaining supplier relationships, used for ongoing assessment of relationships, or as a method for assessing the impact of past relationships. The goal behind all three applications is to manage risks and maximize exchange value, where management activities include not only individual supplier relationships, but the entire supplier portfolio as a supply base. Explicit consideration is given to the strategic role of different relationships, where dependencies and interdependencies are generated when the organization invests in and leverages relational resources (Wagner & Johnson, 2004, p. 719). A broad selection of segmentation bases is used as the basis for groups to be defined, represented and communicated. A supplier segmentation model (including segmentation bases) is used in order to distinguish the heterogeneity of the supply network or, more broadly, the supply base of an enterprise into various

categories for the selection and implementation of unique inter-organizational governance mechanisms. A segmentation basis is defined using stated analytical objects as a criterion used to assess and/or classify the potential or actual aspects of supplier interaction. Descriptors can be presented in the following segments that define the variables or features common to their membership. For example, Kaufman et al. (2000) focus on the supplier's buyer assessment as their study purpose, using a set of bases reflecting two assessment dimensions: partnership and technology that they use as the x and y axes of a portfolio model. Tang (1999) uses a different item of analysis (the component purchased from the supplier) that results in the choice of different measurement dimensions (the purchaser's bargaining power, the strategic value of the part) and their respective bases.

In order to avoid confusion, the researcher distinguishes 'segmentation base' from 'supply base,' which is the proportion of the supply network actively run by the focal company through contracts and the acquisition of parts, goods or services (Choi & Krause, 2006). In summary, supplier segmentation offers a way to analyze the supply base in order to evaluate the governance and relationship structures needed. Therefore, it is important to identify the strategic goals and objectives underlying supply base management first, as this will impact the design of the segmentation bases used for evaluation (Olsen & Ellram, 1997).

2.2.1 Supplier Segmentation Capability

Influenced by the principles of Just-In-Time, purchasing firms are constantly paying attention to suppliers' distribution capabilities. In addition, service efficiency requirements should always be included in the criteria for supplier assessment, since all transactions require some degree of service (Kilincei & Onal, 2011). Because the goal is to assess suppliers, in addition to the major

categories listed above, delivery capability and service capability are critical criteria. Sustainability has also become an important topic in recent years for corporations and their supply chains. As a consequence, sustainability will serve as another significant primary criterion for supplier evaluation (Rezaei et al., 2015).

To summarize, variables of capabilities can be grouped into the eight following groups:

1. Technical capabilities, e.g. capacity with regard to design, improvement of production
2. Product quality capability, e.g. quality assurance
3. Delivery Capability, e.g. level of capacity, order entry system
4. Intangible capability, e.g. credibility, brand awareness
5. Service Capability, e.g. follow-up, technical support
6. finance/cost capability, e.g. cost reduction program, price
7. Sustainable capability, e.g. reducing emissions
8. Organizational capability, e.g. control of human resources

2.2.2 Supplier Segmentation Willingness

There is limited classification for supplier willingness to collaborate due to its relative newness in this field (Rezaei et al., 2015). It should represent not only a willingness to change, but also a willingness to sustain and grow the relationship with the buyer, according to the concept of willingness suggested by Rezaei and Ortt (2012). Reviewing the related literature, we suggest the following readiness classification here:

1. Willingness for performance improvement
2. Willingness to share information
3. Willingness to count on one another
4. Willingness to participate in a long-term relationship

“Willingness for performance improvement” can be referred to as the commitment of the supplier towards self-improvement. Suppliers demonstrate their devotion to engaging in a longterm partnership by delivering quality goods or services. “Willingness to share information” is an important indicator of the willingness of a supplier to maintain and develop the relationship.

Besides, a good relationship requires trust and dedication, according to Morgan and Hunt (1994).

“Trust is defined as a desire to rely on an exchange partner in whom one has confidence” (Rotter, 1967). Confidence derives from the strong conviction that the other person is trustworthy and has a high degree of integrity synonymous with values such as continuity, reliability, fairness, transparency, etc. (Morgan & Hunt, 1994). Willingness is a crucial element of the conceptualization of trust, since trust is limited if one feels that a partner is trustworthy without being willing to rely on that partner (Moorman, Deshpande, & Zaltman, 1993). “Commitment to relationship” is defined as an enduring desire to maintain a valued relationship (Moorman et al., 1993). The assumption that an ongoing relationship with the customer is so critical for a supplier as to justify full efforts to sustain it (Morgan & Hunt, 1994) generates a desire to engage in a long-term relationship with the purchasing company for a supplier.

2.3 Overview of Supplier Relationship Management

A give-and-take mode mechanism is the leading factor for success in a buyer-supplier relationship, which means that the different roles performed by both sides must be played efficiently. From a buyer's point of view, several studies have shown that the key elements are based on the Morgan and Hunt (1994) model on trust and commitment issues. Performance measurement is sometimes carried out by the supplier's performance perception (Emmett & Crocker, 2009), or often by the buyer's intention for potential continuity. Level of interaction (Muller, 2010) and reduction of uncertainty are other variables that will determine the success rate as reported by other scholars (Cheng, 2009). The supplier viewpoint literature, on the reverse side, includes recommendations that tell something else.

The world of the global market has become almost borderless and so there is proof of cutting-edge approaches to the supply chain that have been effective in handling the whole process. Organizations are therefore looking at supply chain relationship management today as a way to improve competitive advantage. Cheng (2009) acknowledges that the supply chain strategy is the collection of strategies used to ensure that the manufacturer is incorporated into the production, warehousing and storage network to ensure that products are manufactured and distributed in the right quantities in the long term, in the right place, at the right time, with the intention of reducing costs while delivering the service at the same time.

This can be accomplished through the collection and growth of like-minded vendors and the ability of their customers to fulfill the requirements. In addition to enhancing efficiency through the establishment of strategic partnerships, costs are minimized for the company.

2.3.1 Selection of Suppliers

This is achieved with the assumption that the suppliers chosen have similar interests to the company pursuing a partnership. In addition, through shared objectives and ends, the mechanism is handled on an ongoing basis. On the other hand, when organizations share the same goals and values, along with teamwork and improved efficiency, they manage to deliver good results much of the time. Suppliers and businesses with a strategic relationship are collaborating for a shared purpose rather than selfish interests.

If the management of the supplier relationship is well done, this would lead to the growth and engagement of buyers, producers and suppliers and ultimately lead to an increase in the supply chain. The strategic focus must be coordinated and the supply chain partners socialized in order to be successful in selecting the supplier and cultivating a good relationship.

The choice of suppliers is a process by which businesses or firms discover, analyze and settle on key suppliers especially based on their materials. It is worthwhile to follow both the company's financial resources and its time, as it offers substantial benefits when selecting high-quality suppliers. It takes much longer to pick the correct supplier than to screen a pricelist chain (Crown, 2009). A company's choice depends on a broad range of variables, including value for money, value, reliability and operation. How an organization determines the value of these different variables will depend on the company's business objectives and approach. For a company to consider how its own prospective consumers decide about their buying decisions, a planned supplier selection strategy may also help (Gurler, 2005).

As a consequence, two main questions arise: (1) What preceding circumstances influence the introduction of a market-driven approach to selection? (2) How do such strategies affect suppliers'

performance? Two opinions have emerged supporting the option of suppliers (En Xie, 2012). The required selection of suppliers would ultimately influence the production of suppliers. In order to achieve good supplier efficiency, some researchers advocate market-oriented selection, stating its significance in the procurement of eligible suppliers. Other scholars, however, argue that relationship-based selection may have a constructive impact on supplier performance. Some researchers argue that the relationship between the approach to supplier selection and supplier efficiency may be complicated (Tan, 2002).

Buyers who are fixed to their current suppliers as a result of strong social relationships, according to En Xei (2012), can lack the advantages that other capable suppliers may offer, which can be obtained through market-oriented processes. It is necessary to choose the required suppliers for the business requirements in order to ensure that the company is able to supply its goods and services at the right time and at the right prices and in compliance with the company's quality standards. The business is likely to find the companies collaborating with it to meet the expectations of its clients while carrying out the selection criteria of a particular supplier. The true quality of the product at the correct price on time and the appropriate standard of service shall be included by the applicable manufacturer.

To create more productive supplier relationships, companies use supplier selection criteria to optimize the selection process and involve suppliers to improve decision-making in the design process and to continuously update their efforts. These two methods help businesses to improve collaboration, share their expertise, make informed decisions and improve performance of both manufacturers and suppliers.

It ultimately leads to a reduction in buying risks and increases the number of suppliers on schedule by following the required approach for the selection of suppliers. These risks include reputational risk, brand identity risk, distribution risk, monetary risk and risk of corporate stability. The supplier selection process ensures that the supplier sustainability commitment to a platform should be evident when adopted and these risks should be mitigated (Poulsan, 2013).

2.3.2 Supplier Evaluation

Frequently one of the company's most important concerns is the quality of raw materials or spare parts sourced from suppliers or contractors (Ashe-Edmunds 2014). Having suppliers that supply high-value parts or products is important for many manufacturers. Demand is also an important factor for producers, aside from the value of raw materials. This is due to their impact on the cost of final production. Although the purchasing costs do not include all the costs associated with supplies and final production, the procurement department may place additional costs on the manufacturer with poor quality of supplied products or delayed inventory delivery (Werner, 2013). It is therefore necessary to take into account all purchase costs, involving expenses resulting from poor quality, premature delivery and more, in addition to a unit price of purchased inputs, for the evaluation of suppliers.

Evaluating the capacities of a supplier before making a decision on the source of products or services is very constructive, but an evaluation platform may also apply to existing suppliers. In addition, the capacity and risks associated with existing suppliers must be periodically checked by a customer to maintain excellent quality performance, recognise upgrade opportunities and proactively fix problems that are likely to impact the future (Završnik, 1998).

Selecting companies with monetary and company steadiness increases the likelihood that even in tough times the relationships and relationship can continue. Companies with financial stability are likely to generate long-lasting partnerships, goods of quality and services for growth. Increasing of the requirements listed generates different advantages for a buyer. While identifying a supplier that possesses excellence in any category might be difficult or impossible, the crucial thing is to recognize suppliers who are the most excellent in producing the most significant benefits for the purchasing company. Accordingly, buying companies would likely achieve a combination of the above benefits depending on their priorities (Darren Ford, 2006).

2.4 Supplier Assessment Criteria

A set of criteria is normally required for the supplier's assessment and selection process (Cheraghi et al., 2004; Ho et al., 2010). Dickson's (1966) groundbreaking work lists 23 requirements that have been used to identify and evaluate suppliers. The topic of how to make better decisions in the supply process has been addressed by many researchers since then. More emphasis was initially given to quantitative parameters. Dempsey (1978), for instance, utilizes criteria of operational efficiency, such as size, compliance with requirements and execution.

Weber et al. (1991) followed the concept of Just in Time and included some less specific criteria such as manufacturing facilities and technological capacities among the most important criteria for supplier evaluation. Ellram (1990) used the term difficult to define easily observable quantitative criteria such as expense, non-conformity and quality of service, whereas soft criteria included variables such as strategic alignment and commitment.

In determining strategic providers with long-term partnerships, managers need to pay close attention to soft parameters, according to Kannan and Tan (2002). The authors argue that, given

the value of difficult criteria, soft conditions have a greater effect on the market share of the customer and the return on investment.

