

**DETERMINANTS OF NON-INDIGENOUS SMALL AND  
MEDIUM CONSTRUCTION ENTERPRISES  
STRATEGY FOR COMPETITIVE ADVANTAGE IN  
NORTH-CENTRAL NIGERIA**

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**Determinants of Non-Indigenous Small and Medium Construction Enterprises  
Strategy for Competitive Advantage in North-Central Nigeria**

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Technology**

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## DECLARATION

This thesis is my original work and it has not been presented for a degree in any university.

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Date.....

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## **DEDICATION**

To my wife Morenike, and to our wonderful children Iyanu Oluwa, Emife, Ibiyedi and Momore Oluwa.

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## **LIST OF ABBREVIATIONS AND ACRONYMS**

<b>CA</b>	Competitive Advantage
<b>CBN</b>	Central Bank of Nigeria
<b>CSF</b>	Critical Success Factor
<b>CSMEs</b>	Construction Small and Medium Enterprises
<b>FCEs</b>	Foreign Construction Enterprises
<b>HR</b>	Human Resources
<b>ICEs</b>	Indigenous Construction Enterprises
<b>JV</b>	Joint Ventures
<b>MSMEs</b>	Micro Small and medium Enterprises
<b>NBS</b>	Nigerian Bureau of Statistic
<b>NVMR</b>	Nigeria Vision Main Report
<b>PESTLE</b>	Political, Economic, Social, Technology, Legal and Environmental
<b>RBV</b>	Resource Base View
<b>SCM</b>	Supply Chain Management
<b>SMCEs</b>	Small and Medium Construction Enterprises
<b>SEA</b>	South East Asia
<b>SME</b>	Small and Medium Enterprises
<b>SMEDAN</b>	Small and Medium Enterprises Development Agency of Nigeria
<b>WTO</b>	World Trade Organization



## **OPERATIONAL DEFINITION OF TERMS**

### **Construction Enterprise**

Construction Enterprise refers to any business entity involved in any aspect of the construction process within the Architecture, Engineering and Construction (AEC) sector including general contracting firms, specialist contractors, architectural or engineering design partnerships, cost consultancy, and development companies. (Pamulu, 2010).

### **Competitive Advantage**

Competitive Advantage refers to the ability of a firm to outperform its rivals on some performance criteria such as productivity and market share (Pamulu 2010).

### **Theoretical Framework**

According to Holt (1998) theoretical framework is a device or scheme for adopting or applying the assumptions, postulations and principles of a theory in the description and analysis of a research problem.

### **Conceptual Framework**

A conceptual framework is an abstraction from existing theories including certain assumptions or models that are perceived as possessing some explanatory power in terms of enhancing proper understanding of the influence of the variables or their relationships with regards to observed phenomena (Banjoko, 1996).

### **Resources**

Firm resources are valuable assets a firm possesses or has access to (Pamulu, 2010).

### **Competitive Strategy**

Competitive strategy is a guiding approach to gain competitive advantage (Porter, 1980).

### **Critical Success Factors**

These are parameters that contribute to delivering construction projects effectively without dispute (Chen &Chen, 2007). They are areas in which results if satisfactory will ensure competitive performance (Rockart, 1979).

### **Value Chain:**

Value chain is a set of activities required to design, develop, produce, market, market and provide post sale services for product and services sold to the consumer. (Porter, 1985).

### **Cost Leadership**

Delivering a product or service at a lower cost is cost leadership (Porter, 1980).

### **Differentiation**

Differentiation is Products or services with addition of unique features that are competitively attractive in the market (Porter, 1980).

### **Model**

Cooper and Schinder (2003) defined a model as a representation of a system that is constructed to study some aspects of that system or the system as a whole.

### **Variable**

Variable is a quality condition or value that may vary or take and/or exists in different states or qualities (Cooper& Schindler, 2003).

### **Dependent Variables**

It is a variable to be influenced, affected or determined by the independent variables (Cooper& Schindler, 2003).

### **Independent Variables**

Banjoko (1996) referred to the independent variable as predictor variable. They are those treatments whose effects are being studied.

### **Indigenous Company**

A Nigerian indigenous company is defined under the Nigerian Oil and Gas Industry Content Development Act as a company registered under the Companies and Allied Matters Act and having not less than 51% Nigerian share holding (Ogunbanjo, 2010).

## ABSTRACT

Nigerian economy (growing at 7.1%) is rising without Nigerians. The fact that the non-indigenous construction firms, most of which are SMEs, dominate the construction market is a contributory factor. Yet, only few empirical research have been undertaken to isolate the competitive advantage of these firms. The indigenous construction SMEs in North-Central region was shown among the weakest in Nigeria. Therefore this study examined the determinants of non-indigenous Small and Medium Construction Enterprises (SMCEs) strategy for competitive advantage in North-Central Nigeria. It was guided by research objectives which include; finding out the influence of resources, competitive strategy, critical success factors and value chain activities on the competitive advantage of foreign SMEs against rivals. The current effort directed at reducing competitive power of the non-indigenous SMCEs has been essentially protective. But with globalization and the continuous breach of national borders, World Trade Organization (WTO), continental and regional treaties; protectionist policies are ineffective. Therefore entrepreneurs must compete based on firm strategies. To establish this, the determinants of the competitive behavior of the foreign construction SMEs were the study gap. It adopted descriptive survey and exploratory design. It developed a research model to specify the relationship between competitive success predictors and competitive advantage. A total of 1199 SMCEs operating in Abuja and Kaduna who actually participate in bids for construction projects formed the population of the study. It empirically tested the model using t-test and linear regression on 87 respondents from Abuja and Kaduna construction SMEs. It also extends the Resource Based View [RBV] by empirically testing the relationships between resources and competitive advantage- from integrative, five forces and dynamic capacity frameworks. The work further clarified the role of competitive decision making on the basis of Michael Porter's competitive strategy, analyzed competitive advantage from a Critical Success Factors model and finally tested Michael Porter's construction SMEs Value Chain Activities. Findings show that 98.4% variation of competitive advantage is explained by the independent variables. The model was also significant at 5% level of significant. The t-values for the overall model suggest that all the important tests were rejected; which means resources, competitive strategy, critical success factors and value chain activities all affect competitive advantage. However, resources contributed more than other strategies, therefore, the study recommends that for improved competitive strength, indigenous SMCEs should deploy resources strategy as the prime strategy. Competitive strategy, value chain activities, and critical success factors strategies were shown as the order of priority against foreign rivals.

## **CHAPTER ONE**

### **INTRODUCTION**

The importance of Small and Medium Construction Enterprises (SMCEs) and the approaches to strategy are discussed in this chapter as a background. It also outlines and explores the Small and Medium Enterprises (SMEs) strategy for completion, the resultant effects on market share and competitive advantage. Other sections of the chapter include: statement of the problem, study objectives, research hypothesis, justification, scope and limitations.

#### **1.1 Background of the Study**

The study investigated the determinants of non-indigenous small and medium construction enterprises (SMCEs) strategy for competitive advantage in North-Central Nigeria. It is poised to give insight to firms' competitive behaviour. The SMCEs are important participants in the Nigerian construction market. But the existing structure of the industry on the basis of Ihua, Ajayi and Eloji (2009), Mbamali and Okotie (2012) and Nigerian Bureau of Statistics (NBS) (2012) survey, show non-indigenous domination of the construction delivery in Nigeria. The Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) (2010) shows existing state of SMCEs in the North Central Nigeria. However, to take advantage of the Nigerian Content Law, globalization and the various trade liberalization treaties to which the country is a signatory, suggests a need for indigenous SMCEs to adopt appropriate strategy to create and sustain a competitive edge away from competitive weakness and inability to respond to threatening environment observed by (Ogechukwu & Latinwo, 2010).

According to Yan, Chew and Cheah (2006), SMEs are usually vaguely used to suggest the idea of firms which are not large. While a universally accepted definition of SMES is lacking, their importance to economic growth is acknowledged globally (Gal, 2010; SMEDAN, 2010). SMEDAN shows that developing countries with large share of Micro, Small and Medium Enterprises (MSMEs) employment have higher

economic growth than their counterparts. In Nigeria, the understanding is that; MSMEs are the engine of industries development (Ibbih, 2005).

### **1.1.1 The Importance of Small and Medium Construction Enterprises**

Globalization has brought opportunities for SMCEs to subcontract from large multinational enterprises through joint ventures (JV) and partnership. Therefore, competition by SMEs at regional level where contractors work across national boundaries, are common phenomenon. The bulk of construction companies in Europe are SMEs. Schulmann and Sunke (2011) observe that of the estimated 2.5 million construction companies in the European Union (EU) member states in the year 2004, 97 per cent have less than 20 employees. Yan, Chew and Cheah (2006) show SMCEs as the major channel for creating jobs, the basic force for facilitating industry restructuring and marketing revitalization in China. They also constitute a cradle for entrepreneurs and entrepreneurship. Yuanyuan (n. d.) notes that their strength lies in flexibility of operation and quick response to market changes.

According to Egmond and Erkelens (2007) 95% of the number of registered construction firms in Ghana are small contractors. Ogbu (2011) reveals that indigenous construction companies in Nigeria are mostly SMCEs whose ownership and management are constituted by Nigerians. SMEDAN (2010) observes that a total of 239 SMCEs in Nigerian employing between 10 and 99, (the zonal break downs show a weak SMCEs in the North-Central Nigeria). In the year 2010, the breakdown shows that, while small enterprises are 194, medium enterprises are 45. A further breakdown unveils that construction SMEs contributed 10.27 per cent of the construction activities in Nigeria. The medium enterprises contributed 8.31 per cent, and small enterprises contribution stood at 1.96%.

### **1.1.2 Approaches to Strategy**

Drawing on all his previous ideas, Porter (2012) submits that strategy is about doing things differently to achieve a different purpose. Rothaermel (2008) maintain that the

unifying element of strategy is a focus predicting inter firms performance differentials. According to Michael Porter, a firm develops its business strategy in order to obtain competitive advantage over competitors. Rothaermel (2008) posit that gaining and sustaining competitive advantage is the defining question of strategy. Michael Porter has been fundamental to the development of both theory and practice of strategy and strategizing (Stonehouse & Snowdon, 2007). In Porter's (1996) view strategy involves choices and trade-offs between alternatives. It is about performing different activities from rivals or performing similar activities in different ways. A unique value position, a distinctive value chain tailored to the value position, making clear tradeoffs and choices together and reinforce each other and strategic continuity is a successful strategy (Porter, 2012).

Stonehouse and Snowdon (2007) identify four approaches to strategy. They are the perspective approach (also referred to as the deliberate or planned approach); the emergent (or learning approach); the resource competence and capability approach and the competitive positioning approach. The Michael Porter's competitive positioning school of strategy is often referred to as an "outside – in" approach to strategy (Stonehouse & Snowdon, 2007). In all and according to Rothaermel (2008), achieving sustained superior performance over a company's direct rivals is the ultimate challenge in strategy. Porter (2012) makes a clear distinction between strategy and operational effectiveness. Defending against the competitive forces and sharpening them in a company's favour are crucial to strategy (Porter, 2008). However, operational effectiveness is about doing something better (assimilating, attaining and extending best practice). A combination of low cost and improved quality at the same time is captured in operational effectiveness, and is regarded as being "inside – out". The focus is on best practice, bench marking and cost minimization. Though very important to profitability, operational effectiveness is not sufficient for the creation of competitive advantage (Porter, 1996).

### **1.1.3 Small and Medium Enterprises Strategy for Competition**

At a glance the non-indigenous SMEs appear to hold near-insurmountable advantage over business in newly industrialising countries. Khanna and Palepu (2006) analysed and highlight the strategies the globally competitive business displayed to overcome the institutional voids and the myriads obstacle to gain competitive power in the newly industrialising countries. They equally establish the sequence of steps (strategies and business models), that indigenous firms should take to build stronger business that can compete both at home and also enter market overseas. They posit that the advantage of the non-indigenous is surmountable.

Competing in the market place is like a war - you have injuries and casualties and the best strategy wins (Porter, 1985). The scholar also explains the variety of offensive strategic moves that can be used to secure a competitive advantage. Strategic offensives can be aimed at competitor's strength or weakness; involve end-runs or grand offensives; designed as guerilla action or as preemptive strikes; and target a market leader, a runner-up, or the smallest and/or weakest firm in the industry. The SME manager (strategist) must also understand the economic relationships (competitive forces) that sharpen industry competition. Yuanyuan (n.d.) compiled the common strategic analysis methods as PEST analysis, Porter five competitive forces analysis, SWOT analysis and Balance Scorecard.

### **1.1.4 Market Share Between Indigenous and Non-Indigenous Construction Enterprises**

Competition within the construction industry is increasing as market borders are breached due to the increased use of telecommunication, increasing efficiency of transportation system and lowering tariffs. Kanna and Palepu (2006) opine that as nations integrate themselves into the world economy, multinational firms even in the face of myriad obstacles and protectionist barriers. Such firms still hold their own



against the onslaught of restrictions. The impact of knowledge based economies and globalization on construction in developing countries is evidence by the decrease market share of the local players in the industry. Schulmann and Sunke (2011) show a weak presence of European construction companies in China. According to Yan *et al.*, (2006), construction SMEs in China's are confronted with the tasks of keeping themselves competitive after China accession to WTO. Furthermore, Chinese companies' entry into Africa's construction sector has intensified market competition.

According to Corkin, Burke and Davis (2008), it is evident that Chinese companies have a degree of CA. Cream (2006) notes the competitive edge of the Chinese contractors in the South African construction market result in concern for South African indigenous construction firms (Lombard, 2006). Egmond and Erkelens (2007) observe that Ghana's major construction projects are awarded to mostly non-indigenous contractors because of their competitive strategies. Vision2010 Report (Vision 2010 Main Report, 1997) the ratio of indigenous to foreign building contractors was 25:75. Similarly, indigenous engineering to foreign engineering contractors was 5:95. The implementation of the Nigeria Vision20: 2020 (Nigeria becoming the twentieth most industrialized country by the year 2020), Public Procurement Act (PPA) 2007 and Oil and Gas Industry Content Development Act 2010 are efforts at improving the indigenous market shares. The Nigerian Indigenous Construction Company Motivation and Protection Bill 2009, shares the same objective. Spending in the local economy through participation of local entrepreneurship pool and improving infrastructure delivery through the use of competent indigenous contractors, are appropriate strategies. It is important to note that some indigenous companies in China, India, Taiwan, Brazil, Malaysia and other emerging markets are holding their own and giving rivals a run for their money (Khanna & Palepu, 2006)

#### **1.1.4 Competitive Advantage of Firms**

According to Singh (2012) competitive advantage can be considered as an advantage, condition or position that facilitate more efficient operation and higher quality products and/or service for an organization. As noted by Porter (1985), any organization will seek an advantage over competitors in some measures. Rothaermel (2008) stress that competitive advantage (CA) is when a firm creates an edge over rivals in securing customers and also defends against competitive forces. Of greater interest to most managers is the development of a strategy aimed at establishing a profitable and sustained position against these forces (Hemmatfar, Salehi, & Bayat, 2010; Porter, 1985). A firm that enjoys a CA is not only more profitable than its competitors, but also grows faster (Rothaermel, 2008). Porter and Millar (1985) and Porter (1996) further suggest that with CA, firms are able to provide the same value to its customers at a lower production cost by differentiating its products from those of the competition in order to provide more value.

Competitive advantage is the basis for superior performance. O'Shannassy(2008)observes that a competitive advantage does not equate organizational performance but that their relationship seems complex. O'Shannassy (2008) emphasize that organizational performance is usually associated with the attainment of strategic and financial objectives. The market and efficiency approaches are two constructs in strategy which presupposes to explain sustainable competitive advantage and also differentiate competitive advantage from superior performance.

#### **1.2 Statement of the Problem**

Nigerian economy (growing at 7.1 per cent) is rising without Nigerians (McKinsey Global Institute Report, 2014). Idoro (2010) disclose that the 7% foreign construction firms account for 90% of the total value of construction in Nigeria. Contracts worth 8 billion USD annually in the Oil and Gas industry in construction are awarded, (Ihua, Ajayi&Eloji, 2009) but the domestic content is only 5 % (Idoro, 2010). SMEDAN

(2010) reveals that the ability of North Central Nigeria SMEs to compete is among the weakest in Nigeria. The foreign construction firms on the other hand depend on their competitive advantage (CA) strategies (Ogbu, 2011). This emanates from their resources, (Barney, 1991), competitive strategies, value chain activities (Porter (1985) and Kinman and Liu's (2004) Critical Success Factors (CSF). Meyer (2016), Arasa and Gathinji (2014) and Gal (2010) show revenue growth and market share as indicator of CA.

Mbamali and Okotie (2012) established that the preference for foreign firms have diminished opportunities for local enterprises to develop at a genuine pace and grow. There is capital flight and sustained loss of foreign exchange. While the competitiveness of foreign construction firms dates back to the pre-independent inducements; that of the indigenous SMEs is vital to national growth (Ogechukwu & Latinwo, 2010). Adopting the competitive options of the foreign construction firms in Nigeria is worthwhile (Ogbu, 2011). Therefore, this study established the determinants of non-indigenous small and medium construction enterprises (SMCEs) strategy for competitive advantage in North Central Nigeria. The findings will equip construction SMEs managers with competitive tools, influence policy directions and stimulate academic discourse

### **1.3 Study Objectives**

#### **1.3.1 General Objective**

To investigate the determinants of non-indigenous small and medium construction enterprises (SMCEs) strategy for competitive advantage in North-Central Nigeria.

#### **1.3.2 Specific Objectives**

The specific objectives comprise the following:-

1. To determine how resources influence the competitive advantage of non-indigenous Small and Medium Construction Enterprises (SMCEs).

2. To establish the relationship between competitive strategy and competitive advantage of non-indigenous SMCEs.
3. To identify how Critical Success Factors influence competitive advantage of non-indigenous SMCEs.
4. To ascertain the relationship between value chain activities and the competitive advantage of foreign SMCEs.

#### **1.4 Research Hypothesis**

In line with the first objective of the study, it tested as follows:

**Null Hypothesis 1:** The resources exploited by the non-indigenous Small and Medium Construction Enterprises have no influence on their competitive advantage strategy.

Also in alignment with the second objective of the study, the study tested:

**Null Hypothesis 2:** The competitive strategy exploited by the non-indigenous Small and Medium Construction Enterprises has no relationship with their competitive advantage strategy.

Furthermore, the study also tested; in line with the third study objective:

**Null Hypothesis 3:** Critical success factors exploited by the non-indigenous Small and Medium Construction Enterprises have no influence on their competitive advantage strategy.

Finally, from the study objective four, this study tested:

**Null Hypothesis 4:** The value chain tool exploited by the non-indigenous Small and Medium Construction Enterprises does not contribute to their competitive advantage strategy.

#### **1.4 Justification of the Study**

The main contribution of the study is derived from the disseminated findings that build and retain customer base. The findings offer entrepreneurs the specific

understanding of why some firms succeed while others fail; what determines firm's performance and what entrepreneurs and managers do; and the knowledge of the dynamic process by which firms deploy and exploit strategy to gain competitive edge. The study potentially reveals content of resources, strategies, success factors, policies and plans that structure businesses to win opportunities and also deliver products and services more efficiently and effectively thereby expanding opportunities. Specifically, the study is of benefit to the following:

**Entrepreneurs:** The findings will acquaint potential entrepreneurs with entry barriers into the construction market and also how to develop strategy around the avenues where other competitive forces are weak. Existing entrepreneurs will utilize the findings to position themselves to be least vulnerable to competitive forces while leveraging on their unique advantages. They will increase construction firms' capacity to improve performance and profitability through competitive strategies, resources strategies success factors and the best procedures for production flows thereby increasing the chances of growth from SMEs to large enterprises. The findings reveal strategy for technology adaptation and transfer in sub-contracting and Joint Venture (JV) agreements for small and medium construction enterprises.

**Academic and Affiliated Institutions:** The study will generate further interest in entrepreneurial strategies and project management as they relate to the construction of SMEs. It will further engage scholars and construction researches to engage other domains that need a thought through, within a peculiar business environment. By that, managers will find easy application of the improved knowledge of strategy in the day to day running of construction firms.

**Policy Makers:** Government and Business Associations will utilize the knowledge gained to re-access the effectiveness of SMEs intervention programmes and further develop short-term programmes, long – term policies and strategies for the construction of SMEs' competitiveness. The findings will offer insight into specific areas of need and also as facts to support request for assistance from Development Partners and Business Development Services (BDS) providers.

## **1.5 Scope of the Study**

The scope of this study will include foreign and indigenous SMCEs concerned with project design, costing and erection in Abuja and Kaduna. For studies on projects that bring foreign and local firms into competition in Nigeria, Abuja is strategic because of the infrastructural needs to make it a world class national capital city (Adamu, Nensok & Aka, 2012). Furthermore, the bids for most of other federal construction projects outside the Federal Capital Territory (FCT) are done in Abuja. Kaduna was a pre 1914 amalgamation “national capital” which enjoyed the pre independent incentives that brought the foreign firms. Since then and at different times it had been the headquarters of Northern Nigeria, North-Central state and Kaduna state. At the moment there is a strong presence of foreign firms in the zone. These two share similar construction trait and are appropriate representative of the Nigerian variety of Middle Belt, and Northern characteristics. The similarities are common to the mode of construction delivery globally because of the increasing mobility of corporate tools used by developed economies which are also deployed by emerging market and even developing economies (Khanna & Palepu, 2006). This suggests that the findings are universally relevant to construction enterprises. It will be a mere duplication if the scope is extended to other cities in Nigeria.

## **1.6 Limitations of the Study**

The problems identified, that served as impediments to this study include lack of data access, transparency and general staff resistance. Firms normally exercise control over corporate information. Notwithstanding assurance of confidentiality, they were reluctant to divulge details adjudged to be critical. The reluctance was minimized by seeking the assistance of the Clients, consultants and Professional Associations who are the umbrella bodies of these firms. Staff of respondent firms who are acquainted with the researcher served as research assistants. The non-verbal languages of respondents were also observed.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter reviews the different streams of literature in the areas of creating and sustaining competitive advantage of SMCEs. It explores scholars understanding of the nature of competition and the strategies SMCEs entrepreneurs employ to compete (with particular reference to foreign and indigenous companies). It reviews how construction companies create and maintain proprietary shields to ward off competitors. The chapter is set to present the gaps in the literature requiring investigation in order to set up the basic theoretical foundations for subsequent development of a research model. The work is divided into four (4) sections; the first section examines theories in such domains as firm resources, competitive strategies, critical success factor and value chain management. The second part deals with the model that is perceived as possessing some explanatory power in terms of enhancing proper understanding of the relationship between the research variables- the conceptual framework. The third examines secondary research in accordance with the variables of this study. The fourth part is concerned with empirical studies carried out in the past and in accordance with the variables presented in the research model, the critique and the research gaps.

#### **2.2 Theoretical Review**

A theory is a hypothetical speculation and not dealing with facts as presented by experience. Often times, terms like foundation, philosophy, paradigm, first principle, system and model are used instead of the term theory (Koskela, 2000). Bodies of theories must be examined and evaluated to arrive at the framework appropriate to a research, (Fellows & Liu, 2008). They provide framework for a research project like steel or reinforcement to a building.

## **2.2.1 Competitive Advantage Theory**

### **Integrative Framework**

Ma (1999) advances an integrative framework called SELECT. The framework assists in the systematic examination of the various facets of the anatomy of competitive advantage. SELECT is the substance, expression, locale, effect, cause and time-span of competitive advantage. It suggests that analyzing the causes of CA helps a firm to create and gain advantage. Studying the substance, expression, locale and effect of CA allows for better utilization of the advantage. Examining the time span enables the firm to fully exploit the advantage according to its potential and sustainability.

### **Critique**

Integrative framework suggests that analyzing the causes of CA helps a firm to create and gain advantage. This answers the dependent variables of this study.

### **Five Forces Framework**

According to Porter (1985), a firm develops its business strategy in order to obtain competitive advantage over its competitor. For Michael Porter, competition is the key element which influences the company's success or failure by determining the actions which must be taken in order to increase the overall level of performance. According to Grundy (2006), Porter (1985) distilled the complex micro-economic literature into explanatory or causal variables to explain superior and inferior performance through Porter's (1985) list of forces that sharpen the business environment. These are the "five forces" framework (appendix 3). They are; threat of new entrants; bargaining power of buyers; threat of substitutes; bargaining power of suppliers and intensity of rivalry. A firm develops strategy to gain competitive advantage by responding to these five primary forces. Five forces framework (Porter, 1985) is a typical example of a framework describing the influence of the industry environment on the competitive strategy. Hemmaifar., (2010) observe that this model



is one of the most popular frameworks for analyzing competitiveness. Groundy (2010) note that PEST is possibly the most widely-known strategy technique after SWOT analysis but there is a profound gap between PEST and SWOT analysis. This gap is only partly met by Porter's (1985) five forces model (Groundy). To Shin (2001), a company assesses the five competitive forces and then tries to develop the market at those points where the forces are weak.

According to Bosch and De Man (1997), the focus of the five forces is the influence of the industry environment on the competitive strategy of firms. The five forces define the rules of competition in any industry. They highlight what is important and further direct managers toward those aspects that are most important to long term advantage. In Porter's (2008) view, the strength of competitive forces affect prices, cost and the investment required to compete. Intense rivalry drives down prices or elevate the cost of marketing, R&D, or customer service, and also reduce margins. Strong suppliers drive up input costs. Buyer power lowers prices or elevates cost of meeting buyers' demand. Lower barriers to entry or close substitute limit level of substitutable prices. Firms can influence the five forces through their own strategies. Managers are to analyze and isolate the driving factors that really propel the industry. The more entrepreneurs understand the underlying forces of competitive pressure, the better they are able to access market opportunities, or the threat facing their venture (Dess, Lumpkin & Taylor, 2005). Construction SMEs can use this framework as an input for strategy formulation and for formulating the strategy content (competitive strategy – differentiation, cost leadership and niche).

### **Critique**

The Five Forces Framework, distilled explanatory or causal variables to explain superior and inferior performance through a list of forces that sharpen the business environment. It also answers the dependent variable of this study.

## **Dynamic Capability Framework**

Both the tradition and contemporary views are important perspectives of competitive advantage. Pamulu (2010) projects the dynamic capability framework as the preferred framework and a good point of view for studying the competitive advantages of firms in developing environments. This prescription is suitable for growing, complex, turbulent and volatile economies. Dynamic capabilities are the firm's ability to interpret, build and reconfigure internal and external competences/assets to address a rapidly changing environment. According to Pamulu (2010) the framework draws from entrepreneurship, behavioural theory of the firm and behavioral decision theory; organizational theory and transaction cost economics. It explains dynamic capabilities as process shaped by internal and external positions.

Technological, complementary, financial, reputational and structural assets are internal positions. On the other hand, firm's institutional environment and its market (structural) assets are external. "Asset" in their framework has a similar meaning to "resources" as used within the Resource Base View (RBV) in Barney (1991). Gaining competitive advantage therefore, relates to the enterprises' ability to sense, seize and adapt in order to generate and exploit assets. It must also be able to address the enterprises' changing environment.

## **Critique**

The dynamic capability framework is the preferred framework and a good point of view for studying the competitive advantages of firms in developing environments. Also that the framework draws from entrepreneurship among others makes it appropriate to answers independent variable of this study.

## **2.2.2 Resource-Based View of Competitive Advantage**

### **The Resource-Based View**

The Resource-Based View (RBV) aspires to explain the internal sources of a firm's sustained competitive advantage. The perspective states that rare and valuable resources are central to a company when it comes to their competitive advantage (Grant, 2001). The RBV sees a firm as a collection of resources; human resources (personnel), financial resources (capital), physical resources (plant and equipment), social resources (network of contacts) and organizational resources (structure and processes). These resources can be tangible or intangible (tacit). Resources and capabilities of a firm are the primary constants upon which firms can establish its identity and frame its strategy. Strategic resources that have value- economically important- will position a company in a competitive market. Only resources considered to be strategic are sources of competitive advantage and improve performance.

Newbert (2007) observe that Barney's (1991) work on firm resources and sustained competitive stands out as the most comprehensive theoretical framework of resource based view (RBV). Based on two critical assumptions, Barney articulates the firm's resources as the fundamental determinants of CA. The first assumption is that resources are assumed to be heterogeneously distributed among firms. Thus, it allows for the existence of differences in firm resources endowment. Secondly, resources are assumed to be imperfectly mobile. This second assumption allows difference to persist over time. If the resources are rare (unique, few companies hold these resources) they generate a CA for a firm that sustains them. If they are unique (difficult to copy and hard to duplicate) they grant the owner of the firm a long-lasting CA.

The conclusion is that only resources that are simultaneously valuable and rare can generate CA. Entrepreneurs are therefore counseled to exploit unique assets to gain CA. Furthermore, they should imitate to gain competitive parity. Al-Rfou and

Trawneh(2009) argue that the sources of CA have shifted from financial resources to technology and now to human resources.

### **Critique**

The Resource-Based View (RBV) aspires to explain the internal sources of a firm's sustained competitive advantage which have shifted from financial resources to technology and now to human resources. This theory answers specific objective 1.

### **2.2.3 Competitive Strategy**

According to Porter (1980), appendix 4 defines the choice of “generic strategy” a firm can follow. A firm's relative position within an industry is given by its choice of competitive advantage. These are cost leadership versus differentiation and its choice of competitive scope. This implies that, achieving CA requires a firm to make a choice about the type and scope of its CA. However, there are different risks inherent in each generic strategy, but these are the choices that have to be made because, being stock in the middle, attracts more risks.

### **Critique**

Competitive Strategy defines the choice of “generic strategy” a firm can follow. This answers specific objective 2.

### **2.2.4 Critical Success Factor Models**

Wan and Liu (2004) developed a model of Critical Success Factors for competitive advantage. The model portrays that enterprises can effectively use labour, capital and resources to produce quality products or services as to achieve total customers satisfaction implying that the most competitive SMCEs must outperform and continually improve the critical success factors. They observe that the most

competitive companies always and consistently out perform their competitors in productivity, quality, innovation and technology; efficiency, finance and reputation. Belassi and Turkel (1996) advance a Critical Success/Failure model; the characteristics described as essential dimensions of project performance. These characteristics are the size and value of a project, the uniqueness of project activities and the density of project network. Others are the project life cycle and the urgency of a project outcome.

### **Critique**

The Critical Success Factors model for competitive advantage posits that the most competitive SMCEs must outperform and continually improve the critical success factors and it answers specific objective 3.

#### **2.2.5 Value Chain Theories**

According to Koskela (2000) Michael Porter's (1985) value chain (VC) theory illustrated in appendix 5, provides insight into strategy. Shin (2001) maintains that strategy is not only about how to configure individual activities, but also about how to combine or relate activities. Hongyan and Wen (2012) note that the basic idea of the value chain (VC) theory is that, the difference segments in the value chain create different values. It is a strategic concept arising from a strategic theory of firm competition. As firms struggle to compete in an environment of globalization and intense competition, the focus shifts to alternative means in order to remain competitive. This creates an increased interest in value chain.

The VC is a theory that views the firm as being a collection of discrete but related production functions (Porter, 1985) if production functions are defined as activities. The VC formulation focuses on how these activities create value and what determines their cost. To compete, SMCEs must manage the VC as a system of interdependent activities (in bound logistics, operations, out bound logistics, marketing and sales and service activities) with linkages as relationships between the

ways one value activity is performed and the cost or performance of another. The global value chain and comparative advantage theories classify the way for developing countries to upgrade their industries under globalization.

## **Critique**

The VC theory focuses on how production activities create value and managing VC as a system of interdependent activities (in bound logistics, operations, out bound logistics, marketing and sales and service activities). This answers specific objective 4.

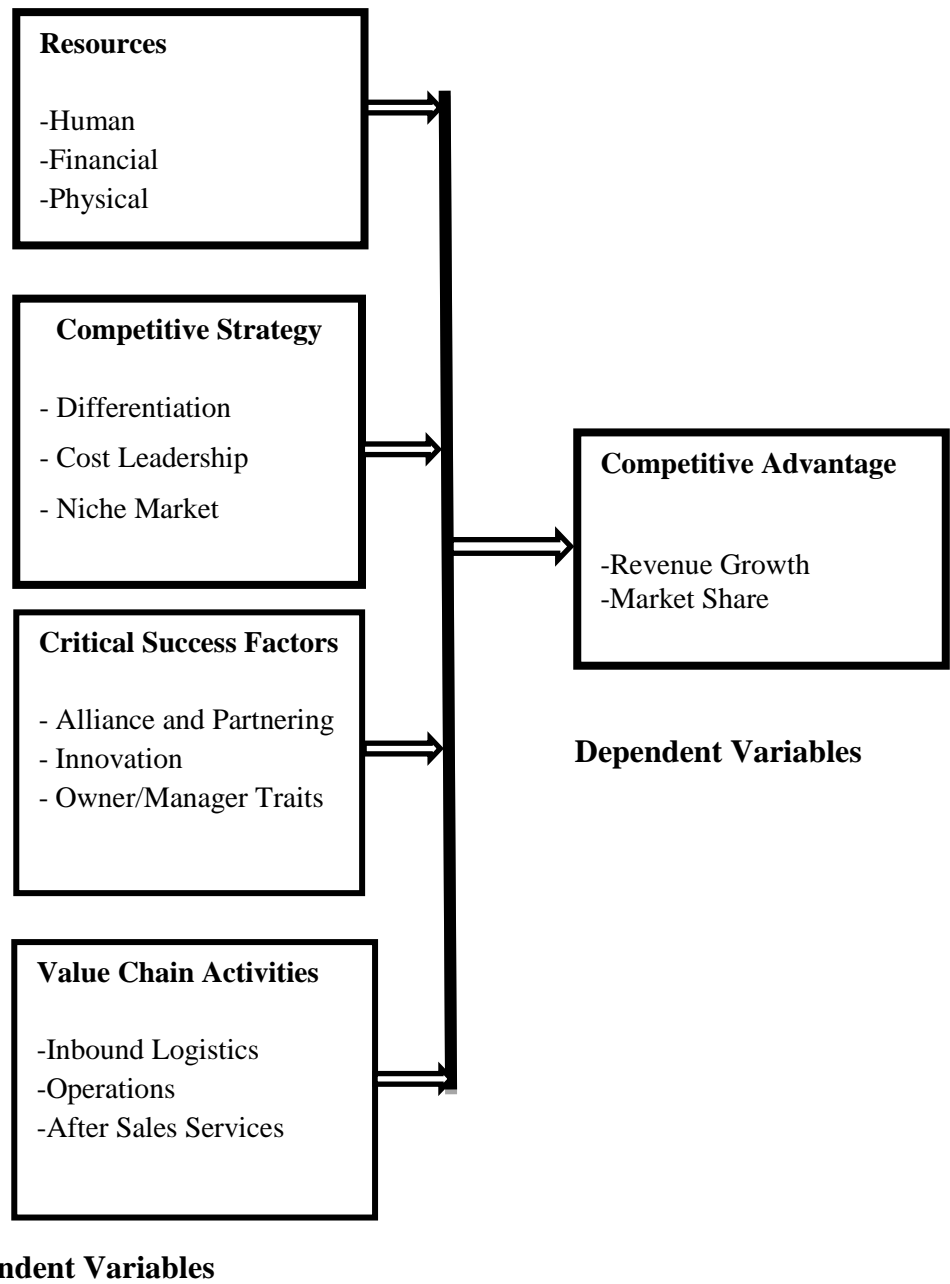
### **2.3 Conceptual Framework**

A conceptual framework is an abstraction from existing theories including certain assumptions or models that are perceived as possessing some explanatory power in terms of enhancing proper understanding of the influence of the variables or their relationships with regards to observed phenomena (Banjoko, 1996). This study carefully draws from and integrates the discussed theories, models and school of thoughts as the principal line of focus to develop a conceptual framework. The conceptual framework diagram demonstrates the theoretical relationship of the variables in this work. It posits that the competitive advantage (dependent variable) of small and medium construction enterprises is influenced by a range of factors known as the independent variables.

The facets of the anatomy of CA as established by the Integrative Framework (Ma, 1999), Michael Porter's Five Competitive Forces (Porter, 1985) and Dynamic Capacity Framework in Pamulu (2010) establish the dependent variables in the study's conceptual framework. Furthermore, the critical analysis of the Resource Base View (Barney 1991) theory, Competitive Strategy theory (Porter, 1980), Critical Success Factor model (Kinman & Liu, 2004) and Value Chain Theory (Porter, 1985) established the independent variables of the study frame work. These were further reviewed through the work's empirical studies. The stated theories were

earlier linked to this study's objectives. Thus the Conceptual Framework model of this study was established.

These independent variables from the cited works, collectively expressed as strategies are; the resources possessed by firms, the competitive strategy deployed the critical success factor and the value chain activities. The Conceptual Framework Model (Fig2.1) graphically delineates the relationship between the different variables. These are the important yardsticks to measure the competitive advantage of small and medium construction enterprises (SMCEs)



**Figure2.1: Conceptual Framework Model**



## **2.4 Review of Important Literature**

### **2.4.1 Resources**

Resources broadly refer to both assets and organizational routines, but more specifically, construction is a combination of three categories of resources. The first is designed services, the know-how of engineers, construction process and technology; the second is labour, craft and machine; the third is materials (Rothearmel, 2008). Competitive advantage is attributed to the ownership of unique and valuable resources and capabilities (Vele, 2012). Capital, by whatever nature, is highly mobile. It moves across borders in search of high returns. Labour is largely immobile and unskilled labour is no longer “relevant” in the contemporary world that is knowledge driven. Therefore skill is about the most important resource. Popovic (2010) and Hitt, Ireland and Hoskssoni (2006) note that employees are the most important sources of value for SMEs.

Vele (2012) emphasized intangible resources for an effective competitive strategy, (brand name, image, reputation and organizational – process). For construction firms, Dangerfiel, Quigley and Kearney’s (2013) model isolate financial capital, human resources, supplies/suppliers, and reputation. With the Chinese firms in Africa, Corkin, Burke and Davis (2008) observe access to capital, supply chain, cost and labour productively. Some enterprises have gained CA by exploiting their knowledge of local factors of production, (Khanna & Palepu, 2006) and Urbancova (2013) established the importance of knowledge itself in competitive advantage achievement through innovation and knowledge. Enterprises navigate around lack of infrastructure (institutional voids); capitalize on sourcing the right type of resources to deliver products to the market.

According to Vele (2012), resources represent a key source of CA and without doubt, gaining CA is influenced by the company’s resources. Any increase in performance that will eventually boost market position is determined by the way resources are used. Therefore competitive strategies need to be based on core resources held

exclusively by enterprise. The efficient deployment of resources represents one of the key activities of the company in its efforts to gain CA. According to Porter (1980), CA requires the efficient integration of every resource held by a company. Al-Rfou and Traweh (2009) contest that the sources of CA have shifted from financial resources to technological resources and now to human capital. Khanna and Palepu (2006) establish that the competition for these resources is actually in the resources global market tier of developing countries. Dangerfield, Qwgle and Kerny (2014) reveal that to a typical contracting firm, human resources, money and materials affect their competitive position thus, its ability to win further contract in the market. The DWB (2007) concludes that in developing countries the construction industry operates with limited and unreliable resources.

### **Human Resources**

Pamulu's (2010) analysis shows three (3) approaches to competitive advantage. The first is the mistake approach. The mistake of a firm creates CA for others, therefore owner managers must guide against mistakes. Then the market approach firms that exploit market power gain CA. Small and Medium Construction Enterprises should use and protect market power. The third is the capability approach; this means that SMCEs are encouraged to exploit unique assets (knowledge). Al-Rfou and Trweh (2009) argue based on Barney (1991) that in order for a resource to qualify as a source of sustained CA, the resource must be rare, it must be inimitable and it must be non-substitutable. Vele (2012) also declare that human capital (the people involved in every activity) is the most important. The suggestion is that it is only human resources that meet Barney's criteria. With increasing capital (financial) mobility and technological transfer Hiroki (2008) identifies skilled work force as a source of C.A. Modern organizations are increasingly seen as knowledge based enterprises in which proactive knowledge management is important for competitiveness.

According to Barney, human resources include the training, experience, judgments, intelligence, firm relationships and insight of individual manager and workers. This is identified as 'soft infrastructure' and filling the market void of talents, skills and

competences is a source of CA, (Khanna & Palepu, 2006).The DWB (2007) establishes that some of the factors contributing to the suboptimal state of affairs prevailing in the construction industry in developing countries include; low overall level of education and lack of training of the available human resources; in efficient and in experienced management in project mobilization and logistics; brain-drain caused by low salaries; lack of effective management skills particularly in estimation of materials, costing, procurement and general contract administration and lack of good quality working environment, facilities and lack of good career path. Sometimes, highly skilled technical personnel are promoted to a higher management level displacing them from their field of expertise and placed in a field they are ill equipped for. Mir, Tanvir and Durrani, (2007) lists Engineers, Craftsmen, Supervisors, Technicians, Project Managers and Design Engineers as some HR needed in the construction industry.