In the supplier selection and assessment approaches found in the literature, different parameters have been used. Techniques such as AHP and fuzzy variables allow numerical values to be calculated on the basis of soft parameter expert expectations (Ho et al., 2010; Chai et al., 2013). This is why many models depend solely on decision-makers' choices and expectations (Osiro et al., 2014; Liao et al., 2014; Rezaei et al., 2015). However, there should be no casting aside rough demands. Instead, the supplier base should be periodically evaluated using a combination of soft and hard criteria (Dyer et al., 1998; Gunasekaran; Kobu, 2007; Lockström et al., 2010).

2.5 Procurement Performance

Kariuki (2013) citing Chitkara (2005) defines success as a degree of accomplishment of a given undertaking. It relates to the prearranged objectives or goals that shape the task's parameters. Mutava (2012) argues that the procurement success of Kenya depends heavily on the feasibility and effectiveness of the tendering procedures. Creating values is the core of efficiency. The assets will continue to be made available to the organization as long as the value generated by the use of the contributed assets is equal to or greater than the anticipated value of those who contribute the assets, and the organization will continue to exist.

The critical overall performance requirements for any company, as specified by the resource provider, are therefore value creation (Carton, 2004). According to Basheka (2008), the quality and effectiveness of policies and procedures implemented by the organization during the selection of suppliers are the result of procurement results. Leenders and Fearon (2002) note that the need for a good supplier is underlined by purchasing rather than making decisions to increase quality,

lower inventories, integrate supplier and buyer structures and create cooperative relationships. Performance offers the foundation for a company to assess how far it is progressing towards its defined objectives, recognize areas of development and decide on future strategies in order to initiate performance changes. With that said, Lardenoije et al. (2005) argue that it is difficult to enhance procurement operations because only partial performance is taken into account on the basis of financial performance and neglects non-financial performance. They continue to add that performance in procurement is an interaction between various elements: skills, levels of staff and budget resources.

Organizations with little means of success in their operations, processes and strategies experience poorer efficiency, greater customer frustration and employee turnover.

2.6 Supplier Segmentation and Procurement Performance

Supplier segmentation is a step between the collection of suppliers and the management of supplier relationships and helps define different supplier classes based on their similarities (Rezaei & Ortt, 2013). The ability of an organization to strategically segment suppliers so that the benefits of both arms-length and partner models can be the key to the competitive advantage of future supply chain management (Dyer et al., 1996) and thus represents a strategic strategy for companies with a large number of suppliers. Zsididin and Ellram (2001) argue that partnerships with selected suppliers lead to mutual benefits, such as minimizing total costs, improving customer service, improving the ability to cope with changes, improving competitiveness and long-term competitive advantages in the industry.

In order to deal with the range, ambiguity and heterogeneity of the supply base, many organisations now have to distinguish between their suppliers, according to Gadde (2010). Manufacturing

companies compete with a wide variety of suppliers of varying levels of significance that need preferential treatment to push a business to the competitive edge. While the advantages of supplier segmentation have been demonstrated by many studies, little empirical evidence has been given to support this claim. The practice of supplier segmentation among firms needs to be understood in the Ghanaian context.

2.7 Supplier Relationship Management and Procurement Performance

Supplier relationship management, according to Mentzer (2012), is described as a holistic approach to managing the relationships between an enterprise and the organizations that supply the products and services it uses. Supplier Relationship Management (SRM) aims to streamline and make processes more effective between a company and its suppliers, much as the customer relationship management of CRM seeks to streamline and make processes between a company and its customers more efficient. SRM integrates both business processes and applications, which form part of the supply chain management information flow.

Supplier Relationship Management (SRM) aims to streamline and make processes more efficient between a company and its suppliers, as the customer relationship management of CRM seeks to streamline and make processes more successful between a company and its customers. SRM integrates both business processes and applications, which is part of the supply chain management's information flow. Spekman (2006) found that SRM requires the decision of how suppliers communicate with buyers. It is a mirror image of customer relations management. The principal goal of Supplier Relationship Management (SRM) is to establish two-way, mutually beneficial partnerships between a company and its suppliers (Saleemi, 2002).

Foster (2005) claimed that there are a range of advantages that businesses benefit effectively from managing SRM. O'Brien (2014) maintains that the management of the supplier relationship by the competitive advantage it can generate is often related to efficiency. The ongoing search for ways to gain competitive advantage has given SRM the millage it needs as a weapon to put a company ahead of its rivals. The competitive advantage produces persistently superior results as a measure of performance. This will allow a business to achieve superior results if SRM is well executed through various strategies (Emmett & Crocker, 2009). In order to experience good results, a company must do better in handling suppliers than its rivals.

The web is all connected, an enterprise that is in business should be able to provide consumers with some value that translates into generating value for the company itself (Lambert, 2008).

Quality is often calculated by the degree to which value is set for the owners of the organisation (Field & Meile, 2008). Value is not produced in isolation in organizations, but by cultivating key abilities with disregard for the management of supplier relationships.

Organizations agree that strategic supplier management offers the essential advantages of characterizing supplier innovation, which in turn translates the value benefits of an enterprise (Tarafdar & Qrunfleh, 2013).

In the manufacturing industry, the measure of performance is in the form of different metrics, such as schedule quality. In addition, performance may also be measured using measuring devices installed in manufacturing plants and service distribution facilities (Cheng, 2009). In the manufacturing scene, success metrics go beyond the financial dimensions suspected (Muller 2010). In the manufacturing scene, the first stage in performance assessment is to define the key

areas that drive business performance. The next step is to set performance targets to give us an opportunity to understand what they are looking for (Buchholz & Appelfeller, 2011).

2.8 Theoretical Literature Review

In this section of the literature review, two main theories are included to help and justify the analysis, namely the transaction cost economics (TCE) theory and the resource-based view (RBV) theory. According to Junior and Pires (2017), the fundamentals of transaction cost theory are based on companies to increase their profits by reducing their transaction costs and the basics of resource-based theory are resource sets that give them a competitive advantage.

2.8.1 Transaction Cost Economics (TCE) Theory

The transaction cost economics (TCE) refers directly to the issue of why businesses are formed and how they are hierarchically regulated and organized. A transaction is characterized as the transition from an upstream to a downstream manufacturing process of a pre-product or semiproduced product or service (Bremen et al., 2010).

TCE is looking at the efficient distinction between companies and markets. The TCE represents that economizing transaction costs is essential to organizational analysis, and saving is achieved by assigning transactions in a selective manner to governance structures. The TCE claims that transaction costs are the key concern when a company chooses between internal development and business acquisition (Hyuk, 2014). TCE defines the firm as an administrative instrument that promotes productivity and encourages trade between economic actors (Leiblein, 2003).

According to Xu and Xia (2008), humans were “limitedly rational” at the same time, humans were not just greedy, however, they would not hesitate to hurt others as long as it might help themselves. This innate instinct for humans is called opportunism. The opportunists, if it is possible to increase

their income, will try to breach any alerts, will send out skewed information deliberately to confuse other people and will make the information vague. Adopting steps to hold back opportunistic actions in this kind of situation is economically important to economies and will add new costs. TCE suggests, according to Cao and Shang (2013), that a company coordinate its cross-organizational operations to reduce production costs within the business and transaction costs within the markets.

The cost theory of transaction has been applied to the question of why companies exist. However, as businesses continue to operate more and more in networks, while logistics chains continue to lengthen and become more complex, a broader application of the transaction cost principle may be appropriate (Platje, 2013).

According to Platje (2013), Logistics relies heavily on transport, manufacturing, distribution and information infrastructure (roads, railways, reloading stations, warehouses, computer systems and telecommunications networks) and is a significant tool for promoting the productivity of raw material processing and the movement of products via intermediate manufacturers and final products.

Traditionally, according to Platje, (2013), three logistics flows are described-goods, information, and money. The use of transaction cost economies with respect to knowledge flows is to minimize the cost of obtaining, storing, using, etc. knowledge. This flow includes pre-contractual knowledge discovery and control of the execution of agreements. Money flow is related to cost of transaction. Money allows for price competition (reduction of market transaction costs) and growth. Post-contractual opportunistic conduct (cheating) on the other hand follows money as a form of payment for goods and services. By using various forms of credits or when consumers are not expected to

pay immediately, there tend to be compliance and enforcement costs related to late payment or lack of payment. Insurance and other instruments are in fact transaction costs which reduce the risk of failure to fulfill payment obligations. In this area, the architecture of logistics services aims to reduce transaction costs in the form of protections against possible opportunistic actions related to imperfect information and monetary flows.

The movement of goods relates to the costs of transport and processing (from raw material output to final goods processing). The flow of goods includes cost of managing transactions (related to output within a company) and cost of market transactions when services and products are exchanged among companies. Logistics is an instrument that reduces the marginal costs of transactions (the transaction costs of performing additional activities). Logistics is also a way of increasing the movement of goods and reducing transport and the cost of output.

2.8.2 Resource Based View (RBV) Theory

The RBV theory implies that the secret to superior success is the capital of a firm and its ability to leverage this capital to have a sustainable competitive advantage (Liu et al., 2010). In general, resources are referred to as the attributes of physical, financial, person and organizational capital for a firm. Resources are essential inputs to produce the final product or service, and are the basis for the productivity of a business. Capacity refers to the ability of a company to distribute capital, typically in conjunction, using organizational processes, to achieve a desired ending. They are processes based on knowledge, tangible or intangible, which are firm-specific and evolved over time through complex interactions.

According to the RBV theory, company unique features contribute to sustainable competitive advantage (Abadi and Cordon, 2012). Since many resources are firm-specific and not completely

elastic or imitable, firms are increasingly heterogeneous as to their resource base. Sustained heterogeneity of firm capital, therefore, is a potential source of competitive advantage (Das and Teng, 2000).

When describing company superior performance, firm-specific considerations are more significant than the environmental or industry-structure characteristics. This hypothesis also appears to be reinforced by logistics studies, which shows that superior company efficiency is correlated with focusing on improving logistics capacity (Olavarrieta and Ellinger, 1997).

Increased concern of businesses with rapid response systems, effective consumer response initiatives and just-in-time procurement schemes is further proof that organizational differentiation skills are emerging as important factors in developing customer-oriented corporate performance enhancement strategies. Such initiatives tend to place logistics as the core skill or strategic tool- aimed at achieving customer loyalty through inventory availability, timely delivery, less product failure and therefore fewer sales or returns / complaints lost. As product distinctions themselves decline, service capabilities are increasingly becoming the leading means of differentiation open to businesses. Efficient supplier segmentation can provide a competitive advantage for businesses, given the logistics system is built around the customer's needs (Olavarrieta and Ellinger, 1997).