Ceramic and Popovic (2010), say that what differentiates SMEs first and foremost is the employee. Human resources are key element for maintaining their competitive edge in the market. They create value through their skills, intellectual capital/assets and information. Therefore, competitive success now depends on employee's attitude, competencies and skills, as well as their ability to generate commitment and trust; communicate aspirations and work in complex relationships. In the construction industry, the continuous development of new construction materials, technology and processes make it necessary for work force to constantly up date skills and competences. Gal (2010) notes that experienced managerial and professional staff in Engineering, Procurement and Construction enhance the chance of winning construction contract especially at the technical proposal stage. In South Africa, Lombard (2006) posits that the Chinese have developed surplus capacity in their domestic construction industry. However, Yan, Chew and Cheah (2006) note that one of the major problems in China construction SMEs is the employees' low level of education. Foreign enterprises can provide much better working conditions and training opportunities than their local competitors. Therefore, the talented workers are attracted to these (foreigners') conditions.

Furthermore, CCS report (2006) shows that majority of Chinese companies operate seven days a week. It is not uncommon for them to use lighting for 24 hours a day to meet deadline. Workers are generally found to be well organized; they are considerably better disciplined than many of the workers in local construction companies. With their low standard for workers, long hours, low pay, low standard occupational safety and health and poor record on workers right, local companies have little chance to compete. Therefore, the local firms are limited to small scale projects due to their lack of capacity.

Mbamale and Okolie (2012) pointed out the inadequate technical and managerial know-how as a problem in the Nigeria construction industry. To develop the needed HR, Mir, Tanuir and Durrani (2007) recommend continued professional development and structured on-the-job training. Ahmed and Khalaf (2009) conclude that the proposition that people are the most important assets and people are the source of competitive advantage is true. But at the same time, it shows a significant relationship between competitive advantage and job motivation due to the fact that tangible resources are relatively easy to imitate, companies must focus on intangible assets, as they are more difficult to imitate. The knowledge, skills and abilities of human resources, company's brand image and reputation can be used in gaining sustained competitive advantage (Vele, 2012).

### **Financial Resources**

One of the best sources of competitive advantage is company's economic and financial situation (Vele, 2012). Raduan, Haslinda and Alimin (2010) and Yau *et al.*, (2006) note that financial resources such as cash-in-hand, bank deposits and/or savings and financial capital (stocks and shares) contribute to CA. Financial power and market position can be used to build powerful brand which can be used to gain competitive advantage (Vele, 2012). Financing is required for security for advance payment bid and performance securities, working capital, risk assurance, investment in new equipment or leasing and purchase of materials. Others are operational costs and guarantees for release of retention (Mir *et al.*, 2007). Firm's financial strength, structuring financial packages, price competitiveness and ability to offer project

financing can help clients to reduce financial burden and give enterprises competitive edge. Similar to human resources, the competition for financial resources is in the global market tier (Khanne & Palepu, 2006).

Mir, Tanvir and Dairani (2007) analyzed the multifaceted difficulties construction enterprises faced in accessing financial resource in developing countries. They face significant difficulties in acquiring financing.

Furthermore, many owner-managers commit their firms to bid prices based on the clients' estimate yet, they lack innovative financial practices. Another problem is that construction enterprises do not operate a fixed location or from well-established offices or plant. Their equipment easily depreciate over time. There is the problem of poor accounting (many do not maintain audited accounts) and lack of verifiable documents on assets turnover and profitability. All these lead to weak collateral base. Mir., (2007) further indicate that the financial institutions do not recognize the construction industry as an industry and do not give credit on the same terms. Many of these institutions lack personal experience in assessing construction enterprises as potential borrowers. Yet insurance bonds are not accepted as insurance companies have poor track record of honouring their bonds.

Generally, construction SMEs face severe problems relating to cash flows, liquidity and obtaining credit from financial institution in developing countries. Therefore, according to Corkin, Burke and Davis (2008), one of the most important factors that give Chinese firms competitive edge in Africa is access to capital. Construction SMEs can access loans and necessary funds for advance payment and performance bonds from head office in China. Furthermore, Chinese government implements favourable loans and taxation policies to support SMEs abroad. Where Chinese SMEs find it difficult to access bank finances at home (in China), they are limited to residential building for local communities (Yau, Chew & Cheah, 2006). Their competitive success is also as a result of the cost competitiveness of overall bidding prices and access to low cost labour (CCS 2006).

According to CCS (2006), the major impediment to Tanzania local construction companies is access to capital or collateral for bonds, advance payment and performance bond, unfavourable tax regime and lack of support in terms of financial credit facilities. Oladimeji and Ojo (2012) appraise the indigenous limited liability construction companies in South Western Nigeria. They show that the projects executed by these firms are such that lead to very low financial base and thus affect their ability to compete with their foreign counterparts. The finding shows that indigenous construction company in Nigeria earns low and inconsistent profit (average 5.9%) compared to 17% which the Malaysian Construction Company records.

### **Physical Resources -Plant, Equipment and Information and Communication Technology**

Resources provide the competitive strength required by a firm. Khanna and Palepu (2006) identify competitive strength to include sophisticated technologies. Lack of advance equipment in developing economies is observed by Mir *et al.*, (2007). Firms that gain CA circumvent institutional voids and tailor their strategies to local markets are able to navigate the business turf (Khanna & Palepu, 2006). They do this by building on familiarities with resource market. In Raduan, Haslinda and Alimin's (2010), view physical resources are plant, machinery, equipment, production technology and capacity. They emphasized that physical resources contribute to CA. Barney (1991) generates lists of firm attributes that may enable them to conceive of and implement value – creating strategy for competitive advantage. They are classified into physical resources, human resources and organizational capital resources. Physical resources include the physical technology used in firm, a firm's plant and equipment, its geographical location and its access to raw material.

Mir *et al.*, (2007) observe that the principal asset in construction is equipment and foreign construction companies use equipment and technology to gain CA. Similarly Yau *et al.*, (2006) reveal that most Chinese construction SMEs lack resources to compete for large projects; they have limited plants and pursue labour – intensive

projects. As Mir *et al.*, (2007) show, the dearth of equipment in developing countries is due to the considerable variation in requirement for a single project and their depreciation over a short period of time. Furthermore, contractors are reluctant to invest in purchasing, partly because of limited financial resources, high duties on imports and procedural delays. The leasing option has stringent requirements and unnecessarily long bureaucratic procedures. The establishment of government owned plant and equipment companies is an attempt to address the problem of dearth of equipment in Tanzania and Indian has Infrastructure Equipment Bank for the same purpose (Mir *et al.*, 2007). Windapo and Omeife (2012) discover inadequate possession of construction equipment by SMCEs in Nigeria.

Hemmatfar, Salehi and Bayat (2010) maintain that competitive advantage in the digital economy is more important than in the old economy. Therefore, the first step to CA in this economy is to ask and answer the question where, given my industry and position, does my CA come from? Followed by how can IT especially Internet, help my business?

In business as in battle, information about one's competitor can make the difference between winning and losing. For companies to achieve CA, they should concentrate effort on information system (IS). According to Hemmatfar *et al.*, (2010), industrial espionage is considered to be unethical and usually an illegal aspect of competitive intelligence but many companies continuously monitor the activities of their competitors to acquire competitive intelligence. Such information gathering drives business performance by increasing market knowledge, improving knowledge management and raising the quality of strategies. Collaborative technologies such as internet or group ware are essential for rapid information access.

Hemmatfar *et al.*, (2010) say that information has emerged as an agent of integration and the enabler of new competitiveness for today's enterprise in the global market place. Information technology can be used to support changes in business process link with business partners, reduction of cost, acquiring competitive intelligence and others. IT also provides better control over remote stores or offices by providing speedy communication tools, streamline product design time with computer-aided

engineering tools and better decision making processer by providing managers with timely information reports. IT links a company with its business partners effectively and efficiently.

Vele (2012) reiterate that previous information obtained from implementing competitive strategies can be used in the present and future in order to avoid making mistakes and increase the overall line of efficiency. Information is an intangible resource and therefore difficult to imitate. Information technology (IT) and other technology applications are part of the support activities in Porter's Value Chain (Porter, 1980). Information has emerged as an agent of integration and the enabler of new competitiveness for today's enterprise. Internet is also a tool for seeking CA. According to Hemmatfar *et al.*, (2010), many of the companies that succeed will be the ones that use the internet as a complement to traditional ways of competing. The overall impact of the internet is to increase competition. It influences competition in the five competitive forces Porter (2001).

#### **2.4.2 Competitive Strategy**

According to Papulova and Papulova (2006), in order to be successful, organizations must be strategically aware. One of the most important requirements for a firm to survive in the global competitive environment is a sound strategy. Building the best defense against the five competitive forces or finding positions in the industry where the forces are weakest is viewed as a strategy (Porter, 1991). A strategy is also the creation of a unique and valuable position involving a different set of activities. It is deciding where a business should go and how to get there, Pamulu (2010). Therefore, the industry structure and positioning are the basis for the model of competitive strategy promoted by Michael Porter (Hemmaifar *et al.*, 2010) in appendix 4.

Pamulu (2010) maintains that a firm is required to develop a defendable position in an industry through competitive strategy. When this is done, the firm is able to deal



effectively with the five forces and also generate a sustainable competitive advantage at the same time. Through a competitive strategy, an organization seeks a competitive advantage in an industry (an advantage over competitors in some measures such as cost, quality and speed (Porter 1985). Such an advantage seeks to lead to the control of the market and to larger-than-average profit (Porter and Millar, 1996).

### **Differentiation strategy**

Differentiation strategies refer to those measures applied to evaluate the customer's perception in order to improve the existing or additional services to the customers. It is a perception that something is seen to be new (Yan *et al.*, 2006). Differentiation can be by improving the product or services that increase the buyers' sense of its worth. Differentiation strategy sets the firm to have a unique or different product/service perceived by the customer as being unique or different. Differentiation resides in firm's ability to understand the client's particular needs and to satisfy these needs. The many discrete activities a firm performs in designing, producing, marketing delivering and supporting its products, contribute to a its relative cost position and create a basis for differentiation.

The requirement for differentiation includes resources and core competences in the field of technology, research and development (R&D) and marketing among others (Vele, 2012). According to Porter (1985), differentiation can stem from such factors including the procurement of high quality raw materials, a responsive order entry system, or a superior product design. In Porter's (1985) view, the choice of a strategy is basically only one of two- either cost leadership or differentiation. Yet there are different risks inherent in each generic strategic. This is because differentiation firm can charge premium price; as such, a firm can earn above average profit (Pamulu, 2010). The risk is in figuring out the maximum price that the clients are willing to pay for the extra value.

Since differentiation is attractive when buyer preference and/or requirement are diverse and the construction industry encompasses a wide variety of activities with

the limited resources, Yan *et al.*, (2006), suggest that construction SMEs may adopt differentiation strategy. Either general or focused differentiation is suggested. Specifically, it is suggested that general differentiation is particularly an important strategy in a huge and rapidly growing construction market.

Badenhorst-Weiss and Cilliers (2014) explore the various sources of competitive advantage focusing on differentiation and a unique value package as a market strategy to ensure competitiveness in Soweto. According to Benton and McHenry (2010), the task in differentiation is that firms must be ready for strong financial capabilities because differentiation attracts higher materials and equipment costs but it is good for creating barrier to entry as Michael Porter theory shows (Porter, 1980). Differentiation strategy is among the performance indicators that explained 65.5% of the variation in performance among mobile telecom firms in Kenya, (Arasa & Gathinja, 2014).

### **Cost Leadership**

Cost leadership strategy is about producing product and /or services at the lowest cost than competitors in the industry (Hemmatfar, Salehi & Bayat (2010)). This relative cost advantage enables a business to do one of two things; price it product/or services lower than its competitors in order to gain market share and still maintain current profitability; or match the price of competing product or services and increase its profitability (IMA, 1996). Companies seeking to become cost leaders in the market have to reduce their production cost below the industry average, (Vele, 2010). It entails setting lower own price than competitors, thrifty buying practices and efficient business processes. Furthermore, it requires an organizational structure focused on a simple reporting system, low number of hierarchical level and a total commitment to cost reduction.

According to Meyer (2016), Ford's original model is Porter's (1980) generic cost leadership.

Sunke *et al.*, (2011) classify all activities that produce cost, directly or indirectly, but do not add value or progress as wastes. Schulman (2011) shows that waste reduction and others as means of gaining competitive advantage. This is summarized as process enhancement, efficient operation, lower disposal cost, fewer defects, less process waste, energy saving and improved maintenance. There are wastes of over production, waste of correction, waste of material movement, waste of processing and waste of inventory. This is also in line with Griffit and Bhutto's (2008) observation that to leverage the environmental capabilities, organizations reduce cost with waste management, environmentally friendly product and recycling. They advise that construction contractors should consider environmental aspects of their business in order to remain competitiveness. Using China indigenous contractor, Yan *et al.*, (2006) delineates that construction SMEs maintain low running cost. Therefore, they easily leverage on cost leadership as a strategy but Bonton and McHenry (2010) explained that a low cost strategy mostly include many competitors. The strategy must generate economies of scale which will lower the cost of production and also strengthen firm's competitive position thereby leading to higher profit. Thus the price paid by competitors is forced up and the customers or supplier are assisted to reduce their costs (Hemmatfar, Salehi & Bayat (2010). Arasa and Gathinja (2014) recommended that with cost leadership, products at average industry prices earns a profit higher than that of rivals, or below the average industry prices to gain market share. The summary of this strategy is: provide extra value to clients, improve quality and performance and cut down production cost. The result is that rivals are forced to lower their own price too and accept smaller profit. It also becomes less attractive for new entrants, at the same time, with lower profit margin; expansion of existing rival's firm becomes difficult.

### **Focus Strategy**

Porter (1985) maintains that a company is also required to have a choice over the competitive scope of activities over which it seeks advantage. It could either be by a broad or a narrow segment of the industry (appendix 4). Serving only a particular industry segment can be by lower cost or differentiation in serving that segment

compared to competitors. According to Pamulu (2010), the two basic types of competitive strategies (differentiation and cost leadership) combined with the competitive scope of activities which a firm seeks to achieve then lead to the third strategy for outperforming rival - the focus strategy (niche market). Niche market entails selecting a narrow scope segment and being the best in quality, speed or cost in that market. Competing using this strategy still has to be either by cost leadership or differentiation. Yan *et al.*, (2006) suggest that for those specialty construction SMEs with few employees, focus differentiation may be the only viable strategy for the target market. Successful differentiation would allow SMEs to charge a premium price on product/services, increase sales and gain buyers loyalty. Market focus strategy is among the strategies that explain 60.5% of variations in mobile telecom firm performance in (Arasa & Gathinja, 2014)

### **2.4.3 Critical Success Factors**

Critical success factors (CSF) are parameters that contribute to delivering construction projects effectively and also reduce construction disputes (Chen & Chen, 2007). Rockart (1979) defines critical success factors as areas in which result, if satisfactory will ensure successful competitive performance for organizations. Success factors also involve inputs to management systems which can lead directly or indirectly to project success (Ogwueleka, 2011). The main goal is to redirect the construction firm on how to build their capabilities toward adopting the appropriate strategy based on prioritized success factor in order to improve performance in project delivery.

Ogwueleka (2011) emphasizes that due to the change in demand from conformance (specification) to performance (incorporating the voice of the customer); the management of projects has shifted from the use of hard system to soft factors. Soft factors involve the development of a series of soft skills focusing on maximum customer delight. Ogwueleka (2011) also adds that, a better understanding of the key areas based on prioritised success factors will avoid projects pit falls. The five groups of success factors in the construction industry are; human related factors, project

related factors; projects procedures; project management actions and external environment (Martinuzzi, Kudlak, Faber & Wiman, 2011). Wan and Liu, (2004) reiterate that CSF that leads specifically to competitive advantage as quality, innovation and technology, efficiency, finance, productivity and reputation. The role of owner/manager was also identified. Martinuzzi *et al.*, (2011) emphasize on quality workmanship, honesty, having a good employees and completing projects on time. Most competitive companies always consistently out perform their competitors in these parameters (Wan & Liu, 2004).

### **Alliances and Partnering**

The horizontal relationship within the construction industry is described as adversarial and a lot of projects deliveries are characterized by conflicts arising not from technical issues but from human relationship and communication problems. Therefore, if the construction industry is to build and maintain capacity, it has to change from adversarial culture to a sharing culture since partnering is a set of actions that deliver vast improvement in construction performance. Ng and Tang (2009) name success factor in sub-contracting relationship in the construction industry. Partnering, framework agreement, and alliances are tools to tackle fragmentation. They are the tools in the hands of 'best practice firms' and innovative construction organizations. Inter firm horizontal and vertical linkages can enable construction SMEs gain CA (Nicher, & Goldmark, 2005).

Strategic alliance is one of the performance indicators that explained 65.5% of the variation in performance among mobile telecom firms in Kenya, (Arasa & Gathinja, 2014). The emphasis is that within the structure of competition and the drive to achieve individual firm goals lie the possibility of cooperation if not an outright collegial team work. The premise of this strategy is rooted in resource dependence integrated exchange perspective. The theory holds that organizations seek to reduce uncertainty by exchanging resources for mutual benefit (Yan *et al.*, 2006). To cope with competition from foreign firms therefore, SMCEs can adopt alliance as a flexible strategy (Yan *et al.*, 2006). Strategic alliance is a form of lateral relationship

between a firm and its competitor in one or more aspect of marketing. Chen and Chan (2007) found collaborative team culture to be the most important factor of successful partnering.

According to Khanna and Palepu (2006), it is of mutual benefit when indigenous SMEs collaborate with non-indigenous enterprises as subcontractors where non-indigenous firms have extended knowledge of local factors of production and supply chain. It is crucial also when coordination of different mode of transportation, documentation, and coping with baffling bureaucracy and the understating of the interest of host communities are essential. Yan *et al.*, (2006) describe this partnering as a form of co-petition where competition and cooperation co-exist simultaneously. Glaser (2006) suggests that if a firm has a lack of competence in one or some activities of the value chain, or a shortage of links between them, it can do coalition with other firms in the aim to palliate internal inadequacy and externally reach competitive advantage.

For Chinese construction SMEs, Yan *et al.*, (2006) observe that strategic alliance through subcontract is important so that firms can take advantage of opportunities and cope with the challenges facing the construction SMEs after accession to WTO. Yan *et al.*, also note that construction SMEs can adopt backward (vertical) integration and alliances with the clients to reduce the bargaining power of the buyers. Technology transfer and knowledge of customer – focused management style are the advantages of partnership in China. Firms may cooperate with others in order to compensate for their own deficits, learn from the partner and eventually act as a new alternative. It has been observed however that, there are no systematic efforts to secure joint ventures with foreign contractors to promote transfer of technology that can enable them to address these weaknesses (PWB, 2007).

Chen, Chiu, Orr and Goldstein (2007) declare that the low skill and technology endowment limit Chinese construction firms' interest in establishing collaborative venture with local companies. Despite the potential benefits in terms of technology, transfer, the Chinese have shown only limited interest in collaborating with local

African companies due to low level of human capital and low level proficiency problems with finance and management.

### **Innovation Strategy**

Innovation is recognized as a key to delivering a competitive edge. Vele (2012) reveals that there is a growing competitive pressure for construction SMEs to respond quickly to the market environment. This environment is characterized by a generally fast pace of change in product and service market and rapidly declining product life cycle in IT. Thus, the capacity for innovation is a critical factor for construction SMEs success (Yan *et al.*, 2006). Innovation can be viewed from dynamic model where firms are thought to be slow-moving actor in a turbulent environment where rules are uncertain and changing (Baden – Fuller, 1995). But the neo-classical model of industry competition is premised on the view that firms are moving around on an environment where the rules of the game are well-known. Vele (2012) explains that technological innovation implies identifying new, improved ways, through research and development, of the best way to satisfying customer needs and expectations. Furthermore, technological innovation implies not only the development of new technology but also using them to gain CA. According to Yan *et al.*, (2006), performance through technological innovations is gained by understanding the customers' needs and behavior of the competition. Yet the flexibility of these groups implies that they can change their habits preferences or strategy.

Yan *et al.*, (2006) explains that innovation can be accrued to construction SMEs externally and/or internally. External innovation would entail developing new products and/or services. Internal innovation involves new processes, organizational structure and culture. Yan *et al.*, (2006) identify technological innovation, high-performance organization and culture change as three aspects of innovation. New technology can create value added products and services. To achieve high performance, construction SMEs should emphasize on specifically designed jobs, using flexible work roles, improving team-work and general structure and continuous learning for the workforce.

## **Owner/Manager Traits**

According to Peter Drucker cited in Rothaermel (2008), a firm's strategy is defined as managers' plan on how to gain and sustain competitive advantage. This strategy details a set of goal-directed actions that managers intend to take to improve or maintain over all firm performance. If the manager's assumption aligns closely with the competitive realities, successful strategies can be crafted and implemented resulting in superior performance. This according to Rothaermel (2008) highlights the pivotal role managers' play setting and implementing a firm's strategy. Badi and Badi's (2008) list of qualities of entrepreneurs includes deep knowledge of projects or new project. Histrich, Peters and Shepherd (2008) viewed more from the angle of entrepreneur's ability to learn from failure than from successes. They insist that insufficient experience is the most common cause of business failure and entrepreneurs who are more experienced will possess the knowledge to perform more effectively the roles and tasks necessary for success. Firm mistakes are sources of CA to rivals.