2.9 Conceptual Framework

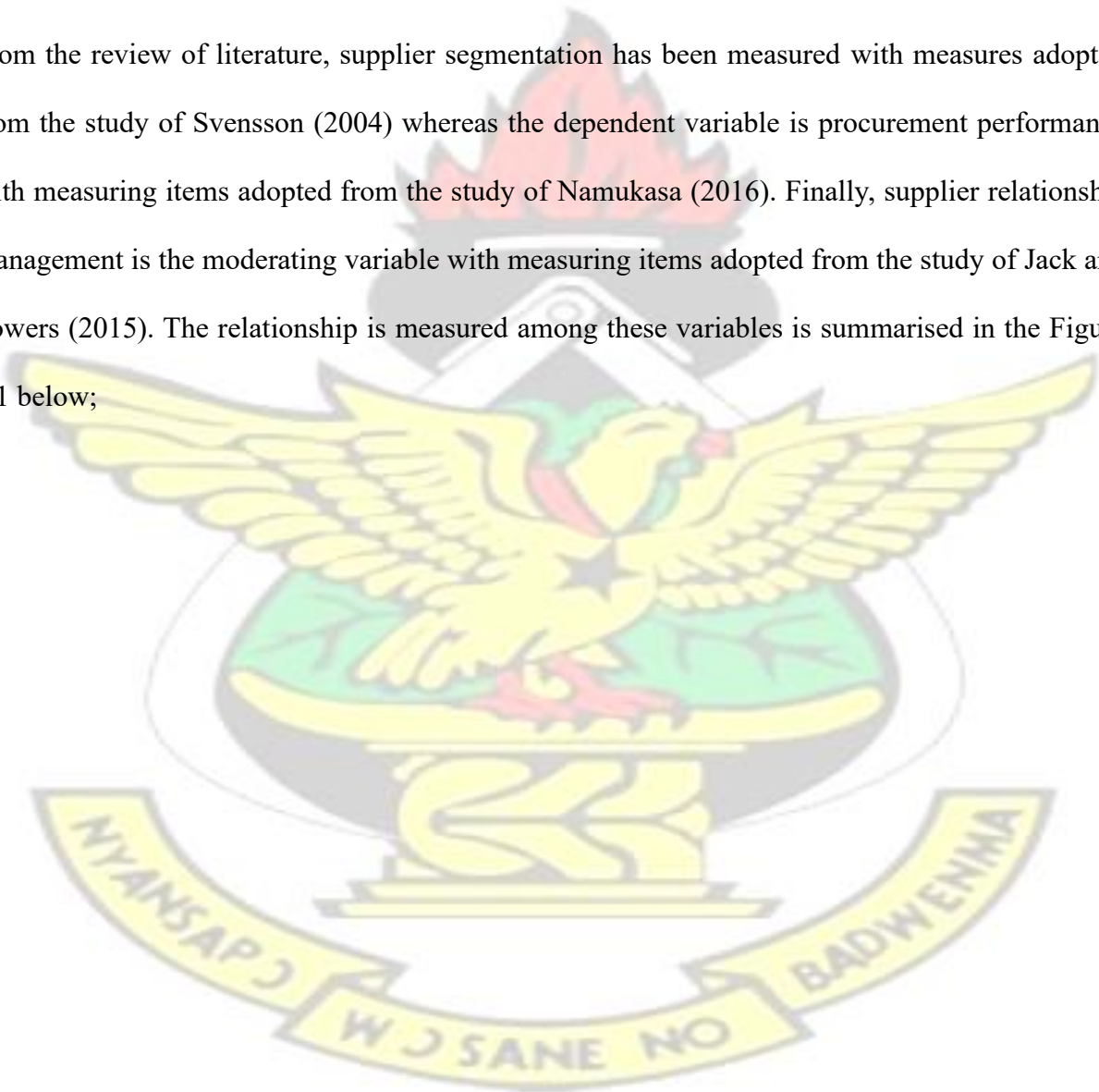
A conceptual context is a visual or written text that "explains the key items to be examined, concepts or variables and the presumed relationship between them, either graphically or in narrative form" (Wilson et al., 2015). The conceptual framework is defined as a network or

“plan” of connected concepts that together provide a detailed understanding of the phenomenon (Jabareen, 2009). The figure below shows the study’s conceptual context. The conceptual

framework underlines the effect of supplier segmentation practices on procurement performance with the moderating effect of supplier relationship management. Supplier is thus the independent variable and procurement performance is the dependent variable. This relationship is mediated by supplier relationship managements. The conceptual framework is as shown in Figure 2.1 below.

2.9.1 The Study Conceptual Model

From the review of literature, supplier segmentation has been measured with measures adopted from the study of Svensson (2004) whereas the dependent variable is procurement performance with measuring items adopted from the study of Namukasa (2016). Finally, supplier relationship management is the moderating variable with measuring items adopted from the study of Jack and Powers (2015). The relationship is measured among these variables is summarised in the Figure 2.1 below;



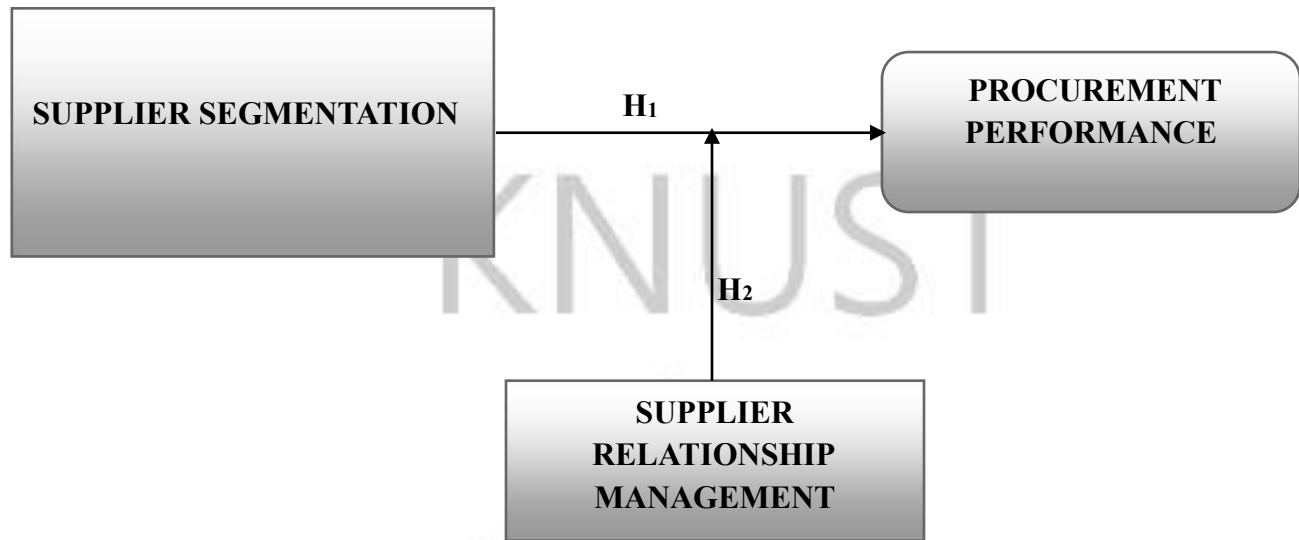


Figure 2.1: Conceptual Framework

Source: Author's Construct, 2022

2.10 Hypothesis Development

2.10.1 Relationship between Supplier Segmentation and Procurement Performance

Supplier segmentation is an important part of supply relationship management involving differentiating suppliers, training supplier segmentation teams, assessing supplier segments, identifying supplier opportunities, developing product/service agreements, implementing agreements, tracking production and providing efficiency reports on suppliers/costs (Douglas and Lambert, 2004). Suppliers may be divided into one of four quadrants according to the material/service delivered: product, strategic, normal, or essential.

The classification can also depend on the money spent, the quality of the commodity, the scope of the supply base and the number of products and/or services supplied (Bueler, 2006).

Segmentation of suppliers means categorizing suppliers based on a specific set of criteria to identify the main suppliers with whom to engage in SRM (Chopra and Meindl 2013).

Launching operational SRM governance is crucial to unraveling the interest of SRM, especially for strategic providers (Lysons and Farrington 2006). Cox (2003) encourages partner suppliers to affect the long-term sustainability of the firm's productivity and dedication. Allocating resources and meeting customer needs is vital to the partnership (Anderson, 2002). Performance assessments concentrate on market efficiency, consumer experience and competitive advantage strategically and organizationally (Bovet, 2002). Supplier segmentation thus has a positive impact on procurement performance. This introduces us to the first hypothesis and subhypotheses as follows;

H1: Supplier segmentation significantly and positively affect procurement performance.

H1a: Supplier segmentation capability significantly and positively affect procurement performance.

H1b: Supplier segmentation willingness significantly and positively affect procurement performance.

2.10.2 Moderating Role of Supplier Relationship Management in the Relationship between Supplier Segmentation and Procurement Performance

Organizations that conduct supplier relationship management culminate in improving their efficiency in the supply chain (Baily, 2008). Constant maintenance of a good supplier relationship should shield a company from price hitches, improve efficiency and thereby increase outcomes (Liker and Choi, 2004). It impacts both commercial and charitable organizations (Choy, Lee & Lo, 2002). The producer is part of the organization and must always have the unique organisation in mind (Zimmermann et al., 2015). Companies are expected to develop and maintain long-term relationships with suppliers by exchanging information, tracking supplier performance, and using information technology in supply chain management (Lysons & Gilligham, 2003).

Understanding the moderating role of supplier relationship management on the relationship between supplier segmentation and procurement performance relies on procurement role skills to handle organizational spending (Choy et al., 2002). The metrics underlying these ties are usually spending and market criticality (Zimmermann et al., 2015). The process of supplier segmentation is a precondition for establishing organizational governance with strategic suppliers (Wietfeldt, 2003). As such, the second hypothesis and sub-hypotheses are posited as;

H2: Supplier relationship management moderates significantly the positive effect of Supplier segmentation on procurement performance.

H2a: Supplier relationship management moderates significantly the positive effect of Supplier segmentation capability on procurement performance.

H2b: Supplier relationship management moderates significantly the positive effect of Supplier segmentation willingness on procurement performance.

CHAPTER THREE

RESEARCH APPROACH AND METHODOLOGY

3.1 Introduction

This chapter describes the research techniques used to make the study. According to Kothari, research methodology is a way of systematically solving the study problem (2004). As a science of studying how scientific work is done, it can be understood.

This chapter explains the design, sampling, and instrumentation of the research, as well as the study's data analysis and ethical considerations.

3.2 Research Design

The research design adopted by the researcher will address the questions that the study aims to address or the goals that the researcher tries to achieve through the study (Mundia et al., 2015). The study looks at the moderating impact of supplier relationship managements on the relationship between supplier segmentation and procurement performance. Thus, the study was performed using descriptive and explanatory analysis designs.

The study used quantitative analysis approach to measure the problem by generating numerical data or data which can be converted into functional statistics and relies on pre-formulated questions to answer.

3.3 Population of the Study

A study population is the total number of subjects that are targeted by the test or the group of elements that the researcher wants to apply to (Mundia et al., 2015). The population elements in this study are the procurement, warehouse, services, inventory, stores and goods shipment employees of selected firms in the Sekondi-Takoradi metropolis.

3.4 Sample Size and Sampling Technique

According to Kothari (2004), when the field of inquiry is broad, time and cost considerations almost always lead to a selection of respondents, i.e. selection of a few items only. To create a miniature cross-section, the selected respondents should be as representative of the total population as possible. The selected respondents are what is theoretically referred to as a 'sample,' the collection process is referred to as 'sampling technique', and the number of objects to be chosen from the universe to constitute a survey is called 'sample size.'

To pick the respondents from the target population, the researcher used purposive sampling approach from non-probability sampling technique. Since the target population is in various units of work (warehouse, procurement, fleet service, services, inventory and shipment of goods), it is more reasonable to use purposive sampling to draw members from the company. The members were selected using convenience sampling for those who were willing and available to participate in the study

The sample size should be neither too big, nor too small. This will be at its best. An optimal sample meets performance, representativeness, reliability and versatility criteria (Kothari, 2004). As such, a convenience number of one hundred (100) sample size was selected for the study as it would be suitable for quantitative analysis (Hair et al., 2014).

3.5 Data Source and Collection Procedures

The collection of relevant data was made using both primary and secondary sources of data. The primary data was obtained using close-ended questionnaire, since the questionnaire is easy to administer and fairly inexpensive to evaluate. Questionnaires were directly distributed by researchers and also by electronic means. Some of the questionnaires were adapted from previous

researches with adjustments to preserve the validity of the structures and scale used in this study, and some of the questionnaires were developed based on careful analysis of literatures. Secondary data is collected in journals, books and the internet from both known and unpublished materials.