### **2.4.4 Value Chain Activities**

Competitive advantage requires different positioning strategies through strategically choosing a different mix of value chain activities in order to deliver a unique value at a competitive price (Porter, 1996). Activities are therefore, the basic units of competitive advantage (Rothaermel 2008). Adopting Kaplinsky and Morris, Nichter and Goldmark (2005) define value chain as a full range of activities which are required to bring a product or service from concept, through the different phases of production, delivery to final consumer and final disposal. Porter (1985) depicts how customer value accumulates along chain activities that lead to an end product or service. Firms transform input to output and adding value at each stage throughout the stages describes value chain. As Glaser (2006) posits, to find the way to use and enhance CA, firms are using a basic tool; value chain. Mowen and Hanseen (2011) describe it as a set of activities required to design, develop, produce, market, deliver and provide post sale services for the product and services sold to the customer.



Ireland *et al.*, (2009) and Porter (1985) product interaction inbound logistics, operations and market interactions outbound logistics, market sales and after sale services as primary. Infrastructure interrelations, firm's infrastructure, human resources management, technology interrelation and procurement interrelation are supportive. A construction SME gains CA by performing these strategically important activities more cheaply or better than its competitors. The target of a well planned and organized value chain is to maximize value creation while minimizing cost, where the activities of a company link efficiently together. The result of adding together the total value and the cost of creating value is the margin (Porter, 1985).

A construction organization is more than a random compilation of machinery, equipment, people and money. They must be arranged unto systems and systematic activities to produce an appreciable and valuable product or services (Hemmetfer *et al.*, 2010) for which customer are willing to pay a price. When such organizations or any organization formulates a strategy, they need to organize and structure the organization to implement the strategy (Mowen and Hansen, 2014). Porter (1985) maintains that the ability to perform particular activities and manage the linkages between these activities is a source of competitive advantage. If the competitive strategy is to be a cost leader, the business activities need to be developed to be economically advantageous as possible. If on the other hand, the business model is a differentiation strategy, such a business might choose to develop more costly system but it would do so only if those systems provide a net benefit or margin to the differentiation strategy. This line of thinking leads to a model value chain (Porter, 1985).

Feller, Shunk and Callarman (2006) emphasize that in the present era of greater out sourcing and collaboration, the linkage between multiple firms' value creating process has more commonly been called the 'value chain'. It is defined as activities that work together to provide value to customer. The primary focus in value chains is on the benefits that accrue to customers, the interdependent processes that generate value and the resulting demand and fund flows that are created (Feller *et al.*, 2012). Breaking down companies' value chains into singular activities allows the firm to

understand which parts of its operation create value and which do not. Effective value chain generates profits.

The increasing competition and an increasing focus on innovation as an element of strategy is also one of the reasons for the growing interest in value chain. Another reason among others is toward globalization supply and production (Feller *et al.*, 2006). While value chain depicts all the activities a company engages in while doing business. Value chain analysis describes the activities organizations perform and it also links them to the organization's competitive advantage (Porter & Kramer, 2006). It evaluates which value each particular activity adds to the organization's product or services. Value chains are the separate and distinct "stones" of competitive advantage. Porter (1985) contests that the ability to perform particular activities and to manage the linkages between these activities are sources of competitive advantage.

According to Rothaermel (2008), to observe several elements of an activity system is a lot easier than to understand the capacities necessary to manage the network of the activities. Porter (1985) identifies both primary and support activities. Primary activities are grouped into in bound logistics, operations, out bound logistics, marketing and sales and service activities. Going by Ketchen and Hult's (2007) stance, the value chain analysis was introduced to as a framework for the manufacturing industry homogeneity. Therefore, a direct application to other industries is not feasible and needs to be adjusted to the characteristics of other industries. For example, services cannot be stored thereby rendering inbound logistics like ware houses unnecessary in some service industry.

### **In-Bound Logistics**

Activities associated with the reception, storing and delivery of materials necessary to create product is the inbound logistics (Porter, 1985). These include material handling, storing including warehousing, stocks, inventory control of input materials, administration, vehicles and return to suppliers planning. This is the first component

of primary activities and may be vital to the development of competitive advantage. According to Porter(1985), these primary activities are facilitated by support activities. Procurement, technology development, human resources management and firm infrastructure are the support activities to the primary activities (Shunke *et al.*, 2006).

Benton and McHenry (2010) propose that during the next decade, sourcing, supply chain management and continuous improvement are likely to contribute to profitability more than any other functions in the construction industry. Sunke *et al.*, (2006) describe Supply Chain Management (SCM) as the integration of key business processes from end user through original suppliers that provide products, services and information that in turn provide value for consumers and other stakeholders. Value flow from consumer in the form of demand to the supplier and supply chain is about downstream flow of goods and supplies from source to the consumer. The focus is the management of a chain of supply as though it were a single entity not a group of disparate functions.

Construction activities are a process characterized by high level of fragmentation. Yet, the sourcing process of most construction firms is fragmented and not well documented, (Benton & Mc Henry, 2010). They note that the effective integration, coordination and management of the chain from supply to final client are necessary condition for good result. Benton and McHenry (2010) suggest that with SMCEs, the owner – Manager is usually responsible for all the sourcing and purchasing function. Such must exercise supply sourcing leadership, subject to specification, budgetary and schedule constraints. They usually purchase capital equipments and materials, equipment renting (leasing) and bulk materials (sharp sand, cheapens, cement, rods and others) are sourced from the field. In most cases, construction organizations can source specialized resources (subcontracting) more efficiently than adding the needed capabilities in-house. To keep inventory investment to the minimum, the sourcing professional must implement ‘just-in-time’ (lean) purchasing concepts.

## **Operations**

To truly create competitive advantage, a firm must be operationally effective (Rothaermel, 2008). Operations are primary activities directly concerned with creation or delivery of a product or service (Porter, 1985). They are the value creating activities that transform the inputs into the final product deploying processing, packing, assembling, installations, maintaining, testing and endowment exploitation operations. Benton and McHenry (2010) reiterate that, in the past, most organizations emphasized minimizing the cost of labour because construction was labour intensive. But many firms have embraced new technologies and invested in technology driven construction systems. They further say that new technology and advanced management systems are rapidly displacing labour in many construction operations.

Schulmann and Sunke (2011) note that the competitive strength of the Chinese firms lies in being cheap and relatively efficient. Their weakness was established as lacking in expertise and management skills to handle large projects. They observe that the European companies' competitive advantage lies in the high value segment of project design and management and areas of niche specialization. Therefore, they advise the European companies to leverage on such issues as biodiversity, conservation of the natural habitat and endangered species through eco friendly projects. Schulmann and Sunke (2011) remark that the development and implementation of environmentally friendly construction techniques should offer significant advantages over competitors.

However, in Malawi, Chilipinde (2010) discovers that indigenous Small, Medium and Micro Enterprises (SMMEs) are under performing and their operations are characterized by poor workmanship. Dissatisfied clients have been complaining about the under-performance and shoddy workmanship. They rarely provide best value and also fail to meet the needs of today construction business demands therefore, these impacts on their competitiveness. Benton and McHenry (2010) show that within the main and support activities, Porter's (1985) direct, indirect and quality

assurance, play different roles in the strategic competitive advantage in construction enterprises. Direct activities are activities involved in creating value for the clients. Indirect activities such as planning make possible the direct activities. Finally quality assuring activities include supervision, inspecting, testing, revision, checking, adjusting and re-processing. These activities play strategic roles in gain competitive advantage.

Wandepo and Omeife (2012) investigated constructability in Nigeria (that is the use of construction methods, practices and technology that enable effective and efficient construction process)and concluded that the level of constructability practice prevalent on construction projects in Nigeria does not conform to global construction method and technique advocated by global best practices. Yet Porter (1985) maintains that, in order to gain competitive advantage, a firm must either provide the common value to its client or perform the activities in a unique way that create a higher value for the client that allows the firm to ask for a better price. A firm may claim that it has gained competitive advantage along its value chain only when its customers see the value provided by the firm as superior to that offered by its competitors.

### **After Sale Services**

Service activities (Out-Bound-Logistics) are components of Porter's (1985) primary activities. These activities maintain and enhance the products value including customers' support, installations, repairs and maintenance services. Michael Porter reiterate that these activities may be vital in developing a competitive advantage. After sale services seek to ensure that a long term relationship is governed by short-term contract by promoting customers' desire for compatibility between previous investment and future services, leading to brand loyalty and customer switching cost as observed by Farrel and Klemperer (2007). Large switch costs lock in a customer once an initial purchase is made. The customer is stimulated to buy series of goods once an initial purchase is made. Switch cost shift competition away from what we

normally think of as the default (a single consumer's needs in a single period) to something broader—a single consumer's need over time (Farrel & Klemperer).

Schultmann and Sunke (2011) advocate being able to offer “integrated project packages”(project design, construction, and property management) as a source of competitive advantage. They suggest that European Companies should explore opportunities to offer services throughout the entire life-cycle of a building or construction project. This should offer competitive advantage over Chinese firms. Such will generally consist of design, construction use/reuse and deconstruction. The phases of use or reuse, product and facility management present an opportunity for SMCEs to enlarge their business activities to include ‘after sales services’. They include the reuse of existing built assets and offering services throughout the life cycle of structures.

## **2.5 Competitive Advantage**

Competitive advantage is defined as the philosophy of choosing only those competitive arenas where victories are clearly achievable (Wiggins, 1997). A competitive advantage seeks to identify particular properties of individual products markets which will give the firm a strong competitive position. Pamulu (2010) and deduces the mistake as market and capability approaches to C A. The mistakes of some firms create C A against others. Then the firms that exploit market power gain C A. Firms with special capacities gain CA over others. The implication to owner manager is “don't make mistakes” to be able to gain C A; whatever market power an SMCE has should be used and protected. Finally, SMCEs are encouraged to exploit unique assets to gain C A and further imitate to gain competitive parity. Pamulu's (2010) analysis show the distinction between competitive advantage and organizational performance. Competitive advantage relates to a firm retaining a sustainable edge over competitors in a specific industrial setting. But organizational performance is usually associated with the attainment of strategic and financial objectives.

Production and technological companies can use a high level of quality and performance as sources of CA (Vele, 2012). Small companies whose primary aim is to attract new customers can gain competitive advantages by providing quality products and services to local markets, which are poorly satisfied by larger companies which operate at regional or national level. Large companies can use their financing power and their market position to build a powerful brand which can be used in gaining CA. Also by the production of large volume of goods, these companies can use economies of scale to lower their production cost, thus gaining high profits. Giving the rapid inroad the Chinese construction companies have made in Africa's construction industry in a short period of time, it is evident that Chinese Companies have a degree of CA over their market players. The most important factors are access to capital supply chain, costs and labour productivity (Corlin, Burke & Davis, 2008).

On arrival, Chinese construction companies had an enormous impact on the local industry. The foreign companies from Europe and South Africa which had traditionally dominated the construction sector were the first to experience competition. Over a period of five (5) to ten (10) years after arrival, Chinese Companies rapidly acquired approximately 30 – 40 per cent of the respective markets. They have expanded to Angola causing considerable alarm as players find themselves unable to compete. Many Western companies maintain a slight edge over the Chinese when it comes to specialized or technical areas of construction in finishing and reliability as well as quality and timeliness. But even that gap is closing (Corlin *et al.*, 2008).

Clen, Chiu, Orr and Goldstein (2007) note that indigenous construction companies in Africa do not represent a strong source of competition and are thought to lack financial and technical capacity. European companies retain their CA in the high value segment of project design management areas of niche specialization and environmentally friendly construction technologies. But they have pressure on cost structure from Chinese companies (Sunke, 2011).

## **Revenue Growth**

Competitive advantage in construction projects can be interpreted as optimizing profit by saving production cost and providing value – adding services that increase the worth of the product in view of the Client. According to Porter (1980), competitive advantages are designed to increase the overall level of performance and lead to long term development and growth. Gal (2010) shows market performance and profitability among others as competitive advantage indicator. Arasa and Gathinji, (2014) examined sales (earnings) as the key performance indicator influenced by competitive strategies and strategic alliance.

## **Market Share**

According to Vele (2012), economic crises cause a large number of companies to exit the market. Those who manage to adapt and gain sustainable CA do not only survive but fill in the gaps left by their competitors and thus increase their business. The SMEs competitiveness indicators in Gal (2010) are domestic share and turnover, export market share and turnover among others. According to Meyer (2016), while General Motors' differentiation offer wide product, Ford original model deploy Porter's generic cost leadership to increase dealership and sale volume. The company sold more products to current customers and increased customer retention.

Market share, customer retention, profitability and product innovation are key performance indicators that Arasa and Gathinji, (2014) used in the study of the competitive strategies that explained 60.5% of the variations in firm performance among telecommunications industry in Kenya. The competitive strategies adopted by foreign construction firms in Ghana result in a large market share (Egmond & Erkelens 2007). Mbamali and Okotie (2012) observe the same trend in Nigeria. Specifically the Vision 2010 report shows the market share ratio of indigenous to foreign building contractors as 25:75 and indigenous engineering to foreign engineering contractors as 5:95.



## **2.6 Empirical Past Studies**

This section presents the empirical works of scholars covering both independent and the indicators of the dependent variables. At the end of the review of each variable, remarks (critiques) were made in line with the current works.

### **2.6.1 Resources**

In a study at Queensland University of Technology, Pamulu (2010) analyzed the strategic management practices in the construction industry of Indonesian Enterprises.

The study explores the performance and competitiveness of local construction firms in Indonesian. These are made up of over 99% SMEs. The author focuses on the problem of finance due to capital shortage, market domination by foreign firms, professional and technological problems due to skilled worker shortage in the indigenous construction enterprises.

One of the objectives of the study is to examine a number of strategies/factors and their characteristics and interrelationships that may potentially affect the competitive advantage and the performance of a firm. The study offers an empirical evidence to support the notion that the value and rarity characteristic of asset-capability combination contribute to the CA of the Indonesian construction enterprises. It suggests that if a dynamic capabilities framework can work in the content of Indonesia, then the framework has potential applicability in other emerging and developing countries. It is observed that the study covers firms in a Middle Income Country (MIC) that share some characteristic with Nigeria except that such countries took some time to develop their resources before joining WTO. Thus the variable of this study is relevant to the Nigerian context.

### **2.6.2 Competitive Strategies**

Deploying the strength, weaknesses, opportunities and threats (SWOT) instrument of analysis, Yan, Chew and Cheah (2006), empirically analysed; Creating and

sustaining competitiveness of small and medium-sized construction enterprises in China. The study focuses on the competitiveness of China construction SMEs as it concerns the strategy for survival and future growth after China accession to WTO. The author observes the problems of the need for competition and also collaboration with FCE who are largely more efficient and resource richer.

One of the objectives of the study is to postulate a conceptual model and develop a strategy to create and sustain competitiveness in China SMEs. The particular study was conducted in Zhejiang province in China. Based on the pilot survey, interviews and case study, the strength, weaknesses, opportunities and threats to construction SMEs were identified. The research revealed that the developing strategy through alliance, innovation and differentiation has been found to be efficient. It is however observed that, the study covered SMCEs in a country facing similar challenges as Nigeria after accession to WTO. But it did not cover some variables covered by this study. Therefore this study extended into the body of knowledge in SMCEs.

### **2.6.3 Critical Success Factors**

Blomquist, Didenko and Konovets (2008) examined the Success factors in housing construction project in Ukraine. The study explored the identification of main drivers of project success that gain particular importance for companies in the light of highly competitive environment. It used housing project, partly because housing construction projects represent one of the largest sectors in the construction industry. Secondly, Ukrainian housing construction is considered to have one of the highest rates of return in European Union.

The analysis was performed in a highly profitable housing construction in Ukraine. Questionnaire survey was the main instrument. The finding shows that economic environment, project manager's experience and qualification of project teams, were the most important success factors. It recommended that project managers in housing construction industry need to be more aware of the dominance of environmental and human resources related success factors. It is observed though that the study

investigated firms in a significant part of the construction industry (CI) –housing, but not the whole of the industry. Therefore the finding of this study will add value to the variables in the entire construction sector.

#### **2.6.4 Value Chain Activities**

Wong, Cheung and Chan (2004) empirically analyzed enhancing construction value chain effectiveness in Hong Kong. The study explored the position that value chain management (VCM) has been regarded as a strategy to enhance and sustain CA of all firms involved in construction projects. The objectives of the study are: to identify the value-creating activities in construction project and to study their effectiveness to achieve cost saving and value-addition. Postal questionnaire survey was the instrument used. It concluded that understanding client's needs and making early and prompt decision, sustained effective communication among collaborative firms are essential. Also, employing competent persons add more to project value in large projects than with small scale that are more likely to be handled by SMCEs.

It is observed that the study covered 15 variables reviewed from literature. This is quite exhaustive. But it also covered firms in an economy that share little identity with Africa and Nigeria in particular. Therefore, the findings of this study add to the body of knowledge in CA of foreign SMCEs.

#### **2.6.4 Competitive Advantage Indicators (Market Coverage and Revenue growth)**

Arasa and Gathinji (2014) determined the relationship between competitive strategies and firm performance which measures the competitive advantage of telecommunication firms. The indicators of interest are market share, sales, customer retention, profitability and product innovation. Michael Porter's competitive strategy (cost leadership and differentiation) is the theory of fit. The influence of cost leadership, strategic alliance strategies specific market focus strategies and differentiation were research objectives.

Questionnaire survey was the main instrument. The findings show that market share influence was by mean of 4.2, customer retention by mean 4.1 and profitability by mean 3.9 to 4.0. It concluded that, to achieve low cost advantage a firm must have a low-cost leadership strategy, low cost-manufacturing and work force committed to the low-cost strategy. Also using product differentiation strategy, a company should consistently focus its effort in providing unique product or services to enhance customer loyalty.

Though the study was not conducted in the construction sector, it was in a developing economy facing similar competitive challenges as Nigeria. Furthermore, just as deployed by this study in one of the variables, Porter's (1980) competitive strategy was used. Therefore this study provides a basis for inter industry analysis of indicators.

## **2.7 Summary of Literature and Research Gaps**

The main objective of this chapter is to review theoretical and empirical literature on the C A of foreign SMCEs over the indigenous. The past literature on the different schools of thoughts in competitive strategies, the strategy theories related to the construction industries and the SMCEs in particular and SMCEs in Nigeria confirmed that there is lack of research in this area. The importance of SMCEs is showed in the SMEDAN survey(2010), the projected contributions to GDP by Nigeria Vision 2010 report and by the renewed Vision 2020. Globally, there are gaps to be filled by the study, the first of which is; there are no records available seeking to show the C A of foreign SMCEs over indigenous. Also, there is no record of empirical studies supporting the influence of resources, competitive strategies and critical success factors as creating C A for foreign SMCEs over indigenous. Lastly, there are no studies available to show the importance of value chain activities management strategy in creating a competitive edge for foreign SMCEs over indigenous ones. This study seeks to fill these gaps.

## **CHAPTER THREE**

### **RESEARCH AND METHODOLOGY**

#### **3.1 Introduction**

The chapter outlines and discusses the design and methodology used in social science and entrepreneurship research and how they were employed in this study. The chapter is divided into nine sections; they are the research philosophy, research design, the population of the study, sampling and sampling techniques, data collection, data collection instrument, pilot study, the data analysis methods and tools.

#### **3.2 Research Philosophy**

Pamulu (2010) observes that the general approach to research is known as the research paradigm or philosophy. Functionalist philosophy, positivism, realism, interpretivism, objectivism, subjectivism and pragmatism are outlined as different research philosophies. Others are interpretive, radical humanists, and radical structuralists. Whatever the position is, it is all about the foundation to valid knowledge, - the concept of reality (ontology) and what should be regarded as acceptable knowledge (epistemology) (Knight & Turnbull, 2008). To the empiricist, authentic knowledge begins with knowledge of concrete particular. However, Karl Popper's critical rationalism (Knight & Turnbull, 2008) posits that it is the theoretical universe, as hypothesis that have priority, (knowledge starts with a form of guess work, intelligent guess or prediction). This Popper's position is related to positivism (Fellow & Liu, 2008). Knight and Turnbull (2008) observe that positivist paradigm and quantitative method are dominant and pervasive within social science researches in the construction sector. Decrying methodological conservatism and lack of both methodological diversity and adventure in interpretative research design, they advocate multi strategy research, integration of quantitative and qualitative within a single design for clearer insights into relationships and their interconnectivity within organizations.