3.6 Measurement Instruments

The study collected primary data using a questionnaire. The object of the questionnaires was to inquire the answers in the form of open-ended and closing questions. The survey had four parts. The first section (section A) included questions that helped generate general information about respondents such as age, level of education, work unit and work experience. The second section (section B) described supplier segmentation activities under supplier segmentation capability and supplier segmentation willingness, and the third section (section C) considered items to measure supplier relationship management. The last section (Section D) dealt with measures of procurement performance.

3.7 Data Analysis

After data collected through questionnaire, its completeness was verified, coded and entered the computer using SPSS. The data was subject to analysis using an application software packages named as Statistical Package for Social Sciences (SPSS) version 20. Data analysis was performed using descriptive and inferential statistics. Data on the Likert scale was evaluated at the interval measurement scale according to Boone and Boone (2012). Likert scale items are generated by measuring a composite score (sum or mean) from four or more Likert-type items; thus, the Likert scale composite score should be calculated at the measurement interval scale.

Descriptive statistics recommended for products with interval scale include central tendency mean and variation standard deviations. The Pearson's r , ANOVA, and regression procedures will include additional data analysis procedures suitable for interval scale items.

3.7.1 Multiple Regression Analysis

As per Gujarati (2004), the term regression was coined by Francis Galton. In order to approximate and/or forecast the known or fixed mean or average value (in repeated sampling) of the former, regression analysis includes the study of the dependence of one variable, the dependent variable, on one or more other variables, the explanatory variables (population).

The multiple regression model was used to assess if the procurement performance would be affected by supplier segmentation practice. In the regression model, the analysis takes the four determinants as independent variables and the procurement performance as dependent variable. The study used the following multiple regression model to assess the statistical significance of the independent variable.

$$Y = \beta_0 + \beta_1 X_1 + \epsilon \text{ ----- Eqn 1}$$

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 SX_1 + \epsilon \text{ -----Eqn 2}$$

Where; Y = procurement performance X_1

= supplier segmentation

S = Supplier relationship management

In the model, β_0 = Constant, β_1 = Regression coefficients reflect the mean shift in the dependent variable for one unit of shift in the independent variable while holding other independent variables in the constant model and ϵ = Error term representing the unexplained variance in the model.

3.8 Validity and Reliability

This section discussed the quality of the study. It is delved into from two dimensions – validity and reliability. These are discussed in the next sub-sections.

3.8.1 Validity

The degree to which a test tests what it appears to be measuring is validity (Lakshmi and Mohideen, 2013). A measure is accurate because it calculates what it is intended to be measuring. According to Kindy et al. (2016), the degree to which the objects in an instrument cover the full spectrum of significant aspects of the field being examined is material validity. It is the degree to which the measuring system offers adequate coverage of the research investigative questions, in this case the measuring questions in the questionnaire. Some of the questionnaires were adapted from prior work to preserve the validity of the instruments. All of the questionnaires were drawn up on the basis of extensive literature review. In addition, pilot testing of questionnaires was carried out to obtain input from the respondent on validity and answers were obtained and questionnaire subsequently modified.

3.8.2 Reliability

Reliability is the degree to which measurements can be replicated when different individuals conduct the measurements with supposedly alternate instruments on various occasions that measure the same thing under different conditions (Drost, 2011). Reliability is the precision or reliability of measurement over a variety of conditions under which the same results should be obtained in essence.

The most popular method of testing for internal consistency in the behavioral sciences is the alpha coefficient of Cronbach. The Cronbach's alpha reliability coefficient typically ranges from 0 to 1.

The following rules of thumb were set out by Gliem and Gliem (2003): If $\alpha > 0.9$ Excellent, α

> 0.8-Good, $\alpha > 0.7$ -Acceptable, $\alpha > 0.6$ -Questionable, $\alpha > 0.5$ -Poor, and $\alpha < 0.5$ -Unacceptable. Cronbach alpha was estimated and compared with 0.7.

3.9 Ethical Consideration

Ethics are the behavioural norms or rules which differentiate between right and wrong. They help to differentiate between reasonable and inappropriate behaviours. Ethics are particularly important components in the research procedures and can lead to misinterpretation or even false conclusions if not taken into account.

Therefore, this study did not experience any kind of prejudice or change and the researcher respected the code dealing with topics such as justice, objectivity, respect for intellectual property, social responsibility, confidentiality, non-discrimination, etc.

3.10 Profile of Study Area

The latest oil city in Ghana and West Africa is Sekondi-Takoradi. In Ghana, it has a twin city. In 2007, black gold was found off the coast of Fits. Commercial oil flowed through the city by 2010, and since 2011, oil has been escaping its borders in search of foreign exchange. Significant political and economic events have coincided with this stage of Sekondi-development. Takoradi's International oil tycoons are vying for territory in the city, which is causing the practice of dollarizing transactions to worsen. Oil exploration and production have created jobs in the city, caused the introduction of new courses and programs in the country's institutions, and sparked a great deal of debate in the country's government and media outlets (Mc-Caskie and Patrick, 2008; Van Gyampo, 2011). Shortly ago, "oil laws" were passed, "oil conferences" were convened, and "oil committees and authorities" were established (e.g., Kapela, 2009; ObengOdoom, 2009; Obeng-Odoom, 2012a).

The city is undergoing a physical makeover to better welcome visitors from abroad and present itself as a hub of wealth development. In fact, the city's streets are now being given names for the first time (Consortium, 2011), and the phrase "oil city" is inscribed in numerous prominent places throughout the city.

Ports, harbors, and railroads made a larger contribution to Sekondi-growth Takoradi's and prominence (Busia, 1950). Around 1903, a Polish Jew by the name of Lefeber saw Takoradi's harbor city potential and had plans to make it a reality. Lefeber was granted permission to lease much of the region behind Takoradi's whole shoreline after the chief of Takoradi, who was the land's custodian, was informed of his request. In exchange, Lefeber promised to pay GBP 10 in rent each month. He also delivered a case of gin to the chief each month. In the hopes that Takoradi would someday obtain a harbor, Lefeber left the Gold Coast, but his replacement continued to pay the rent and make the donation.

Takoradi is more recent than Sekondi. According to the Sekondi Takoradi Metropolitan Assembly (2006), Sekondi began to develop into a town as early as 1894. Takoradi had no reputation until it was recognized as a "town" for the first time in 1926 (Busia, 1950). Takoradi was described as "a little cluster of filthy reed and thatch cottages where the beach terminated and the bush began" in one piece (Correspondent, 1943: 38). The monthly fee was stopped being paid in 1913 because the lessees no longer thought Takoradi would ever host a harbor (Correspondent, 1943). However, as part of Gordon Guggisberg's 10-year plan, the Gold Coast governor at the time, a harbour was constructed in Takoradi in 1928. (Mendelson *et al.*, 2003). In addition to the various ports on the Gold Coast, Takoradi Harbour became the first artificial harbor in West Africa (Hilling, 1975).

The Takoradi Harbour's primary mode of transportation was rail, which was a significant aspect. In other words, the majority of the cargo shipped to the port was transported by rail, which was invented in Sekondi considerably earlier. In order to connect the gold-mining cities of Tarkwa (1901) and Obuasi (1902), which were separated by distances of 39 and 124 miles, respectively, the first railway lines were constructed in 1898. Later, Kumasi was included to the lines (1903). In 1905, new railway lines started operating from locations such as Accra. In 1911, extension lines from Sekondi-Takoradi, including the one connecting Tarkwa and Prestea, were constructed.

Sekondi had expanded significantly by 1915, mostly as a commercial center where 490 miles of railways came together (Busia, 1950). A double line of track from Takoradi's harbor to Sekondi was built in 1928. (Busia, 1950). Sekondi-development Takoradi's was significantly impacted by the harbor and rail infrastructure. They drew immigrants to the city, the majority of whom settled there permanently (Jeffries, 1975). Production of cocoa was considerably improved by the rail system (Jedwab and Moradi, 2011). In 1975, rail transportation was used to deliver 70% of logs, 44% of sawn timber, and 40% of cocoa to the harbor. The port had heavy traffic, as seen in Figure 3. It supplied 75% of the cargo the railway system moved. Takoradi had the second highest unloading rate in West Africa during the 1970s (Hilling, 1975).

Economic Activities

Apart from the harbour, there are a plethora of economic activities including oil and gas, university (Takoradi Technical University), several educational institutions, health facilities (including Effia Nkwanta Regional Hospital), security agencies, financial institutions, private enterprises, retail businesses especially at the market circle, among others.

KNUST



CHAPTER FOUR

FINDINGS, ANALYSIS AND DISCUSSIONS

4.1 Introduction

The analysis of the field data collected and interpreted to address the research questions for this study is addressed in this chapter. In accordance with the objectives of the study, the results were

addressed under the following headings: demographics, descriptive statistics, test of reliability, exploratory factor analysis, correlation analysis, regression analysis, hypotheses testing and findings as well as discussions of findings. The results were analysed with the aid of the Statistical Product and Service Solutions (SPSS) version 20 and Microsoft Excel 2016 software.

Of the 105 questionnaires administered, all were returned, reflecting a response rate of 95 percent.

4.2 Demography of Respondents of the Study

The respondents to the study included managers and key employees of selected companies in the metropolis of Tema. The demographic information of respondents is displayed in Table 4.1.

Table 4.1: Demography of Respondents

Demographic Variable	Options	n	%
Gender of Respondents	Male	61	61.0%
	Female	39	39.0%
	Total	100	100.0%
Age of Respondents	18- 30	14	14.0%
	31 – 40	62	62.0%
	41 – 50	23	23.0%
	Above 50	1	1.0%
	Total	100	100.0%

Educational Qualification of Respondents	Diploma	1	1.0%
	Bachelor's Degree	58	58%
	Master's Degree	41	41%
	Total	100	100.0%
Position Held by Respondents	Procurement Officer	48	48%
	Supply chain / Logistics Manager	27	27%
	Other Positions	25	25%
	Total	100	100.0%
Number of Years of Work Experience	Below 5	37	37.0%
	5 – 10	46	46.0%
	11 – 15	11	11.0%
	Above 15	6	6.0%
	Total	100	100.0%
Firm Type	Manufacturing	15	15.0%
	Service	66	66.0%
	Others	19	19.0%
	Total	100	100.0%

Source: (Field Study, 2023)

From Table 4.1, it could be seen that the selected key staffs of selected firms for this study is slightly dominated by males with 61 (61%) of respondents who are males and the rest 39 (39%) who were females.

With the ages of the respondents, it was realised that majority (n=62, 62%) were from 31 – 40 years, followed by those from 41 – 50 years (n=23, 23%), then those from 18 – 30 years (n=14, 14%) and above 50 years (n=1, 1%).

For their educational qualification, it was revealed that most of the respondents had Bachelor's

Degree (58%), followed by those with Master's Degree (41%) and a single person with Diploma (1%).

With regards to the Job Titles of respondents, it was realised that 48% were Procurement Officers whereas about 27% were supply chain/logistics officers. In terms of the number of years they had been with their respective organisations, it has realised that respondents have been with their firms for 5 – 10 years, below 5 years, 11 – 15 years and above 15 years with 46%, 37%, 11% and 6% respectively of responses.

Therefore, to ensure the validity of the research, it could be inferred that the respondents were informed about the subject matter and were able to comprehend the questionnaires submitted to them.

4.3 Descriptive Statistics of Variables

4.3.1 Supplier Segmentation Practices

The main independent variables for this study were the extent of supplier segmentation practices among firms in Ghana. This was achieved by identifying supplier segmentation practices as proposed by Rezaei et al. (2015). This study adopted 2 supplier segmentation practices including capability and willingness. The responses to these are presented in the next sub-sections.

4.3.1.1 Supplier Segmentation Capability

Using a 5-Point Likert Scale, the questionnaire was used to determine the level of supplier segmentation capability by the selected firms. 1 represented Strongly Disagree on the scale, 3 represented Neutral and 5 represented Strongly Support. Replies to these are provided in Table 4.2.

Table 4.2: Extent of Supplier segmentation Capability among Firms

Item Code	Description	Min	Max	Mean	Std. Dev.
CAP1	Our key suppliers have the technical capability that we expect	1	5	4.25	.783
CAP2	Our key suppliers have the capability to improve product quality	1	5	4.22	.746
CAP3	Our key suppliers ensure they have delivery capability.	1	5	4.21	.760
CAP4	Our key suppliers are able to ensure after sales service (service capability)	1	5	3.85	.952
CAP5	Our key suppliers provide the best in terms of price (price/cost capability)	1	5	3.92	.918
CAP6	Our key suppliers have commitment to preserving the environment (sustainable capability)	1	5	3.74	1.026
Average		1.17	5.00	4.03	.658

Source: (Field Study, 2023)

Six items from Table 4.2 were used to measure capability as viewed by key employees of selected firms. However, the mean value of 4.03 with SD of 0.658 from the overall average capability assessment indicates that respondents agree on the items used to measure the level of supplier segmentation capability at the selected companies. The highest mean of the six items was derived from the second item with a mean of 4.25 and a standard deviation of 0.7833. All the remaining items measured mean values of more than 3.0 implying agreement. This implies that there is high level of supplier segmentation capability at the selected firms.

4.3.1.2 Supplier Segmentation Willingness

Using a 5-Point Likert Scale, the questionnaire was used to determine the level of supplier segmentation willingness by the selected firms. 1 represented Strongly Disagree on the scale, 3 represented Neutral and 5 represented Strongly Support. Replies to these are provided in Table

4.3.

Table 4.3: Extent of Supplier segmentation Willingness among Firms

Item Code	Description	Min	Max	Mean	Std. Dev.
WILL1	Our key suppliers have the willingness to improve performance	1	5	4.20	.876
WILL2	Our key suppliers have the willingness to share information	1	5	3.82	.993
WILL3	Our key suppliers have the willingness to rely on each other	1	5	3.69	1.032
WILL4	Our key suppliers have the willingness to get involved in long-term relationship	1	5	4.26	.760
Average		1.25	5.00	3.99	.715

Source: (Field Study, 2023)

In Table 4.3, 4 items were used to assess willingness as viewed by key employees of selected organizations. However, the mean value of 3.99 with SD of 0.715 from the overall average assessment of willingness indicates that respondents agree with the items used to measure the level of willingness of supplier segmentation at the selected companies. The highest mean of the 4 items was derived from the fourth item with a mean of 4.26 and a standard deviation of .760. All the remaining items measured mean values of more than 3.0 implying agreement. This implies that there is high level of supplier segmentation willingness at the selected firms.

4.3.2 Supplier Relationship Management

The main moderating variable for this study was the extent of supplier relationship management among firms in Ghana. This was achieved by identifying supplier relationship management activities as proposed by Jack and Powers (2015). The responses to these are presented in the Table 4.4.

Table 4.4: Extent of Supplier Relationship Management among Firms

Item Code	Description	Min	Max	Mean	Std. Dev.
SRM1	Our firm spends a lot of time developing strategies for our key suppliers produce joint success.	1	5	3.50	1.142
SRM2	Our firm chooses key suppliers who share similar goals to my firm.	1	5	3.90	1.040
SRM3	Our firm works closely with key suppliers who do not act out of their own interest	1	5	3.87	.928
SRM4	In our relationship, our major suppliers can be trusted at all times.	1	5	3.81	.950
SRM5	In our relationship, our major suppliers can be counted on to do what's right.	1	5	3.96	.864
SRM6	In our relationship, our major suppliers have high integrity.	1	5	4.05	.833
SRM7	Our firm spends a lot of time developing strategies for our key suppliers produce joint success.	1	5	3.74	.824
Average		1.43	5.00	3.83	.707

Source: (Field Study, 2023)

Seven items were used in Table 4.4 to assess supplier relationship management as viewed by key employees of selected companies. However, the mean value of 3.83 with SD of 0.707 from the overall average evaluation of supplier relationship management indicates that respondents agree with the items used to calculate the level of supplier relationship management at the selected businesses. Among the 7 items, the sixth item with a mean of 4.05 and a standard deviation of .8333 was the highest mean obtained. All the remaining items measured mean values of more than 3.0 implying agreement. This implies that there is high level of supplier relationship management at the selected firm.

4.3.3 Procurement Performance

The main dependent variable for this study was the extent of procurement performance among firms in Ghana. This was achieved by identifying procurement performance activities as proposed by Jack and Powers (2015). The responses to these are presented in Table 4.5.

Table 4.5: Extent of Procurement Performance among Firms

Item Code	Description	Min	Max	Mean	Std. Dev.
PERF1	Time within the procurement process	1	5	3.84	.861
PERF2	Quality of goods/works/services procured	2	5	4.10	.785
PERF3	Cost of goods/works/services procured	1	5	3.70	.897
PERF4	Quantity (Volume) of goods/works/services procured	2	5	3.96	.724
PERF5	Overall procurement performance	1	5	4.03	.771
Average		1.80	5.00	3.93	.604

Source: (Field Study, 2023)

Five elements from Table 4.5 were used to assess procurement performance as viewed by key employees of selected companies. However, the mean value of 3.93 with SD of 0.604 from the overall average assessment of procurement performance indicates that respondents agree with the things used to measure the level of procurement performance at the selected businesses. Among the 5 items, with a mean of 4.10 and a standard deviation of .785, the highest mean was obtained from the fourth item. All the remaining items measured mean values of more than 3.0 implying agreement. This implies that there is high level of procurement performance at the selected firms.

4.4 Tests of Reliability and Validity

4.4.1 Tests of Reliability

Cronbach alpha was used to verify the internal consistency between the measures while testing the reliability of the measures (Pallant, 2007). This was achieved under version IBM 20 of SPSS. The results shown in Table 4.6 display alpha values ranging between .778 and .888. This implies that the items used in measuring all constructs passed the initial test of reliability. This is because all items for the five constructs were far above the recommended minimum threshold of .70 (Nunnally, 1978). The summary of results could be seen from Table 4.6.

Table 4.6: Reliability of Measures

Construct	Number of Measuring Items	Conbach's α
1. Supplier Segmentation ^a	10	0.888
2. Capability	6	0.848
3. Willingness	4	0.778
4. Supplier Relationship Management	7	0.868
5. Procurement Performance	5	0.801

^aOverall Construct

Source: (Field Study, 2023)

4.4.2 Exploratory Factor Analysis

For the test of validity, it was necessary to determine the extent to which the items per construct they are intended to measure, thus the uni-dimensionality of construct. This was done using exploratory factor analysis. Using Principal Component Analysis with varimax rotation with Kaiser normalization, the measures for supplier segmentation (capability and willingness) were determined as well as the measures for supplier relationship management and procurement performance as can be seen from Tables 4.7 and 4.8.



Table 4.

7: EFA Results for Supplier segmentation Variables

Construct	Item Code	Description	Component	
			1	2
Capability	CAP1	Our key suppliers have the technical capability that we expect	.829	
		Out key suppliers have the capability to improve product quality		
	CAP2	Our key suppliers ensure they have delivery capability.	.773	
	CAP3	Our key suppliers are able to ensure after sales service (service capability)	.768	
	CAP4		.598	
	CAP5	Our key suppliers provide the best in terms of price (price/cost capability)	.618	
Willingness	CAP6	Our key suppliers have commitment to preserving the environment (sustainable capability	.662	
	WILL2	Our key suppliers have the willingness to share information		.840
	WILL3	Our key suppliers have the willingness to rely on each other		.869
KMO = .886;			X ² = 434.940;	
			df =45	

Source: (Field Study, 2023)

Table 4.7 shows the EFA results of the measures of supplier segmentation variables with KMO value of 0.886 which was more than the minimum threshold of 0.6 and $X^2 = 434.940$, $df = 45$ and $p = 0.000$. This was done using Principal Component Analysis with varimax rotation and all Eigen values were set to 1.

After the EFA, items that remained for each construct were CAP1-6 and WILL2 – 3 respectively for capability and willingness.

Table 4.

8: EFA Results for Supplier Relationship Management and Procurement Performance Variables

Construct	Item Code	Description	Component	
			1	2
Supplier Relationship Management	SRM4	In our relationship, our major suppliers can be trusted at all times.	.814	
	SRM5	In our relationship, our major suppliers can be counted on to do what's right.		
	SRM6	In our relationship, our major suppliers have high integrity.		
Procurement Performance	PERF3	Cost of goods/works/services procured		.863
	PERF4	Quantity (Volume) of goods/works/services procured		.784
	PERF5	Overall procurement performance		.620
IO = .749;		X² = 220.396;	df =15	

Source: (Field Study, 2023)

Table 4.8 shows the EFA results of the measures of supplier relationship management and procurement performance variables with KMO value of 0.749 which was more than the minimum threshold of 0.6 and $X^2 = 220.396$, $df = 15$ and $p = 0.000$. This was done using Principal Component Analysis with varimax rotation and all Eigen values were set to 1.

After the EFA, items that remained for each construct were SRM4–5 and PERF3 – 5 respectively for supplier relationship management and procurement performance.

4.5 Correlation Analysis

This section sought to determine the relationship that exist among the variables. The results can be seen in Table 4.9.

Table 4.**9: Correlation Test Results**

Construct	1	2	3	4	5
1. Supplier segmentation	1				
2. Capability	.954**	1			
3. Willingness	.758**	.528**	1		
4. Supplier Relationship Management	.620**	.579**	.498**	1	
5. Performance	.462**	.440**	.351**	.436**	1
Mean	3.96	4.03	3.76	3.94	3.90
Standard Deviation	0.642	0.658	0.906	0.766	0.630

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

Source: (Field Study, 2023)

The correlation results shown in Table 4.9 above generally revealed that respondents partly attribute respective firm's procurement performance to supplier segmentation activities and supplier relationship management as they the correlation between them were less than 0.5. However, the correlation between supplier segmentation as a unidimension and capability, willingness and supplier relationship management were all more than 0.5 with $r=.954$, $.758$ and $.620$ respectively at $p<0.1$.

4.6 Regression Analysis

In establishing the effect of supplier segmentation on procurement performance of the selected firms, two main supplier integration activities were considered: capability (CAP), willingness (WILL), integration (INT); while the dependent variable was procurement performance (PERF); whereas supplier relationship management (SRM) was the moderating variable.

The regression estimates were given as:

Table 4.

KNUST



$PERF = b_0 + b_1INT + b_2CAP + b_3WILL + \varepsilon$ Model 1 [Direct effect] $PERF = b_0$

$+ b_1INT + b_2CAP + b_3WILL + b_4SRM + b_5SRM*INT + b_6SRM*CAP + b_7SRM*WILL + \varepsilon$

..... Model 2 [Moderating effect]

Where, b_0 = constant of proportionality

b_{1-7} = coefficient of variables

ε = error term

The regression results can be seen in Table 4.10.