Therefore, the overall approach to this study is to develop a theoretical framework which will then serve as a basis for business model proposition. The model seeks to address the many prescription of CA within the context of SMCEs. This model is tested using the market leaders in SMCEs in Nigeria who actually bid for construction projects as main or sub contractors. In this context, it is necessary to confirm or reject the hypothesis as stated. The results of the empirical investigation confirm the hypothesis and also, confirm the connection between the components in the model. Any irrelevant component is rejected. Karl Popper's critical rationalism as cited in Korsas, Jensen and Varness, (2010) suggest that only falsification, not verification, can determine whether the proposed knowledge can be classified as the objective truth. Continuous experimentation, observation and discussion based on other relevant elements and viewpoints will lead to the objective truth (Fellow & Liu, 2008). Therefore, as a contribution to the scientific advances in the area of strategy and based on the many prescriptions of competitive advantage, the path of the study inclines towards the positivist philosophy.

### **3.3 Research Design**

Research design is defined as the plan and structure of investigation so conceived to obtain answers to research questions. It is the blueprint for fulfilling objectives and answering questions; an action plan for getting from "here" to "there"- initial set of questions to be answered to some set of conclusions (Cooper & Schindler, 2003; Naoum, 2007). This study involves separate respondents in scattered locations of Federal Capital Territory (FCT) Abuja and Kaduna metropolis, so it is field work research (Naoum). It also aims at finding the association among different variables. It is concerned with generalizing results when data is abstracted from a population or sample.

To satisfy these characteristics, a descriptive survey is appropriate (Cooper & Schindler, 2003; Pamulu, 2010). Naoum (2009) observes that descriptive studies serve to explain the characters associated with a subject population (the what, who, when and where). Survey research is also appropriate when the focus is on contemporary

events and valuable for conducting studies on strategy related issues (Pamulu, 2010). When there is no control over the variables in the sense of being able to manipulate the variables like in an experiment, an ex post facto research is appropriate. Therefore, the study exploits the descriptive ex post facto research option to explore the strategy that non-indigenous SMCEs deploy for competitive success.

### **3.4 Population of the Study**

According to Cooper & Schindler (2003), the population is the total collection of elements about which we wish to make some inferences. Urbancova (2013) targets organizations actively participating in innovation activities in Czech Republic that were presented on the Internet. Arasa and Gathinji's (2014) unit of analysis of the competitive strategy study, are all the four Mobile Telecommunication Firms in Kenya. In a comparative analysis of the risk management practices of foreign and indigenous construction companies in Nigeria, Ogbu (2011), selected from the population of registered construction companies.

The population of this study therefore comprises of contractor that are registered with the Corporate Affairs Commission, Abuja in the SMCEs sector in Nigeria that have been operating for five years and above and also met the conditions for being prequalified for projects by the Ministry of Works. These conditions are; tax clearance for three consecutive years; value added tax (VAT) certificates, evidence of involvement in Industrial Training Fund programs, staff pension scheme (PENCOM) and National Social Insurance Trust Fund certificates and also may possess evidence of community social responsibility. The Building and Enterprise list of the Federal Ministry of Works and Housing shows 1083 SMCEs operating in Abuja. A similar list of Kaduna State Ministry of Works and Housing shows 116 as the number of SMCEs in Kaduna (these are client organizations). A total of 1199 SMCEs formed the total target population of this study.

### **3.5 Sampling Frame of the Study**

According to Nachmias and Nachmias (2008) sampling frame is a list of all items where a representative sample is drawn for the purpose of a study. It is a complete and correct list of population members only (Cooper & Schindler, 2003). Arasa and Gathinji's (2014) list are the licensed firms by the Kenyan Communication Commission. Urbancova (2013) utilized sectors and size organizations in Czech Republic according to the Czech Statistical Office. In this study, Client organizations or references such as the Corporate Affairs Commission (CAC) of Nigeria are alternatives. However, for the client organizations in Nigeria -the government is the major and most organized construction client (Mbamali & Okoli, 2012).

If there is an interest in making estimate concerning various subgroups of the population, then the sample must be large enough for each of these sub groups to meet the desired level of precision. In an estimate concerning various subgroups (in this study the indigenous sub group are 93 per cent and non-indigenous are 7 per cent) the small subgroup are sampled more heavily (Cooper & Schindler, 2003).

### **3.6 Sample and Sampling Techniques**

According to Nadum's (2007) the term "sample" means a specimen or part of a whole population which is drawn to show what the rest is like. The characteristics of the sample have to be the same as its population (Cooper & Schindler 2003). Therefore, according to Holt (1998), the simple rule of thumb is that the more homogenous a population, the smaller that sample can be and vice-versa. Arasa and Gathinji (2014) came up with every department who are conversant with the effects of competitive strategies on the performances of their respective firms, targeting senior management staff as samples. In Urbancova (2013), the participating organizations were divided into the homogenous groups according to the sector and sizes of these organizations focusing on their managers. Ogbu (2011) judgmentally targeted firm key personnel – individuals - who performed role relating to the main objectives of his study.



When representation is the basis of classification, sampling techniques are classified broadly as probability (simple random sampling and complex random sampling) and non-probability sampling (convenience and purposive sampling) techniques (Holt, 1998). Arasa and Gathinji (2014) employed a mixture of stratified and purposive techniques. Stratified sampling serve do focus on relevant departments within each organization. The purposive technique came up with three senior managers in each telecommunication departments. The population of this study therefore, is stratified into mutually exclusive strata (indigenous and non-indigenous) from a representative sample of the population. The firm owners, principal partners or senior management staff (any single representative) who are conversant with accurate information with regards to strategies deployed by their firms against rival were involved in this study. Therefore it was a combination of stratified and purposive sampling technique.

### **3.6.1 Sample Size**

The more homogenous a population, the smaller that sample can be and vice-versa (Holt, 1998). How large a sample should be is a function of the variation in the population parameters under study and the estimated precision needed. Kerlinger cited in Ngugi, (2010) indicates that a sample size, 10% of the target population is large enough so long as it allows for reliable data analysis by cross tabulation, provides desired level of accuracy in estimates of the large population and allows testing of significance of difference between estimates. Holt (1998) also explains that the minimum sample size should be 30.

In Arasa and Gathinji (2014) the senior managers from each department made a size of 72 respondents. Urbancova (2013) involved a total of 189 respondents in sectors of 71.6% of private and 28.4% of public organizations. In a comparative analysis of both quantitative and qualitative performance of firms in Kaduna, Ali (2006) sampled 15 private limited liability companies and 15 public limited liability companies. Therefore in this study, a sample size of 10% of the total population was considered. A total of 120 respondents were grouped into 108 respondents from Abuja and 12 in Kaduna. According to Idoro (2010), foreign construction firms

(FCF) constitute 7% of this population (implying 7 and 1 FCFs in Abuja and Kaduna respectively) as shown in Table 3.1 below.

**Table 3.1: Sampling Table**

<b>S/N</b>	<b>Location</b>	<b>Target Population</b>	<b>Respondents (10% of Target Population Sample)</b>	<b>FCF(7% of Respondents)</b>	<b>ICF (93% of Respondents)</b>
1	Abuja	1083	108	7	100
2.	Kaduna	116	12	1	11
3.	Total	1199	120	8	111

### **3.7 Data Collection Procedure**

Naoum (2007) identifies two main approaches to data collection – “field work” and desk study (secondary data collection). The subdivisions of field work research are survey approach, case study approach and problem – solving approach (action research). Secondary data collection is classified into statistical format and descriptive documents. The data collector expertise or skill and the validity of data collection instrument are important to the integrity of the data collected (Holt, 1998; Naoum, 2007). These were ensured through a well-trained research assistant who also are actors in the building industry.

### **3.8 Data Collection Instruments**

By the nature of the study, both qualitative and quantitative data ensure wholeness in investigation. Urbancova’s (2013) survey used questionnaire technique of data collection. Therefore, the study adopted different types of research instruments. Quinnton and Smallbone (2006) observe that different types of instruments allow triangulation to be used. A variable like resources required questionnaire instrument, observations, physical examination and records (secondary data) review.

### **3.8.1 Questionnaires of the Study**

Adogbo and Ojo (2003) describe questionnaires as a set of formalized questions for eliciting information. According to Fellow and Liu, (2008), questionnaires are some of the most popular and most effective instrument for any sample size. Therefore, the main instrument for data collection in the study was questionnaires. This also allowed for confidentiality. The primary research data was structured to find out about issues, their effects and evidence. In line with Naoum (2007), the questionnaires language framing was that of the respondents. The design was aimed at achieving reliability and validity and consistent response was achieved through precise terminology and appropriate response format. Administration was by self-administration and by research assistants.

Arasa and Gathinji (2014) had both opened ended and closed ended questionnaire. Therefore, both closed ended and open-ended formats of the items were adopted. The six sections of the instrument had general information of respondents; firm resources; competitive strategies; critical success factors and value chain management. The general information ison market share focused on information such as physical location of a company, ownership (foreign or Nigerian), type of business in the Nigeria CI, among others.

Firm resources had items that enabled the study to find out company resources and frame items that sought to find out relationship between firm's resources and C.A. Competitive Strategy contained items that enabled competitive strategies to gain a competitive edge. Critical Success Factors looked at information about critical success factors in place and how they were leveraged to outperform competitors. Value Chain (VC) Activities items enabled the study to examine the structure of VC tools and how they were managed to achieve C.A. The CA of SMCEs section is based on the CA measured in market share and revenue growth.

### 3.8.2 Interview Instrument

An interview is a data gathering instrument that enables a seeker of information to have an in-depth knowledge of an issue of concern, through face to face interaction with the provider of such information (Naoum, 2007). Interviews are useful for getting the story behind particular experiences. The three forms identified are structured interviews, unstructured and semi-structured interviews. The study used the semi-structured instrument because it is best placed to probe participants for precise information, knowledge, values, beliefs, attitudes and opinions. This was administered as follow up instruments to questionnaires.

### 3.8.3 Validity of the Research Instrument

The validity (the likely truth of an instrument) is the degree to which an instrument measures what it is intended to measure (Fellow & Liu, 2008). For validity and line with Deliver (2015) and Kavitha, Karthikeyan and Devi (2013), the study questionnaires and interviews were drawn from views gathered during literature review to ensure that the content is a representative of what SMCEs do to gain C.A. The extent of the coverage of the investigative questions and how well the test items meet the standard was assessed by a panel of scholars and experts in entrepreneurship. The study supervisor evaluated and assessed the test items (Adogbo & Ojo, 2003).

Reliability is the consistency of a set of measurement items. A measurement is considered reliable if a score on the same test given twice is similar. Reliability was estimated using the recommended value of 0.7 as a cut-off of reliability. Test of reliability was by Crobach's alpha display and the Kunder- Richardson (K-R) 20 is based on the following formula;

$$KR_{20} = \frac{(K)(S^2 - \sum s^2)}{(S^2)(K-1)}$$

KR<sub>20</sub>- Reliability coefficient of internal constituency

K- Number of items used to measure the concept

S<sup>2</sup>- Variance of all scores

s<sup>2</sup>- Variance of individual to measure.

Rephrasing of questionnaire was done as necessary (Fellow & Liu, 2008). A pilot survey was conducted in a similar area of study. After the pilot survey and reliability analysis, the questionnaire was carefully inspected to identify and remove any that is invalid or redundant. Questionnaire and interviews permit triangulation. These were employed in every data to ensure validity.

#### **3.8.4 Administration of Research Instruments**

This study was planned to limit the time demands on participants in order to ensure involvement. All questionnaires were personally distributed by the researchers and the assistants. Interviews were conducted personally by the researcher and the assistants. Therefore assistants were well trained to cope with all procedure relating to seeking the research data. Assistants participated actively in try out the research instruments during the pilot study.

#### **3.9 Pilot Study**

Hoxley (2008) explains that piloting questionnaire is critical to collecting final data through questionnaire. It is conducted to detect weaknesses in design and the instrument and to provide proxy data, (Cooper & Schindler, 2003). The size of the pilot group may range from 25 to 100 subjects, depending on the method to be tested (Cooper & Schindler, 2003). The study used 25 SMCEs in Abuja as the pilot group. Abuja shares the same characteristic with Kaduna as two important administrative headquarters in Nigeria. The Procurement Law in operation requires that firms need to fulfill both technical and financial prequalification requirements. When adjudged qualified, tenders were accepted irrespective o

f firm locations. Abuja, the seat of most corporate headquarters, is where most tenders are opened. Abuja and Kaduna share good representation of the characteristics of the construction industry in Nigeria. Piloting the questionnaire was

first through the supervisors and the experts who share the characteristics like the respondents (Hoxley, 2008).

Finally, the pilot survey drew responses from the interviewees on the design and content of the instrument and suggestions for more efficient and practical way of administering it. The pilot testing was re-run until the research was satisfied with the data collection instruments.

### **3.10 Data Analysis**

Research information can only be generated when collected data are analysed. Data analysis refers to strategic and procedures for summarizing and explaining relationships among the variables on which data have been collected (Fajana, 1996). It involves reducing accumulated data to a manageable size by compartmentalization, developing summaries, looking for patterns, and applying statistical techniques. Before processing the responses, data preparation was done on the completed questionnaire by editing, coding, entering and clearing the data. Responses that were comments were analysed by examining, categorizing and recombining in line with Deliver (2015) before the interpretation. Data collected was analyzed using descriptive statistics. The descriptive statistical tools helped determine the respondents' degree of agreement with the various statements under each factor. In this study, descriptive statistics (tables, percentages, diagrams and numerals – frequency distributions severity and central tendencies) for non-indigenous and indigenous respondents were analysed separately. This is important because multiple data was generated for the purpose of the same fact or phenomenon observed.

The conceptual model sought to address the many prescriptions of competitive advantage. In a similar study, the study of competitive priorities and competitive advantage among small scale industries- Kavitha, Karthikeyan and Devi (2013) used multiple linear Regression (ordinary Least Square) technique. Arasa and Gathinji (2014) employed correlation and regression analysis were employed. According to Fellow &Liu(2008), multiple linear regression deals with problems of estimation

having three or more variables. In this study therefore, linear regression was exploited. This model allows for estimating the relationship between a dependent and a set of independent variables. The general form of (OLS) is given as:

$$y_1 = \alpha_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \dots + \beta_n x_n + \epsilon_1;$$

Where:

$y_1$  represents dependent variables (competitive advantage)

$x_1, x_2, x_3 \dots x_n$  represent independent variables (resources, competitive strategy, critical success factors, value chain tools and environmental friendliness respectively);

$\alpha_0$  represents the intercept, and

$\epsilon_1$  represents the error term of competitive advantage within the context of the SMCEs. Thus the model was refined through a multiple linear regression ordinary least square techniques ANOVA and t- test analysis of survey results with a sample of 120 valid SMCEs at 95% level of significance.

The two sample (independent groups) t – test is used to determine whether the unknown means of two populations are different from each other based on independent samples from each population. If the two sample means are sufficiently different from each other, then the population means are declared to be different (Cooper &Schindler, 2003). The sample population for a two sample t-test can be obtained from a single population that has been randomly divided into subgroups, with each subgroup subjected to one of the two treatments. In this case the single population is the small and medium construction enterprises (SMCEs) in the study area. The subgroups are indigenous and foreign SMCEs. For the two-sample t-test to be valid, it is necessary that the two samples are independent, (Leishman, 2008). To find out whether the population mean of foreign SMCEs is larger than the population mean of the indigenous SMCEs the hypothesis is as follows:

Ho:  $\mu_1 = \mu_2$  (the population means of the two groups are the same)

Hi:  $\mu_2 > \mu_1$  (the population means of foreign is larger than the indigenous SMCEs).

The test statistic for independent sample t-test is given as;

$$t = \frac{\bar{x}_1 - \bar{x}_2}{Sp \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where t is the student t-statistic with  $n_1+n_2-2$  degrees of freedoms;

$\bar{x}_1$  &  $\bar{x}_2$  are the sample mean of the group one and two (foreign and indigenous enterprise)

Sp is the pooled standard deviation of the two groups

$n_1$  and  $n_2$  are the sample sizes of group one and two respectively

In this way the t- test statistic was used to test whether the FCF and ICF differ in their response to the same variable. Data analysis was done with the help of software program SPSS version 21 and Microsoft Excel to generate quantitative reports. Expected responses share the same characteristics in all the variables. Therefore the method of analysis was fundamentally the same for all variables.

### **3.11 Ethical Issues of the Study.**

Ethical issues are considerations needed to be considered for a research to be meet acceptable ethical standards. The lack of informed consent is an ethical consideration that is not widely acknowledged in the academic literature (Bryman & Bell, 2007). This research adopted measures to address such ethical consideration that ensured that it met ethical requirements. The research was conducted in line with the Kaduna Polytechnic ethical guidelines. This involved informing the participants that information provided was securely stored away from unauthorized persons for a period of five years. At the end of five-years all data provided by participants will be destroyed.



## CHAPTER FOUR

### RESEARCH FINDINGS AND DISCUSSION

#### 4.1 Introduction

This chapter presents the empirical findings of the research to test the conceptual model and research hypothesis. The purpose of the study was to know the determinant of non-indigenous small and medium construction enterprises strategy for competitive advantage in North-Central Nigeria. The findings and the results are discussed based on the following five areas: resources and competitive advantage; competitive strategy and competitive advantage; critical success factors and competitive advantage and value chain activities and competitive advantage. Responses to these study areas are organized around specific questions asked. Findings for each question are corroborated with the empirical and theoretical literature reviewed in chapter two. At the end of each study question, the findings are briefly discussed and inferences drawn. Summary descriptive statistics, Regression and Correction Analyses, Analysis of Variance (ANOVA) and t-test are presented for each study variable. At the end of each variable, a model is fitted. An integrated model that takes into account all the variables of the study is also fitted. The chapter also addresses some discussions of the results and implications arising from findings.

#### 4.2 Respondents Rate

A total of one hundred and twenty questionnaires were distributed to both indigenous and non-indigenous Small and Medium Construction Enterprises in Abuja and Kaduna. Eighty Seven (87) duly completed questionnaires, representing 72.5% of the total number of questionnaire distributed were collected and used for data analysis. A response rate represents the number of appropriate sample size for a research survey. Out of the 189 questionnaire sent to respondents, Urbancova (2013) recorded 109 or 58% response rate. Tabachnick and Fidell cited in Pamulu (2010) suggests a formula for testing the multiple correlation, where a response rate of  $N > 50 + 8m$  is acceptable; (where, m is the number of independent variables). In this study and with the four (4)

independent variables for testing the hypothesis, eighty-two (82) construction SMEs are required to meet the acceptable sample requirements. Thus, a response rate of 72.5% (or 87 questionnaires) is adequate for providing sufficient information for the analysis and drawing of meaningful conclusion of this study. Table 4.1 presents data on the response rate recorded.

**Table 4.1: Response Rate**

Details	Frequency	Percentage
Distributed Questionnaire	120	100
Duly filled and returned questionnaire	87	72.5

#### 4.1 Respondents by Location

The study established the response rate by geographical location of respondents. Majority of the responses were received from Abuja (contributing eighty (80) of the total respondents). There were seven respondents from Kaduna. Descriptive statistics using frequency and percentage of the background of the firms interviewed are presented in table 4.2.

**Table 4.2: Respondents per Location**

Location and Classification	No. of Responses	Percentage
Indigenous firms (Abuja)	73	83.91
Non indigenous firms (Abuja)	6	6.89
Indigenous firms (Kaduna)	7	8.04
Non indigenous (Kaduna)	1	0.11

#### 4.3 Reliability and Validity Tests

The reliability of an instrument refers to its ability to produce consistent and stable measures. Quinton and Smallbone (2006) suggest three kinds. They are ; test-re-test,

estimation whether alternative forms of the same measure will produce similar results and the use of split-half correlations that are measured using Cronbach's alpha or KR 20. The reliability is expressed as a coefficient between 0 and 1.00. Berthoud (2000) indicate 0.7 as a reliability coefficient acceptable for any research instrument. However, the higher the coefficient, the more reliable is the test.

In the study on relationship between competitive strategy and firm performance, Arasa and Gathinji (2014) established the reliability of the data collection instrument; questionnaire was initially administered to seven respondents. The Cronbach's Alpha coefficient on all variables was more than 0.7; hence it was an acceptable reliability of instrument.

#### **4.3.1 Cronbach's Alpha Test**

The goodness of fit of the variables can be assessed by means of calculating Cronbach's alpha (Fellow & Liu, 2007 and Cooper & Schindler, 2003). In this study, the reliability test of Cronbach's alpha coefficients were used to examine the reliability among multiple measures and the internal consistency of the variables of the study. Cronbach's alpha is a reliability coefficient that indicates how well the items in a set are positively correlated to one another. It is computed in terms of inter-correlation among the items measuring the concept. The Cronbach's Alpha coefficient is a value that ranges between zero and one, the closer the value is to 1, the higher the internal consistency. According to Fellow and Liu, generally, the critical level of reliability when using Cronbach's alpha is 0.7; any coefficient below that indicates that the variables are not sufficiently inter-correlated to combine to yield a single latent construct and if the Cronbach's alpha is above 0.7 the instrument is reliable.

From the pilot test, the calculated Cronbach's alpha, each of the variables demonstrated acceptable reliability. The alpha coefficients of all independent variables used in the analysis are above the 0.7 threshold (the range is from 0.711 and 0.814). Therefore the instrument (questionnaire) used in the research is reliable as has been indicated in table 4.3.

**Table 4:3 Reliability Tests**

Section	Cronbach's Alpha	Remark
Resources	.814	Reliable
Competitive Strategy	.785	Reliable
Critical success factor	.713	Reliable
Value chain tools	.711	Reliable

### **4.3.2 Validation of Data by Principal Component and Factor Analyses**

The study used Principal Component Analysis (PCA) and Factor Analysis to validate data collected. Factor extraction is done by means of PCA. It is a method that transforms a set of variable into a set of composite variables or principal component that are not correlated with each other (Cooper & Schindler, 2003). On the other hand, Factor analysis is a statistical data exploration technique that is used to examine convergent validity. It is used in reducing a set of correlated variables to a smaller number of unobserved, uncorrelated factors (Cooper & Schindler, 2003; Winter, Dodou & Wieringa, 2009). Winter *et al.*,(2009) suggested a sample size (N) of 50 as a sensible absolute minimum of factor analysis. This is well under the number of sample in this research where N=87.

### **4.4 Multicollinearity Test**

The situation where two or more of the independent variable are highly correlated can have damaging effects on multiple regression (Cooper & Schindler, 2003). Collinearity makes it hard to interpret the substantive meaning of regression coefficients (Fellow & Liu, 2007). Therefore Multicollinearity test was conducted among the five study variables using tolerance and variance inflation factor (VIF) statistics of predictor variables. The results presented in table 4.4 show that there was no multicollinearity among the variables in the study data. Large values, usually 10.0 or more, suggest collinearity or multiplecollineariy.

**Table 4.4: Multicollinearity**

<b>Section</b>	<b>Tolerance</b>	<b>VIF</b>
Resources	.934	1.070
Competitive Strategy	.846	1.182
Critical success factor	.709	1.410
Value chain tools	.690	1.450

In this study, the findings show that the study of independent variables; resources; competitive strategy; critical success factors; value chain tools and; macro environmental factors have a high tolerance. The VIF values for the study variables range between 1.055 and 1.450; thus indicates that the beta values of the regression equation of five independent variables would be stable with low standard errors.

#### **4.5 Analysis of Firms' Preliminary Information (Market Share)**

This section presents the findings on the preliminary information that gave insight to the market coverage and market share of the construction SMEs. The main projects undertaken, major clients and geographical coverage were highlighted.

##### **4.5.1. Firm's Main Type of Projects Undertaken**

The research determined whether or not, market share is an indicator of competitive advantage of non-indigenous small and medium construction enterprises in North-Central Nigeria. To establish the nature and type of construction of operation of the respondents they were asked:

(a) What are the main types of projects undertaken, by your firm?

The study findings show that all - (100%) –of the non-indigenous respondents are in Civil Engineering and Building construction as core operations, while 27.1% of the indigenous SMEs are in that core area. Also while 57% of non-indigenous SMEs are into specialized services of lifts, fabrications and roofing, 25% of indigenous firms function in this area. This information is as presented in table 4.5.

**Table 4.5: Firms Main Projects Undertaken**

Variable	Category	Foreign		Indigenous	
		F	%	F	%
What is the main type of project undertaken by your firm?	Building construction only	0	0	14	17.5
	Building and Civil Engineering	7	100	38	27.1
	Consulting and Building	0	0	16	20.0
	Others (Roofing, Lifts, and fabrications)	4	57	20	25

This result align with Khanna and Palepu's (2006) theoretical analysis shows that, in emerging market of India, Turkey, China and Indonesia, indigenous companies tend to avoid head to head competition with foreign companies. It is in alignment with Pamulu (2010) review and Porter (1980) theory on niche market. It is therefore deduced that the core area of specialization (Civil and Building Engineering) field is an indicator of competitive advantage of foreign construction SMEs over the indigenous. It can be concluded that the main projects handled and core areas of operations is an indicator of competitive strength of the foreign construction SMEs in North-Central Nigeria.

#### 4.5.2 Firms' Major Clients

To establish the firms main customers, the respondents were asked as a guide:

(b)Who are your firm's major clients?

The study results reveal that, majority respondents-(71%) of non-indigenous were patronized by the government; 1 (14%) by private companies and 1(14%) by international agencies. Government patronizes56% of indigenous respondent, private companies patronize 10% and individuals patronize 16%. This information is as presented in table4.6.

**Table 4.6: Firms' Major Clients**

Variable	Category	Foreign		Indigenous	
		F	%	F	%
Who are the Firm's major clients?	Individual	0	0	13	16.3
	Private company	114		8	10.0
	Government	571		56	70
	International Agencies	1	14	0	0

This is consistent with the observation of Mbamali and Okotie (2012) and Nwabueze and Mosaku (2008) that the government and corporate organizations constitute the major clients of the construction industry in Nigeria. It also shows that the foreign SMEs enjoy more government patronage than the indigenous in line with (but the ratio is not as alarming) as Ihua *et al.*, (2009) and Idoro (2010). It concludes that firm's client is an indicator of the competitive advantage of foreign SMEs in North-Central Nigeria.

#### 4.5.3 Market Geographical Coverage

To investigate the market coverage (geographical spread) of respondents' firms, they were asked as a guide that:

(b) What is your current market geographical coverage?

The descriptive statistics indicate that 100% of the foreign respondent operate internationally and only 5%) of the indigenous respondents operate at international level. Majority (91.2%) of the indigenous SMEs have national spread. The statistics is presented and represented in table 4.7.

**Table 4.7: Market Geographical Coverage**

Variable	Category	foreign		Indigenous	
		F %		F	%
What is your current market coverage?	Regional	0	0	3	3.8
	National	0	0	73	91.2
	International	7	100	4	5.0

This is in line with Schultmann and Sunke's (2011) empirical study in China that show that the European firm operations cross-borders is an indicator of competitive success, such that many forms of protection as put in place for Chinese indigenous firms. Cokin *et al.*, (2008) also analyzed the spread of Chinese firms in Africa as an indicator of competitiveness. It can therefore be inferred that the foreign firms operating across national borders is an indicators of competitive advantage in North-Central Nigeria.

#### **4.6 Research Results and Discussions**

This section presents descriptive analysis of the study variables (resources, competitive strategy, critical success factors and value chain activities) and sub-variables based on the findings and results obtained. The results are presented in tables. Comparisons are made with literature and deductions and conclusions thereby drawn.

##### **4.6.1 Study Variables- Resources**

The research also determined whether or not, resources influence competitive advantage of non-indigenous small and medium construction enterprises in North-Central Nigeria. Specifically, the work focused on human resources, financial resources, and physical resources. These three (3) sub-variables were investigated by



distributing 120 questionnaires to respondents. The frequency and percentage distributions of the responses are displayed.

### Human Resources

In this segment the study sought to establish whether human resources influence the competitive advantage of non indigenous SMEs in Nigeria. To establish the nature of the influence the following questions are used as guide.

- (a) Does the competitive strength of your enterprise depend on the capacity (unique, rare and hard to copy) skills of human resources?

The result in Table 4.8 indicates that 100% of the foreign enterprises responded that the competitive strength of their enterprise depends on the capacity of human resources. However, 98.8% of the indigenous enterprises responded that the competitive strength of their enterprise depends on the capacity of human resources.

**Table 4.8: Analysis of Human Resources and Competitive Advantage**

Item	Non-indigenous		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Does the competitive strength of your enterprise depend on the capacity (unique, rare and hard to copy skills) of human resources?	7	100.0	0	0.0	79	98.8	1	1.3

The findings agree with the empirical studies of Hiroski (2008) on competitiveness indicators that skilled work force is a source of competitive advantage. The findings also align with Pamulu's (2010) empirical result that established that the more valuable and rare a firm asset makes the greater CA. The finding corroborates Ceramic and Popovic's (2012) position that what differentiates SMEs first and foremost, is the employee and that is the key to maintaining a competitive edge. It is also consistent with Schultmann and Sunke (2011) who empirically showed that, having access to skilled and efficient staff is a key advantage of Chinese indigenous

construction companies against EU construction companies operating in China. It however, disagrees with Oladimeji and Ojo (2012) empirical findings that indigenous construction contractors in Nigeria lack capacity to deliver due to human resources deficiencies.

It is deduced that the weak (1.2%) difference in the responses in the last five years shows that, deploying human capital does not determine the competitive edge of foreign construction SMEs over the indigenous, in the last five years. It can therefore be concluded that the competitive advantage of the foreign construction SMEs in North-Central Nigeria is not determined by the deployment of resources using human capital. As an evidence to confirm the contribution of human capital using human capital development (scheduled training and development deduced from SMEs budget for skill acquisition), the respondents were asked thus:

(b)What were your enterprises budget estimates for training and skill acquisition in the last five years; (estimate in Naira)?

The findings show that indigenous and non-indigenous companies annually budget for employees' job development. Furthermore, the average budget difference for training for the last five years is 0.21 million presented table 4.9.

**Table 4.9: Budget for Training and Skill Acquisition (in million) in the Last Five Years**

Year	Indigenous		Foreign	
	Total	Average	total	Average
2009	148.8	1.86	15.12	2.16
2010	136.0	1.70	14.7	2.1
2011	144.0	1.80	13.79	1.97
2012	160.8	2.01	14.84	2.12
2013	140.8	1.76	13.1	1.87
<b>Grand average</b>	<b>146.08</b>	<b>1.83</b>	<b>14.31</b>	<b>2.04</b>

The differences in annual budgets for training (10.3%) confirm DFID report (2006) citing China's politically determined business models that do little to build local capacity of African countries. It is however deduced that 10.3% difference is significant enough as a source of competitive advantage for foreign SMEs who are part of the 7% of the construction firms that account for 90% of the total value of construction output (Idoro 2010). Therefore, the budget associated with training and employee job development determined the competitive advantage of the foreign SMEs.

(c) How do human resources influence the competitive advantage of your firm?

The study revealed that, a total of 6 firms or 85.6% of non indigenous SMEs deploy human resources to influence other firm resources (physical and financial) to gain CA and a firm or 14.3% however focused on production efficiency. For indigenous firms, 40 SMEs or 50% gained CA deploying human resources to influence project financing (bid price, receipt and expenditure control and cost saving). Another 24 SMEs or 30%, focused on the construction process management by ensuring coordination and efficiency and finally, 16 firms or 16% achieve CA emphasizing on quality.

### Financial Resources

In this segment, the study sought to investigate whether financial resources influence the competitive advantage of the non indigenous small and medium construction enterprises in Nigeria. To determine the nature of the influence, the study was guided by the following questions:

- (a) Does your firm have access to required working capital for your projects?

The research showed that 100% of the foreign enterprises responded that their firm had access to required financial capital. Similarly 97.5% of the indigenous enterprises affirmed that their firms have access to require capital to finance projects as illustrated in table 4.10

**Table 4.10: Analysis of Financial Resources and Competitive Advantage**

Item	Non-indigenous		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Does your firm have access to required working capital for your projects?	7	100.0	0	0.0	78	97.5	2	2.5

The finding on foreign construction SMEs access to project financing- corroborates Vele (2012) theoretical position that one of the best sources of CA is a company's economic and financial position. It also aligns with Corkin, Burke and Davis's (2008) empirical stance that one of the most important factors that give Chinese firms competitive edge in Africa is access to financial capital.

But the 2.5% difference between indigenous and foreign SMEs does not concur with the findings of Yan's *et al.*, (2006) report that showed limited funding available to Chinese indigenous construction SMEs in China. It is not consistent with CCE report (2006) on Tanzanian local construction companies' financial competitiveness (the problem of access to capital or collateral for bonds, advance payment and advance performance bond). It does not also agree with Mir *et al.*, (2007) theoretical report that construction enterprises face financial difficulties in accessing financial

resources in developing countries. This finding is not in alignment with Ogechukwu and Latinwo's (2010) theoretical analysis that for reasons of poor terms of taking credit, lack of financial discipline, poor accounting practices and other capitalization Nigerian SMEs lack adequate financial resources. It does not also agree with Oladimeji and Ojo (2012) whose opinion show that Nigerian indigenous contractors have low financial base. It is deduced that the percentage difference between indigenous and non indigenous companies' access to funding (2.5%) in table 4.11 is not significant enough to account for foreign SMEs domination of construction market and therefore serve as a source of competitive advantage. As such, from this finding, access to fund does not determine foreign SMEs resources for competitive advantage.

For a confirmation on the financial backing to gain competitive success, the respondents were asked:

(b) What are the sources of project financing available to your organization?

The findings presented in table 4.11 show that 90% of indigenous respondents have project funding from project mobilization fees; 80% from financial institution; 20% from government assistance; 20% from parent organization; and 60% from profit retention. None of the indigenous respondents' sourced projects finance from trade credit. The foreign firms do not stake their funds since 71% rely on project mobilization fees; 43% on financial institutions; 43% on government assistance; 43% on trade credit; 29% on parent organizations; and 29% on previous profit retention.

**Table 4 .11: Sources of Working Project Financing**

Source	Indigenous		Foreign	
	Frequency	Percentage	Frequency	Percentage
Project mobilization fee	72	90	5	71
Financial institutions	64	80	3	43
Government assistance	16	20	3	43
Trade credit	0	0	3	43
Firm parent organization	16	20	2	29
Previous profit retention	48	60	2	29

This result on foreign SMEs reinforces the importance of trade credit discussed by Tallud (2014) in funding construction project by United Kingdom construction firms. Tallud states that trade credit is likely to be more important than bank lending among UK construction contractors. This study shows equal importance of both trade credit and bank lending among foreign construction SMEs. The 42% government support of foreign construction SMEs is consistent with Hill (2006) that maintains that Chinese contractors entering South Africa are subsidized by their government. The result also compliments the positions of Corkin, Burke and Davis (2008) that one of the most important factors that give Chinese construction SMEs competitive edge is access to loans and necessary funds for advanced payment and performance bond from their head office in China. Furthermore, that Chinese government implements favourable loans and taxation policies to SMEs abroad. Loans are at flexible rates from Chinese banks such as Bank of China, China Development Bank and China Exim Bank.

The research also shows that indigenous companies rely more on previous profit retention than non indigenous SMEs; yet Oladimeji and Ojo (2012) disclose that they earn low and inconsistent profit (as low as average 5.9%). Yan's et al., (2006) case studies show that Chinese indigenous Construction SMEs are unable to compete with foreign construction SMEs at home partly because they rely on retained earnings. They find it difficult to access finance, (banks prefer to lend to bigger firms). Therefore, their competitive strength against rivals is adversely impacted. It can be inferred that the foreign enterprises utilize firm parent organization, trade credit and government assistance to finance project available to their organizations more than the indigenous firms. On the other hand, the indigenous enterprises utilize project mobilization fees, assistance from financial institution and previous profit retention more than the foreign enterprises. Therefore, from the degree of reliance of indigenous firms on low profit retention, financial institutions-with high bank rate (Ogechukwu & Latinwo, 2010)- and project mobilization, it is concluded that finance influence the resources of foreign SMEs to gain competitive advantage.

(c) What impact does access to financial resources make on the competitive success of your firm?

The study established that most 70% or 56 enterprises gained CA deploying financial resources to optimize construction operations disbursements (supplies, equipment purchases and remunerations). Furthermore, 30% or 24 firms focused on ensuring timeliness (no delay on construction schedules). Similarly, five foreign SMEs or 71.4% focused on construction inputs disbursements to gain competitive success and the rest 28.6% focused on timeliness

### **Physical Resources**

In this section of the study, the work investigated whether physical resources the competitive advantage of foreign construction SMEs in Nigeria. For the nature of the advantage the following questions were used as guide.

(a) Do you estimate the value of machinery and equipment when bidding for construction projects for strategic reasons (depreciated estimate in company's account)?

The result in table 4.12 indicates that 85.7% of the foreign enterprises responded that they estimate the values of machinery/equipment for strategic (competitive edge) reasons. Also 92.5% of the indigenous enterprises revealed that they carry out a similar estimate for competitive edge during bidding exercises.

**Table 4.12: Descriptive analysis of Physical Resources and Competitive Advantage**

Item	Non-indigenous		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Do you estimate the value of machinery and equipment when bidding for construction projects for strategic reasons (depreciated estimate in company's account)?	7	100.0	0	0.0	74	92.5	6	7.5

The findings establish Raduan, Heslinda and Alimin (2010) empirical studies that physical resources (plant, machinery, equipment, production technology and capacity) contribute to resources for competitive advantage. It is also consistent with Khanna and Palepu's (2006) theoretical analysis of the dominance of multinational in emerging markets that, competitive strength is in the possession of sophisticated technology. It is consistent with the SWOT analysis of Chinese construction SMEs using limited plant and equipment to compete (Yan *et al.*, 2006).

A specific component of physical resources is Information and Communication Technology (ICT). Therefore for specifics on ICT, respondents were asked:

(b) Does your firm have competitive strength leverages (website, E-mail address, Internet and Internet services) on your enterprise information system?

The study (table 4.13) also shows that up to 85.7% and 97.5% foreign enterprises and indigenous enterprises respectively have competitive strength leverage on their enterprise information system.



**Table 4.13: Analysis of Information and Communication Technology and Competitive Advantage**

Item	Non-indigenous		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Does your firm have competitive strength leverages (website, E-mail address, Internet and Internet services) on your enterprise information system?	6	85.7	1	14.3	78	97.5	2	2.5

The findings agree with the theory of Porter (2001) who cites internet influence on competition with the Five Competitive Forces. It aligns with Khanna and Palepu (2006) theoretical analysis that some firms in the emerging markets in India, Philippines and Turkey succeeded in blunting multinational edge. Khanna and Palepu maintain that such mechanisms allow many local companies to compete effectively with foreign giants.

Similarly the findings corroborate Ong and Ismail (2008) studies on the significant effects of availability, competency and entrepreneur's usage of ICT facilities in SMEs for competitive advantage of firms. But it does not align with the result of the case studies of multinational firms in Nigeria where Olayiwola (2008) discovers that 65% of respondents do not use electronic to exchange information among each other and a generally poor level of ICT in construction industry in Nigeria. Procurement of information input among the construction chain members are mostly carried out using manual or hard copy/paper format.

It is deduced that both indigenous and non-indigenous firms leveraged on information systems to compete, but a higher percentage of indigenous companies put in place more collaborative technologies such as intranets to create competitive advantage. It is concluded that the difference in information systems is not a source of competitive advantage.

To affirm the value of the machinery/equipment the respondents were asked:

(b) What is the estimated value (in Naira) of your firm's machinery and equipment in the last five years?

Table 4.14 shows that the foreign enterprises have a grand average of 163.03 million Naira compared to indigenous firms' 120 million Naira worth of machineries and equipment in the last five years. The average difference in value is 42.03 million.

**Table 4.14: Estimated Values of Machinery and Equipment(in million) for the Last Five Years**

Year	Indigenous		Foreign	
	Total	Average	Total	Average
2009	8720	109	1015	145
2010	12560	157	1407	201
2011	9680	121	1211	173
2012	8080	101	945	135
2013	8880	111	1093	156
<b>Grand average</b>	<b>9584</b>	<b>120</b>	<b>11342</b>	<b>162.03</b>

The findings are consistent with the pilot studies of Yan *et al.*, (2006) that Chinese indigenous construction SMEs are unable to compete at home because of limited plant and equipment. The finding is consistent with Lopes, Oliveira and Abreu (2011) whose analysis show lack of equipment and spare parts in the construction industry of developing countries. It also reinforces Cheu, Chiu, Orr and Goldstain (2007) that indigenous construction company in Africa cannot compete with low technological endowment. This study confirms the inadequate possession of construction equipment by construction SMEs in Nigeria as established by the empirical findings of Windepo and Omeife (2012). Ogechukwu and Latinwo's (2010) analysis of Nigerian SMEs shows lack of adequate equipment and spare parts. The foreign SMEs having an average equipment value of 42.03million Naira more than the indigenous in the last five years, the 35.03% superiority is a source of competitive strength. Therefore physical resources contribute to resources for competitive edge of foreign SMEs.

For the deployment of these machine and equipment for competitive edge, respondents were asked:

(d) How does machine and equipment contribute to the competitive success of your firm?

The work establish that 72 firms or 90% of indigenous firms deployed equipment for efficiency to gain CA, and the other 8 or 10% emphasized on quality output for the same aim. But the non indigenous directed these resources for timeliness and to achieve quality.