Table 4.10: OLS Regression Results

Variables:	Standard Estimates	
	PROCUREMENT PERFORMANCE	
	Direct Effect	Moderating Effect
	Model 1	Model 2
Hypothesized		
Direct Effect		
Supplier segmentation (S)	.453(5.157)**	.034(.217)
Supplier Segmentation Capability (C)	.339(3.335)**	-.053(-.132)
Supplier Segmentation Willingness (W)	.114(1.546)	-.234(-.562)
Moderating Effect		
Supplier Relationship Management (R)		-.484(-1.943)*
S × R		.067(3.126)**
C × R		.101(1.022)
W × R		.076(.743)
FIT INDICES χ^2		
(df)	8.370(3)	12.305(5)
χ^2/df	4.185	2.461
F-Statistics	13.139	8.580
R²	.213	.313

Source: (Field Study, 2023)

4.6.1 Hypothesis Testing and Findings

From the proposed research model, four sub-hypotheses were developed.

The first hypothesis (**H1**) was posited that *supplier segmentation (capability and willingness) significantly and positively affect procurement performance*. From the standardized estimates of Models 1, this hypothesis **was supported** to a high extent because the path from supplier segmentation to procurement performance ($\beta = .453$; $t = 5.157$) was positive and statistically significant at $p < 0.05$ and $p < 0.01$. Also, **H1a** which looked at the path from supplier segmentation capability to procurement performance ($\beta = .339$; $t = 3.335$) was also positive and statistically significant at $p < 0.01$ and $p < 0.01$. However, the path from supplier segmentation willingness to procurement performance (**H1b**) was **not supported** as the path from supplier segmentation willingness to procurement performance ($\beta = 0.114$; $t = 1.546$) was positive, but it was not statistically significant at $p < 0.05$. Segmentation of suppliers means categorizing suppliers based on a specific set of criteria to identify the main suppliers with whom to engage in SRM (Chopra and Meindl 2013). Cox (2003) encourages partner suppliers to affect the long-term sustainability of the firm's productivity and dedication. Performance assessments concentrate on market efficiency, consumer experience and competitive advantage strategically and organizationally (Bovet, 2002). Supplier segmentation thus has a positive impact on procurement performance.

The second hypothesis (**H2**) also posited that *supplier relationship management moderates significantly the positive effect of Supplier segmentation on procurement performance*. From

the standardized estimates of Model 2, hypothesis two (H2) **was not supported** because the path from supplier relationship management to procurement performance ($\beta = -.484$; $t = -1.943$) was negative and statistically not significant at $p < 0.05$ and $p < 0.01$. With the individual subdimensions of supplier segmentation, the path from the supplier segmentation capability moderated with supplier relationship management (**H2a**) had a positive but insignificant effect on procurement performance ($\beta = .101$; $t = 1.022$). Similarly, the path from supplier segmentation willingness moderated with supplier relationship management (**H2b**) had a positive but insignificant effect on procurement performance ($\beta = .076$; $t = .743$). However, the path from the uni-dimension supplier segmentation moderated with supplier relationship management had a positive and significant effect on procurement performance ($\beta = .067$; $t = 3.126$). Understanding the moderating role of supplier relationship management on the relationship between supplier segmentation and procurement performance relies on procurement role skills to handle organizational spending (Choy et al., 2002). The metrics underlying these ties are usually spending and market criticality (Zimmermann et al., 2015). The process of supplier segmentation is a precondition for establishing organizational governance with strategic suppliers (Wietfeldt, 2003).

4.7 Discussion of Findings

This study sought to assess the relationship between supplier segmentation and procurement performance among key staffs of selected firms in Sekondi-Takoradi metropolis. There was review of extant literature to come out with two supplier segmentation activities including capability and willingness; while the dependent variable was procurement performance with supplier relationship management as the moderating variable.

These were modelled into a conceptual framework and empirically tested hypothesized paths by using a sample of workers and management of selected companies in the Sekondi-Takoradi metropolis. Descriptive statistics for the individual constructs were run using a 5-Point Likert Scale to calculate the scales per construct, and reliability tests were also run before the models were run.

4.7.1 Effect of Supplier Segmentation Practices on Procurement Performance

The main hypothesis postulates that supplier segmentation had a significant and positive effect on Procurement performance. The study found support for this hypothesis to a large extent. This is because among the main supplier segmentation construct had a positive and significant effect on procurement performance, as well as capability as a sub-construct. Willingness also had a positive but insignificant effect. Cox (2003) urges partner suppliers to control the efficiency and commitment of the firm's long-term sustainability. Performance reviews focus strategically and organizationally on business efficiency, customer experience and competitive advantage (Bovet, 2002). Thus, supplier segmentation has a beneficial influence on procurement performance.

The second hypothesis also posited that supplier relationship management moderates significantly the positive effect of Supplier segmentation on procurement performance. The path from supplier relationship management to procurement performance was negative and statistically not significant. As such, the path from the capability moderated with supplier relationship management had a positive but insignificant effect on procurement performance. Similarly, the path from willingness moderated with supplier relationship management had a positive but insignificant effect on procurement performance. However, the path from the unidimension supplier segmentation moderated with supplier relationship management had a positive and significant effect on procurement performance.

4.7.2 Moderating Effect of Supplier Relationship Management on the Supplier Segmentation Practices-Procurement Performance Link

Understanding the moderating role of supplier relationship management on the relationship between supplier segmentation and procurement performance relies on procurement role skills to handle organizational spending (Choy et al., 2002). The metrics underlying these ties are usually spending and market criticality (Zimmermann et al., 2015). The process of supplier segmentation is a precondition for establishing organizational governance with strategic suppliers (Wietfeldt, 2003).

Table 4.11: Summary of Results

	Hypothesis	β	T-Value	Remarks
H1	Supplier segmentation (capability and willingness) significantly and positively affect procurement performance			
	SS \rightarrow PPERF (H1)	.453	5.157	Supported
	CAP \rightarrow PPERF (H1a)	.339	3.335	Supported
	WILL \rightarrow PPERF (H1b)	.114	.829	Not supported
H2	Supplier relationship management moderates significantly the positive effect of supplier segmentation (capability and willingness) on procurement performance.			
	SS \times SRM \rightarrow PPERF (H2)	.067	3.126	Supported
	SS \times CAP \rightarrow PPERF (H2a)	.101	1.022	Not Supported
	SS \times WILL \rightarrow PPERF (H2b)	.076	.743	Not supported

Source: (Field Study, 2023)

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The overview of the results, conclusions and recommendations of the analysis is provided in this chapter. These are given in the sub-sections below.

5.2 Summary of Findings

In order to discuss the research objectives, a description of the results of the study is provided in relation to the study objectives.

5.2.1 Extent of usage of Supplier Segmentation among Firms in Ghana

The first objective of the study was to examine the supplier segmentation practices adopted by selected firms in Sekondi-Takoradi metropolis in Ghana. This was achieved by identifying supplier segmentation activities as proposed by Rezaei et al. (2015). This study adopted 2 supplier segmentation including supplier segmentaion capability and supplier segmentaion willingness. The findings revealed that all items used to measure both supplier segmentaion capability and supplier segmentaion willingness as sub-dimensions of supplier segmentation all had values of more than 3.0 implying agreement. This implies that there is high level of supplier segmentation in terms of supplier segmentaion capability and supplier segmentaion willingness at the selected firms.

5.1.2 Extent of Procurement Performance among Firms in Ghana

The second objective of the study was to examine the extent of procurement performance selected firms in Sekondi-Takoradi metropolis in Ghana. This was achieved by identifying procurement performance activities as proposed by Jack and Powers (2015). From the overall average

assessment of procurement performance, the high mean value implies that respondents agree to the items used to measure the extent of procurement performance at the selected firms.

This implies that there is high level of procurement performance at the selected firms.

5.2.3 The Effect of Supplier Segmentation on Procurement Performance

The third objective of the study was to determine the effect of supplier segmentation (capability and willingness) on procurement performance among selected firms in Sekondi-Takoradi metropolis in Ghana. From the findings, from the standardized estimates, it was realised that supplier segmentation had a positive and significant effect on procurement performance. Similarly, the supplier segmentation capability also had a positive and significant effect on to procurement performance. However, the effect of supplier segmentation willingness to procurement performance was positive, but it was not statistically significant at $p < 0.05$.

5.2.4 The Moderating Effect of Supplier Relationship Management on the Relationship between Supplier Segmentation and Procurement Performance

The last objective of the study was to determine the moderating effect of supplier relationship management on the relationship between supplier segmentation (capability and willingness) and procurement performance among selected firms in Sekondi-Takoradi metropolis in Ghana. The items to measure the moderating variable supplier relationship management were adapted from the study of Jack and Powers (2015). From the findings, it was realized that supplier relationship management had a negative and insignificant effect on procurement performance. With the moderating effect of supplier relationship management on the two dimensions of supplier segmentation, supplier segmentation capability moderated with supplier relationship management had a positive but insignificant effect on procurement performance. Similarly, the path from supplier segmentation willingness moderated with supplier relationship management had a

positive but insignificant effect on procurement performance. This implies that supplier relationship management do not moderate the relationship between supplier segmentation and procurement performance.

5.3 Conclusion

A study on supplier segmentation and its effect on procurement performance is relevant as it would provide the needed information for policy makers of business organisations in the country. The findings would contribute immensely for different stakeholders of the business arena in Ghana.

The moderating role of supplier relationship management (SRM) on the relationship between supplier segmentation and procurement performance is a major contribution that this study sought to make. Most prior studies looked at the direct effect of either between supplier relationship management and performance or between supplier segmentation and performance. Moderation or moderation effects have not been much explored. Therefore, this study sought to bridge this gap and suggest managerial and theoretical contributions of the relationships explored.

The study focused on firms in the Sekondi-Takoradi metropolis in Ghana using procurement officers and supply chain/logistics officers as respondents for the study. Simple random and convenience sampling techniques were used to select a sample of 100 respondents. The findings revealed that there is high extent of supplier segmentation among firms in Ghana.

The findings revealed that all items used to measure both capability and willingness as subdimensions of supplier segmentation all had values of more than 3.0 implying agreement. This implies that there is high level of supplier segmentation in terms of capability and willingness at the selected firms.

From the overall average assessment of procurement performance, the high mean value implies that respondents agree to the items used to measure the extent of procurement performance at the selected firms. This implies that there is high level of procurement performance at the selected firms.

From the findings, from the standardized estimates, it was realised that supplier segmentation had a positive and significant effect on procurement performance. Similarly, the supplier segmentation capability also had a positive and significant effect on to procurement performance. However, the effect of supplier segmentation willingness to procurement performance was positive, but it was not statistically significant.

From the findings, it was realized that supplier relationship management had a negative and insignificant effect on procurement performance. With the moderating effect of supplier relationship management on the two dimensions of supplier segmentation, supplier segmentation capability moderated with supplier relationship management had a positive but insignificant effect on procurement performance. Similarly, the path from supplier segmentation willingness moderated with supplier relationship management had a positive but insignificant effect on procurement performance. This implies that supplier relationship management do not moderate the relationship between supplier segmentation and procurement performance

It can therefore be summed up that although supplier segmentation has a direct effect on procurement performance, it is not moderated by supplier relationship management. Therefore, players in Ghana's business sector need to identify key supplier segmentation practices that contribute to their procurement performance.