#### **4.6.2. Competitive Strategy and Competitive Advantage**

The study sets out to determine if competitive strategy influence competitive advantage of non-indigenous small and medium construction enterprises in North-Central Nigeria. Specifically the study focused on Differential Strategy, Cost Leadership and Niche Market. These three (3) sub variables were investigated and the frequency and percentage distributions of the responses were displayed.

##### **Differentiation Strategy**

The section focused on examining the choice made from the generic strategic options (cost leadership and differentiation).It further ascertained if differentiation strategy influences competitive strategy of non-indigenous construction SMEs to gain competitive advantage. To ascertain the nature of this strategy, the following questions are used as guides;

(a) What strategy/strategies have you adopted in the delivery of projects at different times?

The work as presented in table 4:15showed that all the foreign construction SMEs (100%) deployed differentiation strategy and 71.4% also added cost leadership as project delivery strategy. Furthermore 72% of non indigenous construction SMEs deployed differentiation and 96.3% deploy cost leadership as main strategy for construction projects.

**Table4:15 - Analysis of Generic Strategy Options**

Item	Foreign				Indigenous			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Differentiation strategy (unique and costly)	7	100.0	0	0.0	58	72.5	22	27.5
Cost leadership (cheap and well)	5	71.4	2	28.6	77	96.3	3	3.8

These findings relates with Michael Porter’s theory of strategy choice (differentiation and cost leadership) to gain CA, (Porter, 1980). It also corroborated Barney and Clark (2007) suggesting that to create more value than its rival, an enterprise must produce greater net benefit, through superior differentiation and/or lower cost. It aligns with O’Shannassy (2008) advocate that firms with CA should pursue a strategy that is not being executed by a rival firm or firms, thereby providing an opportunity for cost reduction (low cost) or to exploit market opportunities with premium product/services (differentiation). It can be concluded that the foreign construction SMEs deploy more differentiation strategy than indigenous SMEs

(b) Have your firms delivered project(s) whose consideration is to achieve uniqueness?

The result in table 4.16 indicates that 85.7% of the foreign enterprises delivered projects whose consideration is to achieve uniqueness while 71.3% of indigenous enterprises delivered projects whose consideration is to achieve uniqueness

**Table 4.16: Analysis of Differentiation and Competitive Strategy**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Have you delivered project(s) whose consideration is to achieve uniqueness?	6	85.7	1	14.3	57	71.3	23	28.8

This finding aligns with Michael Porter's stance that product differentiation is a form of strategy to gain CA (Porter, 1980). It is consistent with Tallud's (2014) empirical analysis that shows that UK construction firms place strong emphasis on competing on the basis of quality and innovation. They are schedule conscious and not cost conscious.

Therefore UK construction businesses differentiate themselves from lower cost countries including China, India and Brazil. It establishes Vele's (2012) review that illustrate that small companies whose primary goal is to attract new customer can gain C.A through differentiation. This finding also agrees with Schultmann and Sunke (2011) who empirically revealed that, on the competitiveness of foreign (European Union) construction companies against indigenous Chinese, the former maintain their competitive advantage in the high value segment in project design and management.

The foreign construction companies target superior services and quality and maintained higher standard in constructions. It is in alignment with Khanna and Palepu (2006) theoretical analysis that in Middle Income Countries (MIC), the foreign companies satisfy the market segment for customers that want products of global quality and with global features who are also willing to pay global price for them. However, some indigenous firms were 'giving them a run for their money.

It is deduced that 14.4% of foreign enterprises adopted differentiation strategy (delivery projects whose consideration is to achieve uniqueness) more than indigenous SMEs. This finding establishes Cokin's et al., (2008) opinion that Western companies maintain a slight edge in finishing, reliability, quality and timeliness. Davis et al., (2010) affirm that with this strategy, the foreign firms clinch a premium price. It is concluded that differentiation influences competitive strategy of foreign construction SMEs than indigenous to gain competitive success.

To confirm the influences of the predictors of the competitive strategy in this study, respondents who adopted differentiation strategy were asked to identify factors (inputs) that enabled their firms to implement differentiation strategy thus:

(c) If yes, identify from the options the reason(s) for your success.

The findings showed that more foreign respondents (85.7%) were supported by project durations than indigenous (22%) to achieve differentiation strategy (table 4.17). More foreign SMEs were supported by artisans (85.7%) than indigenous 70%; the use of sub-contractors' support was; (non indigenous-71.4% and indigenous 44%). For the deployment of supervisors for differentiation, it was 71.4% and 65% foreign/indigenous supports. Furthermore material support was 71.4% for non indigenous contractors against 65% for indigenous. For supervisors, it is foreign 71% and indigenous 65% and more foreign enterprises (85.7%) were supported by their equipment than indigenous (62%). This result is presented in table 4.17. It can be deduced that foreign respondents relied on the supports of equipment, duration urgency, sub-contractors, supervisors and artisans than indigenous to differentiate their constructions.

**Table 4.17: Factors that Supported the Adoption of Differentiation Strategy**

	Indigenous		Foreign	
	Frequency	percentage	Frequency	percentage
Project duration	17	21	6	86
Artisan	56	70	6	86
Subcontractor(s)	35	44	5	71
Supervision	52	65	5	71
Materials	52	65	5	71
Equipment	50	63	6	86

This finding is consistent with Yan, Chew and Cheah (2006) who empirically showed that most construction SMEs in China (at home) pursue labour intensive project leading to low differentiation in products and services quality. The findings also tallies with Mir'set *al.*, (2007) theoretical analysis listing craftsmen, supervisors, technicians, engineers as some human resources needed in the construction industry for competitive success. It is consistent with Ogechukwu and Latinwo (2010) who

maintained that lack of adequate technical capacity is one of the problems of Nigerian SMEs. It concludes that foreign SMEs use more project duration, artisans, sub contractors and equipment to achieve product differentiation as competitive strategy to gain competitive advantage than indigenous SMEs.

(d) How has this strategy affected your competitiveness?

The result revealed that, though it was expressed in different way, essentially, 71.4% of the non-indigenous firms unveiled that this strategy influences their market share but a firm confirmed that the effect is on firm's profit. Similarly, the effects of differentiation on the indigenous SMEs are increased market share. These findings align with Pamulu (2010) review of the Indonesia's construction industry.

### **Cost Leadership Strategy**

The research also evaluates if cost leadership influence competitive strategy of non-indigenous construction SMEs to gain competitive advantage. Therefore, the respondents were asked:

(a) Has your enterprise successfully completed project(s) in which the policy is affordability (fit for purpose, cheap and well)?

The result presented in table 4.18 indicates that 71.4% of the foreign enterprises delivered projects whose consideration is to achieve affordability -fit for purpose, cheap and well-affordable. While 96.3% of indigenous enterprises delivered projects whose consideration is to achieve affordability.

**Table 4.18: Analysis of Affordability Strategy and Competitive Strategy**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Has your enterprise successfully completed a project in which the policy is affordability (fit for purpose, cheap and well)?	57	71.4	22	28.6	77	96.3	3	3.8

A higher percentage of both groups (indigenous and non indigenous) SMEs deployed cost leadership strategy. That is in line with Yan's *et al.*, (2006) whose empirical study showed that construction SMEs maintain low running cost therefore, they easily leverage on cost leadership as a strategy. They are flexible and respond to market changes quickly with shorter and simpler communication channels that lead to greater efficiency. Furthermore, it is deduced that more indigenous SMEs deployed cost leadership strategy to gain competitive advantage.

The finding is consistent with Schultmann and Sunke (2011) who reveals that, the Chinese construction companies are more price competitive (under pricing rivals)-low cost base and relatively efficient, compared to foreign (European Union) construction companies. It is deduced that for Nigerian indigenous construction SMEs to compete based on cost competitiveness is difficult because the Centre for Chinese Studies-CCS (2006) shows that the competitiveness of China construction companies in Africa is attributed to cost competitiveness in overall bidding price and access to cheap bidding materials through supply chain from China among others. The lower foreign percentage (71.4%) that deployed cost leadership when position with the higher foreign SMEs that deploy differentiation strategy (96.3%) is consistent with Porter Generic Strategy Theory, Porter (1985) that cost leadership is a trade off with differentiation. It therefore concludes that cost leadership is not a competitive strategy by foreign construction SMEs to gain competitive success.

For details on approaches deployed, respondents were asked:



(b) If yes, what was/were your approach (es)?

The study unveiled the percentages of indigenous and foreign respondent that deployed the various approaches to cost leadership; “finish and go” (45% and 43%), effective use of materials (68% and 71%), minimal profit margin (96% and 43%), defect management (64% and 71%) and waste management (45% and 71%). This is presented in table 4.19.

**Table 4.19: Approaches to Cost Leadership**

	Indigenous		Foreign	
	Frequency	Percentage	Frequency	Percentage
Motivated workers through “finish and go”	36	45	3	43
Efficient and effective use of materials	54	68	5	71
Minimal profit margin	77	96	3	43
Defect management	51	64	5	71
Waste management	37	46	5	71

It is deduced that the indigenous cost leadership style was motivating workers through “finish and go” and minimal profit margin. It aligns with Oladimeji and Ojo (2012) that Nigerian indigenous contractors earn low and inconsistent profit. Yet to compete with Chinese firms on the basis of low profit margin is difficult since the World Bank Document- WBD (2007) shows that Chinese firms operate on margins of under 10% making them extremely competitive in price (Corkin *et al.*, 2008). The WBD further shows that State Own Enterprises (SOE), operate as low as 5% in Tanzania and 3% in Ethiopia.

Foreign firms utilize management process including efficient and effective use of materials, defect management and waste management. The finding is consistent with

Tallud's (2014) whose empirical studies show that UK firms have strong reputation for development of advanced technologies used in construction such as Building information Modeling (BM) which enable businesses to make more intelligent use of data and hence minimize waste from building process. This finding confirms Schulman's (2011) position that waste reduction and others are means of gaining competitive advantage. It is also consistent with Sunke *et al.*, (2011) on resources saving for competitive advantage. It concludes that foreign SMEs utilize efficient and effective use of materials, defect management and waste management approaches to cost leadership to gain competitive advantage.

(c) How does this strategy affect the competitiveness of your enterprise?

For non indigenous enterprises, cost leadership affects client's patronage (28.8% of the respondents or 2 firms) boosting market share and another 28.8% of the respondents or 2 firms the effect is cost reduction confirming World Bank Document (2007). The indigenous SMEs affect their competitiveness through more market share (60 firms), cheaper project costs (10 firms) and without affects firm's profit (7 firms) aligning with Pamulu (2010).

### **Niche Market Strategy**

The work investigated if niche market (focus) influence competitive strategy of non-indigenous construction SMEs to gain competitive advantage. Therefore, the respondents were asked:

(a) Does your enterprise have strategy to filling market niches unfilled by rivals?

The result in table 4.20 indicates that 100% of the foreign enterprises have strategy to filling market niches unfilled by rivals while only 66.3% of indigenous enterprises of the indigenous enterprises possess the strategy.

**Table 4.20: Analysis of Niche Market (Focus) Strategy and Competitive Strategy**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Does your enterprise have a strategy of filling market niches unfilled by rivals?	7	100.0	0	0.0	53	66.3	27	33.8

The finding shows that (100%) of the non-indigenous respondent filled market niches unfilled by rivals as against 66.3 % indigenous enterprises. This is consistent with Schultmann and Sunke (2011) who empirically proved that, foreign (European Union) construction companies retain their competitive advantage against indigenous Chinese companies in areas of niche specialization. In the face of competition, foreign construction companies focused on market niche within Chinese construction market in order to face less competition.

The finding also aligns with Pamulus (2010) review of generic competitive strategies and the conclusion that in terms of basis of competition in Indonesia, most companies heavily rely on their specialization in a niche market. It is in alignment with Khanna and Palepu's (2006) theoretical analysis that opportunities in developing countries tend to be relatively small and risky, therefore, the non indigenous companies' coping strategies is to occupying small, super premium niches. When aligned with the empirical report of Yan et al., (2006) on differentiation strategy, then it establishes the suggestion that, for specialty construction SMEs, focus differentiation may be the only viable strategy for their target market. It is inferred that more foreign contractors deployed the niche market strategy than indigenous ones. When viewed with the finding on differentiation strategy, it shows that foreign SMEs deployed differentiation with niche market strategy. It therefore concludes that the foreign construction SMEs deploy niche market option of competitive strategy to compete against rivals.

For the specifics of the niche market strategy, respondents were asked:

(d) If yes, in which area specifically do you fill market niches not filled by rivals?

The table 4.21 shows the percentages of indigenous and foreign respondent that focus on various niche markets; surveying market niche is 30% and 0%; roofing is 23% and 71%; interior decorations 45% and 28%; mechanical works 23% and 14%; fittings 53% and 14%; test 33% and 14%; electrical works 39% and 14% and landscaping 60% and 71%.

**Table 4.21: The Specific Markets Niche Filled by Construction Companies.**

	Indigenous		Foreign	
	frequency	percentage	Frequency	percentage
Surveying	24	30	0	0
Air conditioning	2	3	0	0
Roofing	18	23	4	57
Interior decorations	36	45	2	29
Mechanical works	18	23	1	14
Lift escalator	18	23	1	14
Building skeletons	26	33	2	29
Fitting (doors, windows)	42	53	1	14
Conducting tests	26	33	1	14
Electrical works	31	39	1	14
Landscaping	48	60	5	71

It is observed that respondents focused on different market segments. It is established that non – indigenous contractors focus on roofing and landscaping as focus segment to offer niche members something different from rivals. Khanna and Palepu’s (2006) theoretical analysis shows that, in emerging market of India, Turkey, China and Indonesia, indigenous companies tend to avoid head to head competition with foreign companies. In alignment with Pamulu (2010) view and Porter (1985) generic five competitive forces and Porter’s (1980) competitive strategy, it concludes that the

non-indigenous firms have resources to serve the construction industry better in roofing and landscaping efficiently.

The non-indigenous firms can thus create or raise the entry barriers, as such making it hard for indigenous company to enter. The non-indigenous unique capabilities can further present a hurdle that indigenous substitutes must overcome. Even the bargain power of clients in this case may be blunted because of their unwillingness to engage the services of indigenous firms, found to be less capable to satisfy their needs.

For the nature of the impact of the niche market strategy, the following question was used as guide:

(c) How does this strategy affect the competitiveness of your enterprise?

Though expressed in various ways, the impact of focus (niche) market strategy on the competitiveness of 4 non indigenous SMEs is; they are preferred choices (market spread) and for the other three 3 firms they gained unique identity. For majority of the indigenous SMEs (38 respondents) the win more patronage while 15 others win relevance and publicity.

#### **4.6.3 Study Variables– Critical Success Factor**

The research also examined whether critical success factors influence competitive advantage of non-indigenous small and medium construction enterprises in North-Central Nigeria. Specifically, the study focuses on alliance and partnering, innovation and owner manager characteristics. Insights into these three (3) sub-variables were investigated and the following are the analysis of the relationship between the variables and competitive advantage.

##### **Alliance and Partnering**

In this part, the study sought to investigate whether alliance and partnering influence the competitive advantage of non-indigenous small and medium construction

enterprises in North-Central Nigeria. For an insight into the nature of the influence, the following question guided the work.

(a) What are the factors considered as critical to your firm’s strategy for project delivery.

The result in Table 4.22 shows that 100% foreign firms partner with other firms as a strategy for project delivery, 57% consider innovation as critical and 71% consider owner manager traits, qualities and characteristics as critical. On the other hand 44% of indigenous explored alliance and partnering, 35% considered innovation and 67% explored owner manager traits, qualities and partnering as critical for construction project delivery. Furthermore, the result showed that the foreign enterprises utilized alliance and partnership with others, innovation and owner manager traits more than the indigenous enterprises as critical factors by firms’ strategy for project delivery.

**Table 4.22: Factors Considered as Critical to Firm Success for Project Delivery**

Description	indigenous		Foreign	
	frequency	percentage	frequency	percentage
Alliance and partnership with others	35	44	7	100
Innovation	28	35	4	57
Owner manager traits, qualities and characteristics	54	68	5	71

The finding relates with Martinuzzi *et al.*, (2011) reviews that maintain that alliance and partnership are critical to CA. The result aligns with Arslan and Kivrak’s (2008) studies that the characteristics of owner/Manager are keys to competitive advantage. It is also consistent with Kin Man and Liu (2004) model that shows innovation and technology as success factor to achieve competitive advantage.

(b) Is your enterprises in any form of partnership or alliance with any other firm(s)?

The result in table 4.23 indicates that 85.7% and 67.5% of the foreign enterprises and indigenous enterprises respectively were in some form of partnership or alliance with other firms.

**Table 4.23: Analysis of Alliances Strategy and Critical Success Factors.**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Is your enterprise in any form of partnership or alliance with any other firm(s)?	6	85.7	1	14.3	54	67.5	26	32.5

The findings revealed that non-indigenous construction SMEs adopted alliance and partnering as a strategy for competitive advantage more than the indigenous construction SMEs. This finding is consistent with position of Pamulu (2010) that having relationship with suppliers is a key success factor in Indonesia. The lower level of alliance and partnering among indigenous SMEs aligns with DFID (2006) that show that the Chinese have shown limited interest in collaborative ventures with local construction.

The finding establishes Yan's *et al.*, (2006) analysis which shows that to cope with competition, construction SMEs can adopt alliance as a flexible strategy – a form of lateral relationship between a firm and its competitors in one or more aspects for collaboration and risk sharing. Yan *et al.*, (2006) adopts co-competition where competition and cooperation co-exist simultaneously. It confirms the implementation of Glaser's (2006) position that if a firm lacks competences in one or more activities of the value chain, it can do a coalition with other firms with the aim to palliate internal inadequacy and externally reach competitive advantage. It is consistent with Khanna and Palepu's (2006) whose theoretical analysis shows that at entry, indigenous companies assist foreign firms to navigate the challenges of most communities, baffling bureaucracy, documentations and coordination of transportations. It concludes that alliance and partnering are sources of CA of non-indigenous construction SMEs.

(e) How has partnering and alliance strategy influence the competitive advantage of your firm?

The study established that foreign construction SMEs unanimously showed that alliance and partnering strategy influence resources and geographical spread in line with Glaser’s (2006). However 40 indigenous SMEs deployed the strategy targeting resources (skills and inputs materials) spreading risks and to gain geographical spread and 14 others use the strategy to improve project completion (timeliness) in line with Gal (2010) delivery time and Pamulu (2010) reputational resource and quality delivery.

### **Innovation**

In this part of the work, the study considered if innovation influence critical success factors of non-indigenous construction SMEs to gain competitive advantage. As such, the respondents were asked:

(a) Does your enterprise have a storage/data base for latest innovative ideas/products (software, materials, and technologies)?

The result in table 4.24 indicates that 85.7% of the foreign and 72.5% indigenous enterprises responded that their enterprises have storage/data base for latest innovative ideas/products.

**Table 4.24: Analysis of Innovation and Critical Success Factors.**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Does your enterprise have a storage/data base for latest innovative ideas/products (software, materials, and technologies)?	6	85.7	1	14.3	58	72.5	22	27.5

The finding confirms the analysis of Vele (2012) that technological innovation is not only the development of new technology but also for gaining competitive advantage.



It also agrees with Schultmann and Sunke (2011) who shows that innovation/RD are important advantages of EU construction companies in competition with Chinese indigenous firms. That foreign construction SMEs are more innovative than indigenous SMEs is consistent with Kun Man and Liu's (2004) model that most competitive companies always consistently out perform their competitors in innovation and technology, among others.

For confirmation, respondents were asked:

(b) If yes, what were your estimated annual budget for research and development for the last five years?

Responses showed that, averagely, indigenous firms spent less than five (5) million Naira, on research and development in the last five years. In contrast, foreign firms spent between 5 and 10 million naira. This is presented in table 4.25.

**Table 4.25: Analysis of Companies' Research and Development Budgets for Five(5) Years.**

	Indigenous		Foreign	
	frequency	percentage	frequency	percentage
Less than 5 million	52	65.0	3	43
5 million – 10 million	4	5.0	0	0
10 million – 15 million	1	1.3	2	29
15 million – 20 million	1	1.3	0	0
Above 20 million	0	0.0	1	14
<b>Aggregate</b>	<b>Less than 5 million</b>		<b>5 to 10 million</b>	

The budget on research and development establish that the foreign construction firms are more inclined to innovation as shown by EU companies in China (Schultmann & Sunke, 2011). Sudarto, Riantini, Abidin and Trigunarsyah (2007) found low competitiveness with foreign owned firms and low level of innovation in Indonesia.

(c) How do innovative products influence the competitive advantage of your enterprise?

To gain CA findings unveiled that the 5 non indigenous respondents deploy innovative products essentially for better performance in line with Pamulu (2010). However, for the same purpose (competitive advantage) majority of the indigenous SMEs (40 respondents) deployed innovation for quality construction in line with Gal (2010) and 18 others for efficiency.