5.4 Implications of the Study

From the findings of the study and the conclusions drawn, the researcher recommends the following in for theory and practice:

5.4.1 Theoretical Implications

The results showed that supplier segmentation capability has a significant and positive effect on procurement performance. Influenced by the principles of Just-In-Time, purchasing firms are constantly paying attention to suppliers' distribution capabilities. In addition, service efficiency requirements should always be included in the criteria for supplier assessment, since all transactions require some degree of service (Kilincei & Onal, 2011). Because the goal is to assess suppliers, in addition to the major categories listed above, delivery capability and service capability are critical criteria. Sustainability has also become an important topic in recent years for corporations and their supply chains. As a consequence, sustainability will serve as another significant primary criterion for supplier evaluation (Rezaei et al., 2015). Therefore, the researcher recommends that companies should emphasize how capable their suppliers are so that they can segment them well to improve contribute to their procurement performance.

5.4.2 Practical Implications

5.4.2.1 Focus on Willing Suppliers

The results again showed that supplier segmentation willingness has a positive effect on procurement performance. It is not enough just to segment suppliers but those who are willing, so that you would be able to effectively manage them and engage them profitably so that they could contribute to procurement performance.

5.4.2.2 Supply Chain Collaboration among Suppliers

There is the need to build effective collaboration with suppliers. This can be done through communication with all suppliers. Quality of information between the parties involved needs to be improved so that they can all be in the known. This would build effective supplier segmentation among the suppliers to contribute to procurement performance.

5.4.2.3 Recognizing the Role of IT in Supplier Segmentation

It is becoming increasingly unavoidable for any business to operate in today's competitive environment without the use of IT. Many studies suggest the use of IT contributed significantly to supply chain operational activities in recent time because of the high level of attention it has received and how it has helped supply chain partners share demand and inventory information together. Management of firms should consider introducing some of these IT innovations in their supplier segmentation to promote operational efficiencies.

5.4.2.4 Training of Procurement Staff on Supplier Segmentation

Through observation by the researcher, it was realized that training on supplier segmentation was not often organised for staff of selected firms in Sekondi-Takoradi metropolis. Hence, for the application of the best practices in selecting the preferred suppliers, there is the need to train the staffs to sharpen their skills as well as knowledge on what is going on as supplier segmentation is concerned.

5.4.3 Suggestions for Further Research

It is recommended that these areas be further explored in light of the results and limitations of this study:

1. Expand the scope of the study to include other sectors, such as the service industry, the transport industry, to assess the influence of supplier segmentation on procurement performance mediated by supplier relationship management.
2. Conduct a similar study in other service organizations to validate the results.

References

- Abadi, J., & Cordon, C. (2014). Developing a Framework for the Identification and Analysis of the Strategic Resources and Capabilities in Supply Chains. *Operations and Supply Chain Management: An International Journal*, 5(2), 59-75.
- Al Kindy, S. A. R., & Al Kindy, T. (2017). Faculty perception of teaching professionalism in a developing medical college. *Saudi Journal for Health Sciences*, 6(1), 23.

- Arsan, A., & Shank, A. (2011). Performance Measurements and Metrics: An Analysis of Supplier Evaluation. *Performance Measurements and Metrics*.
- Ashe-Edmunds, S. (2014). Corporate Strategy versus Marketing Strategy. <http://smallbusiness.chron.com/corporate-strategy-vs-marketing-strategy-63753.html>. Accessed on 20 March 2020.
- Basheka, B. C. (2008). Procurement planning and accountability of local Government procurement systems in developing countries: Evidence from Uganda. *Journal of Public Procurement*.
- Bremen, P., Oehmen, J., Alard, R. and Schönsleben, P. (2010). Transaction costs in global supply chains of manufacturing companies. *Journal of Systemics, Cybernetics & Informatics*, 8, pp.19-25.
- Carton, R. B. (2004). *Measuring organizational performance: An exploratory study* (Doctoral dissertation, University of Georgia).
- Chai, J., Liu, J. N., & Ngai, E. W. (2013). Application of decision-making techniques in supplier selection: A systematic review of literature. *Expert systems with applications*, 40(10), 3872-3885
- Cheng, Z. (2009). Value-Based Management of Supplier. Lohmar: BoD –Books on Demand
- Cheraghi, S. H., Dadashzadeh, M., & Subramanian, M. (2004). Critical success factors for supplier selection: an update. *Journal of Applied Business Research (JABR)*, 20(2).
- Chikaji, A. I. (2008). The Impact of Supplier Selection on Inventory Handling Under Catastrophic Risk and Environmental Uncertainty. *SAMANM Journal of Marketing and Management*, ISSN 2308-2399 Vol. 1, No.1, 201344
- Chimwani, B. I., Iravo, M. A., & Tirimba, O. I. (2014). Factors influencing procurement performance in the Kenyan public sector: case study of the state law office. *International Journal of Innovation and Applied Studies*, 9(4), 1626.
- Choffray, J. M., & Lilien, G. L. (1978). A new approach to industrial market segmentation.
- Choi, T. Y., & Krause, D. R. (2006). The supply base and its complexity: Implications for transaction costs, risks, responsiveness, and innovation. *Journal of operations management*, 24(5), 637-652.
- Cox, A., Ireland, P., Lonsdale, C., Sanderson, J., & Watson, G. (2002). Supply chains, markets and power: Mapping buyer and supplier power regimes. London: Routledge

- Crown. (2009). Multi-criteria analysis: a manual. London, UK: Communities and Local Government
- Das, T. K., & Teng, B. S. (2000). A resource-based theory of strategic alliances. *Journal of management*, 26(1), 31-61.
- Day, M., Magnan, G. M., & Moeller, M. M. (2010). Evaluating the bases of supplier segmentation: A review and taxonomy. *Industrial Marketing Management*, 39(4), 625-639.
- Dempsey, W. A. (1978). Vendor selection and the buying process. *Industrial Marketing Management*, 7(4), 257-267.
- Drost, E. A. (2011). Validity and reliability in social science research. *Education Research and perspectives*, 38(1), 105.
- Duffy, R. S. (2008). Towards a better understanding of partnership attributes: An exploratory analysis of relationship type classification. *Industrial Marketing Management*, 37(2), 228-244.
- Dyer, J. H. (1996). Does governance matter? Keiretsu alliances and asset specificity as sources of Japanese competitive advantage. *Organization science*, 7(6), 649-66
- Dyer, J. H., Cho, D. S., & Cgu, W. (1998). Strategic supplier segmentation: The next “best practice” in supply chain management. *California management review*, 40(2), 57-77.
- Ellram, L. M. (1990). The supplier selection decision in strategic partnerships. *Journal of Purchasing and materials Management*, 26(4), 8-14.
- Emmett, S., & Crocker, B. (2009). *Excellence in Supplier Management: How to Better Manage Contracts with Suppliers and Add Value: Best Practices in Supplier Relationship Management and Supplier Development*. Cambridge Academic.
- En Xie, M. W. (2012). Uncertainties, resources, and supplier selection in an emerging economy Springer Science+Business Media, LLC.
- Field, J., & Meile, L. (2008). Supplier relations and supply chain performance in financial services. *International Journal of Operations & Production Management*, Vol. 28(2), 185 -206
- Freytag, P. V., & Clarke, A. H. (2001). Business to business market segmentation. *Industrial marketing management*, 30(6), 473-486.
- Gadde, L. E., Håkansson, H., & Persson, G. (2010). *Supply network strategies*. John Wiley & Sons.

- Gelderman, C. J., & Van Weele, A. J. (2005). Purchasing portfolio models: A critique and update. *Journal of Supply Chain Management: A Global Review of Purchasing & Supply*, 41(3), 19–28.
- Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting Cronbach's alpha reliability coefficient for Likert-type scales. Midwest Research-to-Practice Conference in Adult, Continuing, and Community Education.
- Gordon, S. (2008). *Supplier Evaluation and Performance Excellence: A Guide to Meaningful Metrics and Successful Results*. Florida: J. Ross Publishing
- Gudrun, G. (2009). *Ready for Supplier Relationship Management?* New Delhi: VDM Publishing
- Gulati, R., & Sytch, M. (2007). Dependence asymmetry and joint dependence in interorganizational relationships: Effects of embeddedness on a manufacturer's performance in procurement relationships. *Administrative Science Quarterly*, 52(1), 32–69.
- Gunasekaran, A., & Kobu, B. (2007). Performance measures and metrics in logistics and supply chain management: a review of recent literature (1995–2004) for research and applications. *International journal of production research*, 45(12), 2819-2840.
- Gürler, A. G. İ. (2007). Supplier selection criteria of Turkish automotive industry. *Journal of Yaşar University*, 2(6), 555-569
- Hair, J. F., Gabriel, M., & Patel, V. (2014). AMOS covariance-based structural equation modeling (CB-SEM): Guidelines on its application as a marketing research tool. *Brazilian Journal of Marketing*, 13(2).
- Ho, W., Xu, X., & Dey, P. K. (2010). Multi-criteria decision making approaches for supplier evaluation and selection: A literature review. *European Journal of operational research*, 202(1), 16-24.
- Hunt, S. D., & Morgan, R. M. (1994). Relationship marketing in the era of network competition. *Marketing management*, 3(1), 18.
- Jabareen, Y. (2009). Building a conceptual framework: philosophy, definitions, and procedure. *International journal of qualitative methods*, 8(4), 49-62.
- Jack, E. P., & Powers, T. L. (2015). Managing strategic supplier relationships: antecedents and outcomes. *Journal of Business & Industrial Marketing*.

- Kannan, V. R., & Tan, K. C. (2002). Supplier selection and assessment: Their impact on business performance. *Journal of supply chain management*, 38(3), 11-21.
- Kariuki, H. N. (2013). *The effect of financial distress on financial performance of commercial banks in Kenya* (Doctoral dissertation, University of Nairobi).
- Kaufman, A., Wood, C. H., & Theyel, G. (2000). Collaboration and technology linkages: a strategic supplier typology. *Strategic Management Journal*, 21(6), 649-663.
- Kilinci, O., & Onal, S. A. (2011). Fuzzy AHP approach for supplier selection in a washing machine company. *Expert Systems with Applications*, 38(8), 9656–9664.
- Kothari, C. R. (2004). *Research methodology: Methods and techniques*. New Age International.
- Kotler, P., Wong, V., Saunders, J., & Armstrong, G. (2005). *Principles of marketing*. Harlow: Pearson Education
- Kuei, C. H., Madu, C. N., & Lin, C. (2001). The relationship between supply chain quality management practices and organizational performance. *International Journal of Quality & Reliability Management*.
- Lakshmi, S., & Mohideen, M. A. (2013). Issues in Reliability and Validity of Research. *International journal of management research and reviews*, 3(4), 2752.
- Lambert, D. M. (2008). *Supply chain management: processes, partnerships, performance*. Supply Chain Management Inst.
- Lardenoije, E. J., van Raaij, E. M., & Van Weele, A. J. (2005). Performance management models and purchasing: relevance still lost. In *Researches in Purchasing and Supply management, the 14th IPSERA Conference* (pp. 687-97).
- Leenders, M., Fearon, H. Flynn, A. and Johnson, P. (2002). *Purchasing and Supply Management*. Chicago, IL: McGraw-Hill Irwin.
- Leiblein, M. J. (2003). The choice of organizational governance form and performance: Predictions from transaction cost, resource-based, and real options theories. *Journal of management*, 29(6), 937-961.
- Liao, S. H., & Kuo, F. I. (2014). The study of relationships between the collaboration for supply chain, supply chain capabilities and firm performance: A case of the Taiwan' s TFT-LCD industry. *International journal of production economics*, 156, 295-304.

- Lockström, M., Schadel, J., Harrison, N., Moser, R., & Malhotra, M. K. (2010). Antecedents to supplier integration in the automotive industry: a multiple-case study of foreign subsidiaries in China. *Journal of Operations Management*, 28(3), 240-256.
- Mentzer, J. T., Myers, M. B., & Stank, T. P. (2006). *Handbook of global supply chain management*. Sage Publications.
- Moore, N. (2012). Supplier Relationship Management at ArmyLife Cycle Management Commands: Gap Analysis of Best Practices. Washington DC: Rand Corporation.
- Moorman, C., Deshpande, R., & Zaltman, G. (1993). Factors affecting trust in market research relationships. *The Journal of Marketing*, 57(1), 81–101.
- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *The Journal of Marketing*, 58(3), 20–38.
- Muller, R. (2010). Supplier Relationship Management (SRM): basic concepts, strategies, potential. Norderstedt: GRIN Verlag.
- Mundia, C., Langat, E. K., & Lelegwe, S. (2015). Effect of Information System on Upstream Supply Chain Management Among Supermarkets in Nakuru Town, Kenya. *International Journal of Economics, Finance and Management Sciences*, 3(5), 535-540.
- Namukasa, J. (2017). Records management and procurement performance. *Records Management Journal*.
- O'Brien, J. (2014). Supplier Relationship Management: Unlocking the Hidden Value in Your Supply Base. New York: Kogan Page
- Ochieng, V. (2014). Role of Supplier Development InEffectiveness of Procurement Function: A Case of National Cereal and Produce Board. *International Research Journal of Business and Management*.
- Ogubala, A.R., & Kiarie, M.D. (2014). Factors affecting procurement planning in county governments in Kenya; A case study of Nairobi City County. *International Journal of Economics, Commerce &management*. Vol. II, No. 11
- Olavarrieta, S., & Ellinger, A. E. (1997). Resource-based theory and strategic logistics research. *International Journal of Physical Distribution & Logistics Management*.
- Olsen, R. F., & Ellram, L. M. (1997). A portfolio approach to supplier relationships. *Industrial marketing management*, 26(2), 101-113.

- Osiro, L., Lima-Junior, F. R., & Carpinetti, L. C. R. (2014). A fuzzy logic approach to supplier evaluation for development. *International Journal of Production Economics*, 153, 95-112
- Palmer, R. A., & Millier, P. (2004). Segmentation: Identification, intuition, and implementation. *Industrial Marketing Management*, 33(8), 779-785.
- Platje, J. (2013). Physical infrastructure and logistics from the perspective of transaction cost economics. *Central and Eastern European Journal of Management and Economics (CEEJME)*, 1(1), 35-4
- Reinartz, W., Krafft, M., & Hoyer, W. D. (2004). The customer relationship management process: Its measurement and impact on performance. *Journal of marketing research*, 41(3), 293-305.
- Rezaei, J., & Ortt, R. (2012). A multi-variable approach to supplier segmentation. *International Journal of Production Research*, 50(16), 4593–4611.
- Rezaei, J., & Ortt, R. (2013). Multi-criteria supplier segmentation using a fuzzy preference relation based AHP. *European Journal of Operational Research*, 225(1), 75-84.
- Rezaei, J., Wang, J., & Tavasszy, L. (2015). Linking supplier development to supplier segmentation using Best Worst Method. *Expert Systems with Applications*, 42(23), 91529164
- Rotter, J. B. (1967). A new scale for the measurement of interpersonal trust. *Journal of Personality*, 35(4), 651–665.
- Sausen, K., Tomczak, T., & Herrmann, A. (2005). Development of a taxonomy of strategic market segmentation: A framework for bridging the implementation gap between normative segmentation and business practice. *Journal of Strategic Marketing*, 13, 151–173
- Shin, H., Collier, D. A., & Wilson, D. D. (2000). Supply management orientation and supplier/buyer performance. *Journal of operations management*, 18(3), 317-333.
- Spekman, R. E., & Carraway, R. (2006). Making the transition to collaborative buyer–seller relationships: An emerging framework. *Industrial Marketing Management*, 35(1), 10-19.
- Stevens, M. (2011). *Buyer-supplier relationship management: towards a multidimensional and dynamic approach* (Doctoral dissertation, University of Cambridge).
- Svensson, G. (2004). Supplier segmentation in the automotive industry. *International Journal of Physical Distribution & Logistics Management*.

- Swink, M., & Zsidisin, G. (2006). On the benefits and risks of focused commitment to suppliers. *International Journal of Production Research*, 44(20), 4223-4240.
- Tahriri, F., Osman, M. R., Ali, A., Yusuff, R., & Esfandiary, A. (2008). AHP approach for supplier evaluation and selection in a steel manufacturing company. *Journal of Industrial Engineering and Management (JIEM)*, 1(2), 54-76.
- Tang, C. S. (1999). Supplier relationship map. *International Journal of Logistics: Research and Applications*, 2(1), 39-56.
- Van Weele, A. J. (2006). *Purchasing & Supply Chain Management: Analysis, Strategy, Planning and Practice*, 4th Ed. Australia: Thomson
- Vance, L., Cabezas, H., Heckl, I., Bertok, B., & Friedler, F. (2013). Synthesis of sustainable energy supply chain by the P-graph framework. *Industrial & Engineering Chemistry Research*, 52(1), 266-274.
- Wagner, S. M., & Johnson, J. L. (2004). Configuring and managing strategic supplier portfolios. *Industrial marketing management*, 33(8), 717-730.
- Weber, C. A., Current, J. R., & Benton, W. C. (1991). Vendor selection criteria and methods. *European journal of operational research*, 50(1), 2-18.
- Williamson, O. E. (2008). Transaction cost economics. In *Handbook of new institutional economics* (pp. 41-65). Springer, Berlin, Heidelberg.
- Wilson, Y., White, A., Jefferson, A., & Danis, M. (2019). Intersectionality in clinical medicine: The need for a conceptual framework. *The American Journal of Bioethics*, 19(2), 8-19.
- Završnik, B. (1998). The importance of selection and evaluation of the supplier in purchasing management. *Management (Split)*, 3(2), 59-74.

KNUST

Appendix I

QUESTIONNAIRE A RESEARCH SURVEY ON SUPPLIER SEGMENTATION AND PROCUREMENT PERFORMANCE: THE MODERATING ROLE OF SUPPLIER RELATIONSHIP MANAGEMENT

Dear respondent,

Kindly spare some of your valuable time and respond to the following questions/statements as genuinely as possible. The information provided is purely for research purpose and will be treated with utmost confidentiality.

SECTION A: BACKGROUND INFORMATION

Tick or circle appropriately:

1. **Gender:** (a) Male (b) Female
2. **Age:** (a) 18- 30 (b) 31-40 (c) 41-50 (d) 51 and above
3. **Higher level of education?**
(a) Certificate (b) ordinary Diploma (c) Bachelor's degree (d) Master's degree and above

4. **What is your position in the organisation?**

(a) Procurement officer (b) Supply chain / Logistics Manager

(c) Other, please specify.....

5. **How long have you been in the organization?**

(a) Below five years (b) 6 - 10 years (c) 11 - 15 years (d) above 15 years

6. **Type of business**

(a) Service (b) Manufacturing (c) Others

SECTION B: SUPPLIER SEGMENTATION

Please indicate the extent of which you agree or disagree with the following statements about Supplier Segmentation in your organization

1. Strongly disagree 2. Disagree 3. Not sure 4. Agree 5. Strongly agree

	Capability	SD	D	N	A	SA
1	Our key suppliers have the technical capability that we expect	1	2	3	4	5
2	Our key suppliers have the capability to improve product quality	1	2	3	4	5
3	Our key suppliers ensure they have delivery capability.	1	2	3	4	5
4	Our key suppliers are able to ensure after sales service (service capability)	1	2	3	4	5
5	Our key suppliers provide the best in terms of price (price/cost capability)	1	2	3	4	5
6	Our key suppliers have commitment to preserving the environment (sustainable capability)	1	2	3	4	5
	Willingness	SD	D	N	A	SA
1	Our key suppliers have the willingness to improve performance	1	2	3	4	5
2	Our key suppliers have the willingness to share information	1	2	3	4	5
3	Our key suppliers have the willingness to rely on each other	1	2	3	4	5

4	Our key suppliers have the willingness to get involved in longterm relationship	1	2	3	4	5
---	---	---	---	---	---	---

Source: Rezaei et al. (2015)

Section C: Supplier Relationship Management

Please indicate the extent of which you agree or disagree with the following statements about Supplier Relationship Management in your organization

1. Strongly disagree 2. Disagree 3. Not sure 4. Agree 5. Strongly agree

Measures		SD	D	N	A	SA
1	Our firm spends a lot of time developing strategies for our key suppliers produce joint success.	1	2	3	4	5
2	Our firm chooses key suppliers who share similar goals to my firm.	1	2	3	4	5
3	Our firm works closely with key suppliers who do not act out of their own interest	1	2	3	4	5
4	In our relationship, our major suppliers can be trusted at all times.	1	2	3	4	5
6	In our relationship, our major suppliers can be counted on to do what's right.	1	2	3	4	5
7	In our relationship, our major suppliers have high integrity.	1	2	3	4	5

Section D: Procurement Performance

Please indicate the extent of which you rate the indicators of procurement performance at your firm

1. Not at all 2. Very Low 3. Low 4. High 5. Very High

Measures		SD	D	N	A	SA
1	Time within the procurement process	1	2	3	4	5
2	Quality of goods/works/services procured	1	2	3	4	5
3	Cost of goods/works/services procured	1	2	3	4	5
4	Quantity (Volume) of goods/works/services procured	1	2	3	4	5
5	Overall procurement performance	1	2	3	4	5

Source: Mady et al. (2014)

Thank you for your time and participation in this survey

KNUST



Appendix II

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.886
Approx. Chi-Square		434.940
Bartlett's Test of df Sphericity		45
Sig.		.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.114	51.140	51.140	5.114	51.140	51.140	4.004	40.041	40.041
2	1.056	10.560	61.700	1.056	10.560	61.700	2.166	21.660	61.700
3	.863	8.634	70.335						
4	.598	5.981	76.315						
5	.571	5.713	82.028						
6	.488	4.876	86.904						
7									
8									
9									
10	.365	3.654	90.558						
	.348	3.483	94.041						
	.305	3.049	97.090						
	.291	2.910	100.000						

KNIL ICT

Extraction Method: Principal Component Analysis.

77



Rotated Component Matrix^a

	Component	
	1	2
CAP1	.829	
CAP	.773	
CAP3	.768	
CAP4	.598	
CAP5	.618	
CAP6	.662	
WILL1	.660	
WILL2		.840
WILL3		.869
WILL4	.649	

Extraction Method: Principal
Component Analysis. Rotation
Method: Varimax with Kaiser
Normalization.

a. Rotation converged in 3 iterations.

Appendix III

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.749
Approx. Chi-Square df		220.396
Bartlett's Test of Sphericity	Sig.	15
		.000

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.066	51.100	51.100	3.066	51.100	51.100	2.392	39.865	39.865
2	1.187	19.780	70.880	1.187	19.780	70.880	1.861	31.015	70.880
3	.600	9.998	80.879						
4		8.850							
5		6.787							
6	.531	3.484	89.729						
	.407		96.516						
	.209		100.000						

Extraction Method: Principal Component Analysis.

Rotated Component Matrix^a

	Component	
	1	2
SRM4	.836	
SRM5	.883	
SRM6	.814	
PERF3		.863
PERF4		.784
PERF5		.620

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.