### **Owner Manager Traits**

The study further examined whether owner managers' traits qualities and characteristics influence critical success factors of non-indigenous construction SMEs to gain competitive advantage. For an insight to the nature of influence of the type of working experience as a trait, respondents were asked:

(a) Before engaging in construction business, what were you doing?

The study revealed that 6 respondents or 85.5% the foreign owner/managers were employed in construction business prior to being engaged in construction business but a respondent or 14.4% was not. However some indigenous construction owner managerwere not employed in construction business related organizations (as a back ground) prior to being engaged in construction business. As presented in table4:26, 6 respondents or 7.5 % were in government employment, 20 owner/managers or 25% were in non construction related businesses but 67.5% were employed in construction businesses.

**Table 4.26: Work Experience Organization as a Critical Success Factor**

	Foreign		Indigenous	
	Frequency	percentage	Frequency	percentage
Government employment	0	0.0	6	7.5
Non construction business	1	14.4	20	25.0
Construction business	6	85.7	54	67.5

This result shows that foreign SMEs owner managers had more work experience in construction related businesses before starting construction SMEs than indigenous owners. The finding aligns with the position of Windapo and Omeife (2012) that Nigerian construction firm owners lack adequate construction experience.

(b) Have you had a working experience in the construction industry before going into the construction business?

The result showed that 85.7% and 66.3% of the foreign and indigenous enterprises respectively, confirms that they have working experiences in the construction industry before venturing into the construction business. This is illustrated in table 4.27.

**Table 4.27: Analysis of Owner Manager Traits and Critical Success Factors.**

Item	Foreign		Indigenous	
	Yes	No	Yes	No
	F %	F %	F %	F %
Have you had working experience in the construction industry before going into the construction business?	68	85.7	14	33.8

The result agrees with Martinuzzi *et al.*, (2011) reviews that maintained that the owner/manager's characteristics are critical to CA. It aligns with the position of Pamulu (2010) in Indonesia that in terms of basis of competition Indonesian construction companies relies heavily on their reputation founded on experience. It tallies with Arslan and Kivrak's (2008) conclusion that the characteristics of owner/Manager are keys to competitive advantage. It is consistent with Blonguist, Didenko and Konovets (2008) who reveals that project managers' experience among others, are the most important success factor.

The finding on indigenous contractor is consistent with Windapo and Omeife (2012) who show that Nigerian owner/manager lack adequate construction experience. This

is in consonance with the Pakistan infrastructure implementation capacity assessment where Mir, Tanvir and Durrani (2007) reviewed that largely, non-professional managers and insufficiently qualified technical personnel's head construction firms. Therefore, this imposes severe limitations on capacity as well as the quality of work (important prescriptions of competitive advantage). It concludes that the owner manager trait is a source of advantage to foreign construction SMEs.

For the duration of the construction work experience, respondents were asked:

(c) How long did you work there?

The study unveiled that 4 owners or 57.1% have 11 to 15 years working in construction related businesses before starting a construction SME compared to 14 indigenous owner manager or 17.5% with the same years of experience. This is presented in table 4.28

**Table4:28Years of Construction Work Experience of the SME Owners**

	Foreign		Indigenous	
	Frequency	percentage	Frequency	percentage
0 – 5 years	0	0.0	0	0.0
6 – 10 years	3	42.8	34	42.5
11 – 15 years	4	57.1	14	17.5
16 – 20 years	0	0.0	2	2.5
Above 20 years	0	0.0	0	0.0

The result tallies with the conclusion of Pellissier and Nenzhelele (2013) on competitive intelligence (CI) awareness practice. That is, years of working experience is a great predictor of awareness and practice of CI. It is also in consonance with Windapo and Omeife's (2012) findings in Nigerian. It concludes that the owner manager trait is a source of competitive advantage to foreign construction SMEs.

(d) How has the previous knowledge and experience contributed to the competitiveness of your firm?

The foreign SME owners (6 respondents) deployed their working experiences in construction employment to manage staff and equipment (resources) in line with the RBV (Pamulu, 2010) and the risk factors in construction delivery to influence competitive edge. The indigenous owner/managers (47 respondents) achieve faster decisions (aligning with Barney and Clark (2007) organizational resources) with experience to gain competitive success.

#### **4.6.4 Study Variables- Value Chain Activities**

The research further investigated whether value chain activities influence competitive advantage of non-indigenous small and medium construction enterprises in North-Central Nigeria. Specifically, the study focused on supply management, operations and after sales activities. The following the analysis of the relationship between the variables and competitive advantage.

#### **Supply Management (In-Bound Logistics) as Value Chain Activities of Competitive Advantage**

In this segment, the study looked at whether in-bound logistics (supply management) influence the competitive advantage of non indigenous construction SMEs in the North Central Nigeria. To unveil the nature of influence, the respondents were asked (a)Do you strategically structure entire projects into a set of units of activities? Findings showed that 100% and 71.1% of the foreign enterprises and indigenous enterprises respectively, strategically structure entire projects into a set of units of activities. This is illustrated in table 4.29.

**Table 4.29: Analysis of Value Chain Activities and Competitive Advantage**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Do you strategically structure entire projects into a set of units of activities?	7	100.0	0	0.0	57	71.1	23	28.9

The result shows that all non-indigenous construction firms manage their production chain as a system of unit of activities. This agrees with Bonton and McHenry's (2010) position that competitive advantage can be gained through superior management of project procurement chains and Porter's (1985) theory.

(b) Has any of your construction operations stopped because of supplies (materials out of stock)?

The study unveiled that 85.7% and 93.8% of the foreign enterprises and indigenous enterprises respectively responded that some of their construction operation stopped because of supplies deficiency. This is illustrated in table 4.30.

**Table 4.30: Analysis of Materials Stock Management as Value Chain Tools of Competitive Advantage.**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Has any of your construction operations stopped because of supplies deficiency (materials out of stock)?	6	85.7	1	14.3	75	93.8	5	6.3

This finding is in line with the position of Bonton and McHenry (2010) that the non indigenous construction SMEs owner-manager who gains competitive advantage exercises supply sourcing leadership better than the indigenous companies. The reduced construction operation down time confirms that non-indigenous construction

SMEs handle the primary activities (in bound logistics) better. Therefore it is concluded that the competitive edge of non-indigenous construction firm against rivals is as a result of a better managed in-bound logistic leading to less work stoppage due to supply deficiency.

(c) How does material supply management influence the competitiveness of your firm?

The non indigenous construction SMEs (4 respondents), in the bid for competitive success, deploy material supply management strategy to impacted on project speed (timeliness) aligning with the analysis of Pamulu (2010) and inventory control (2 respondents) to align with Bonton and McHenry (2010). However, 65 respondents or 85% of the indigenous SMEs deployed this strategy to influence inventory control(constant and on-target supplies), 8 respondents or 10% deploy it to control waste and 4 respondents or 5% deliver quality output using the same strategy.

### **Operations as a Value Chain Activities and Competitive Advantage**

The study also focused at the influence of firms' method of construction operations as a component of the value chain tools that the non-indigenous construction SMEs deployed to gain competitive advantage. To determine the nature of the influence respondents were asked:

(a) What is the average number of construction site handled by your firm in the last five?

The study unveils that except in the year 2012 the foreign SMEs consistently handled more construction site than the indigenous enterprises. There is a an average difference of 1.16 construction site between the two group of respondents in favour of foreign SMEs. This is illustrated in table 4.31.

**Table 4.31: Average Firm's Construction Site in the Last Five**

Year	Indigenous	Foreign
	Average	Average
2009	2.5	4.5
2010	2.8	3.7
2011	3.1	2.5
2012	3.6	5.5
2013	2.2	3.6
<b>Grand average</b>	<b>2.8</b>	<b>3.96</b>

The non indigenous construction SMEs more market share is inline Gal (2010) competitiveness indicators. It is consistent with performance indicators that Arasa and Gathinji, (2014) found in the study of the competitive strategies that explained 60.5% of the variations in firm performance among telecommunications industry in Kenya. The result aligns with Idoro (2010) who disclose that the 7% foreign construction firms account for 90% of the total value of construction in Nigeria. Also with Ihua, Ajayi and Eloji (2009) that the domestic content of the Contracts worth an estimated 8 billion USD annually in servicing the Oil and Gas industry in construction related activities is only 5 %. It is concluded that the number of construction site handled by foreign SMEs is an indicator of their competitive strength against rivals.

(b) Does your firm ensured effective project delivery by braking construction projects into small units of operations?

The finding shows that 85.7% and 68.8% of the foreign enterprises and indigenous enterprises respectively ensured effective construction project delivery by braking construction project into small units (various trades). This is illustrated in table4.32.



**Table 4.32: Analysis of Construction Operations and Value Chain**

Item	Foreign		Indigenous					
	Yes	No	Yes	No				
	F %	F %	F %	F %				
Does your firm ensure effective construction project delivery by breaking operations into small units?	6	85.7	1	14.3	55	68.8	25	31.3

More non-indigenous construction firms broke their operations down into components compared to rivals as advocated by Ketchen and Halt (2007). Therefore the operations of non-indigenous firm meet the condition of Rothaermel (2008) for competitive edge better when the positions is that to truly create competitive advantage, a firm must be operationally effective. It also aligns with Ogechukwu and Latinwo's (2010) theoretical analysis showing lack of production structure and plans of Nigerian SMEs.

The research further considers the evidence of value chain management in construction operations by asking:

(c) If yes, how do you manage units handled by subcontractors?

The finding shows that 85.7% (all SMEs that broke operations into units) and 60% (or 33 firms) of the foreign enterprises and indigenous enterprises respectively managed construction operations as a system (coordinated as a chain or team). However, 40% (or 22 firms that broke operations into units) of indigenous manage sub contractors as independent units. This result is illustrated in table 4.33.

**Table 4.33: Analysis of Operations as Value Chain Activities of Competitive Advantage**

Item	Foreign				Indigenous			
	Team		Units		Team		Units	
	F	%	F	%	F	%	F	%
How does your firm manage subcontractors and execute construction operations (as independent units or interdependent team)	6	85.7	1	14.3	33	60.0	22	40.0

This finding aligns with Porter's (1958) theory of value chain management and Ling's (2004) that architecture, engineering and construction firms in South East Asia focus internally on their operations and ensure they offer superior product for competitive advantage.

d) What are your firm's average construction earnings in the last five years?

The work unveils that throughout the study period the foreign SMEs consistently earns more than the indigenous enterprises. Although a consistent steady growth is not recorded from both groups of respondents, the foreign SMEs almost earn twice as much as their indigenous counter parts. There is an average difference of 191.1 million Naira difference in favour of foreign SMEs. This is illustrated in table 4.34.

**Table 4.34: Average Firm’s Construction Earnings (in millions) in the last Five Years**

Year	Indigenous	Foreign
	Average	Average
2009	254	520
2010	272	450
2011	284	309
2012	314	601
2013	225	425
<b>Grand average</b>	<b>269.9</b>	<b>461</b>

The non indigenous construction SMEs more construction earnings is in line with Gal (2010) who show market performance as a competitive advantage indicator. It is consistent with Arasa and Gathinji, (2014) found sales as a performance indicators in Kenya. Also it is in line with Ihua, Ajayi and Eloji (2009) finding is the Nigerian Oil and Gas industry construction related activities. It is concluded that construction earnings of the foreign SMEs is an indicator of their competitive advantage against rivals.

(e) How does your strategy impact the competitive edge of your enterprise?

The study unveils that, essentially the foreign SMEs deploy their strategy to impact on organizational resource (5 respondents). A firm deploys the strategy to gain speed.

It is also established that a majority of indigenous firms (70%) impact in organizational resources and control deploying operation strategy among the SMEs. Another (20%) deploy this strategy on project quality and 10% to impact on construction speed.

### **After Sales Services (Out-Going Logistics) as Value Chain Activities of Competitive Advantage**

The work examined the influence of after sales services (out-going logistics) on value chain tool for competitive advantage of non-indigenous construction firms. For the form of influence the following questions were deployed as guide:

(a) Do you have strategy of “follow up services (defect remedies, installations and drawings) your enterprise renders after project completion?”

The survey findings as presented in table 4.35 show that 85.7% and 83.8% of the foreign enterprises and indigenous enterprises respectively, have strategy of follow up services after project completions.

**Table 4.35: Analysis of After Sales Services as Chain Tools**

Item	Foreign		Indigenous	
	Yes	No	Yes	No
	F %	F %	F %	F %
Do you have strategy of "follow-up services" (routine maintenance, and defect remedies) after project completions?	6 85.7	1 14.3	66 83.8	14 16.3

The result is consistent with Schultmann and Sunke’s (2011) that European construction companies emphasis the advantage of offering “service portfolio” offering an integrated package of construction related activities providing support in all phases of life-cycle of buildings or construction projects to gain competitive advantage. This includes real estate management, construction and facility management.

To confirm the advantages that should accrued from after sales activities care (out-bound logistics), respondents were asked:

(b) If yes does your firm operate a post construction service in the following areas?

Findings as presented in table 4.36 show that, no foreign enterprises sought opportunities throughout the entire life of a project through real estate management services. However 6.3% of indigenous did; 57.1% (foreign) and 25% (indigenous) sought through facility management. Furthermore, 71.4% of the non indigenous construction SMEs are into out-going logistics through general maintenance (routine, repairs and renovation) and 68.8% of the indigenous deploy a similar strategy. 28.6% (foreign) and 18.7% (indigenous) operate after sales security services (first aid kits and fire equipment, detectors and sprinkler systems).

**Table 4.36: After Sale Services and Competitive Advantage.**

Item	Foreign		Indigenous		Foreign		Indigenous	
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Estate management	0	0.0	7	100.0	5	6.3	75	93.8
Facility management (lifts, escalators and ventilation)	4	57.1	3	42.9	20	25.0	60	75.0
General maintenance (routine repairs and renovation)	5	71.4	2	28.6	55	68.8	14	17.5
Safety (fire kits, installations detectors and sprinkler)	2	28.6	5	71.4	15	18.8	65	81.3

The result aligns with Schultmann and Sunke's (2011) that European construction companies emphasis providing support in all phases of life-cycle of building (especially facility management) to gain competitive advantage.

(b) Have you won new project(s) due to (because of) your customer care services?

The result unveiled that 71.4% and 68.9.5% of the foreign enterprises and indigenous enterprises won new projects for reasons of customer care services. This is presented in table 4.37.

**Table 4.37: Analysis of After Sales Activities and Value Chain Activities**

Item	Foreign				Indigenous			
	Yes		No		Yes		No	
	F	%	F	%	F	%	F	%
Have do you won new project due to (because of) your customer care service?	5	71.4	2	28.6	55	68.9	25	31.1

The findings further show that more non indigenous construction SMEs won construction projects because of customer service. This concurs with Farrel and Klemperer (2007) that out-bound logistics and customer service lead to brand loyalty and high customer switch cost leading to competitive advantage. It is also in agreement with Porter (1985) that after sale services influences competitive success.

(c) How do support services (post final certificate customer care) contribute to the competitive edge of your firm?

The foreign SMEs (4 firms or 57.1%) deploy after sales strategy to maintain exciting relationships and boost return customers concurring with Farrel and Klemperer (2007). However, two others retain customer's confidence in accordance with reputational asset in Pamulu (2010), all in the bid to gain competitive success. The majority (64 firms or 80%) of the indigenous SMEs deploy after sale service to boost exiting relationships,- high switch cost a, 8 firms or 10% impact this on publicity and another 8 firms or 10% on reputation in line with the review of Pamulu (2010). All of this influence returns costumers, increase patronage and market share.

#### **4.7Inferential Statistics for the Study**

This section presents inferential analysis of the study variables (resources, competitive strategy, critical success factors and value chain activities) and sub-variables based on the findings and results obtained. These results are presented in tables. Comparisons were also made with literature and deductions and conclusions thereby drawn.

#### **4.7.1 Introduction**

To scientifically confirm the result of this current study, an inferential analysis to test for the existence of relationship between the exploratory variables and the dependent variables were carried out. Alsoboa and Alalaya (2015) deployed t-test to empirically determine the extent to which competitors accounting influence competitive advantage (CA) of manufacturing companies. Then the regression analysis shows the contribution of the technique and also explains the variation in CA. Similarly, Tallud (2014) reveals the e-business and competitive advantage correlating business related characteristics of SMEs with their competitive advantage. Kavitha, Karthikeyan and Devi (2013) measured CA and competitive priorities of small scale industries using regression analysis and their t-test value. Al-rfou and Traweh (2010) on the other hand, determined the relationship between job development and CA using regression analysis. To investigate the strategic management practice in the construction industry, specifically the value and rarity of assets- capability relation to CA, Pamulu (2010) tested relationships using two-staged hierarchical regression models. Furthermore, Org and Ismail (2008) deployed t-test analysis in order to provide the empirical evident to support the significance of entrepreneurs education and experience in Information Technology (IT) on their information technology competence. But for the effects of entrepreneurs IT competence on CA, regression analysis was used.

Therefore, in manufacturing, commerce or construction, it is observed that t-test has been commonly used to compare a set of data to determine strategy for competitive advantage. Similarly, regression analysis and analysis of variance were deployed to model relationship between independent variables and competitive advantage. In this study therefore, these analytical tools have been used to determine the influence of predictor variables on competitive advantage. Regression and ANOVA models the relationship between the dependent variable and the independent variable. The coefficient of determination ( $R^2$ ) predicts the relationship between the dependent variable and independent variable.

#### 4.7.2 The t-test and Regression Analysis of Resources and Competitive Advantage

This section presents the t-test and regression analysis of the study resources sub-variables (human, financial and physical resources). The results are presented in tables. Comparisons were also made with literature and deductions and conclusions thereby drawn.

##### Human Resources and Competitive Advantage

Descriptive statistics show that the foreign enterprises have more budgets for training and skill acquisition in the last five years than the indigenous enterprises. The test statistic for independent sample, t-test was deployed to find out whether the population mean (budget) of foreign SMEs is larger than the population mean (budget) of the indigenous SMEs. The research model was derived from the theoretical framework of the theory of RBV. This hypothesized that there is a direct and positive association between human resources and CA. The t-test is given as;

$$t = \frac{\bar{x}_1 - \bar{x}_2}{Sp \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where t is the student t-statistic with  $n_1+n_2-2$  degrees of freedoms;

$\bar{x}_1$  &  $\bar{x}_2$  are the sample mean of the group one and two (foreign and indigenous enterprise).

Sp is the pooled standard deviation of the two groups

$n_1$  and  $n_2$  are the sample sizes of group one and two respectively

The p-value (0.020) of the independent sample t-test in table 4.38 is less than 0.05. It indicates that the average budget for training and skill acquisition of the indigenous (₦1.8 Million) is significantly less than the average budget for training and skill acquisition of the foreign enterprises (₦1.96 Million).

**Table 4.38:Independent Samples t-test of Firms budget for Training**

T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
-2.887	8	.020	-.21800	.07551



Therefore, a conclusion drawn that the average budget for training and skill acquisition of the indigenous enterprises is not significantly different from the average budget for training and skill acquisition of the foreign enterprises.

### **The t-test of Financial Resources and Competitive Advantage**

Descriptive statistics show that the sources of funding by foreign enterprises are different from the indigenous in the last five years. The test statistic for independent sample, t-test was deployed to find out whether the population mean of these sources are significantly different. The research model was derived from the theoretical framework of the theory of RBV. This hypothesized that there is a direct and positive association between financial resources and CA. Therefore, the relationship between the source of project financing of the foreign and the indigenous enterprises was tested using independent sample t-test at 5% level of significance. The p-value (0.905) of the independent sample t-test in table 4.39 is greater than 0.05.

**Table 4.39: Independent Samples Test**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
-.123	10	.905	-2.00000	16.25423

By this analysis, it invariably shows that the difference between the source of project financing of the foreign and the indigenous enterprises is insignificant as such; it does not make significant contribution to resources for competitive advantage. We therefore conclude that physical resources do not contribute to the competitive advantage of the foreign SMEs.

### **The t-test of Physical Resources and Competitive Advantage**

Descriptive statistics show that the foreign enterprises have more values of physical resources than indigenous in the last five years. The test statistic for independent sample, t-test was deployed to find out whether the population mean (values of machine and equipment) of foreign SMEs is larger than the population mean (values of machine and equipment) of the indigenous SMEs. The research model was derived from the theoretical framework of the theory of RBV. This hypothesized

that there is a direct and positive association between physical resources and CA. The relationship between the differences in average values of machinery and equipment of indigenous and foreign enterprises was measured using independent sample t-test at 5% level of significance. The p-value (0.024) of the independent sample t-test in table 4.40 is less than 0.05.

**Table 4.4.0 Independent Samples Test**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
2.774	8	.024	42.20000	15.21315

It established that the average values for machineries and equipment of the indigenous enterprises is significantly less than the average values for machineries and equipment of the foreign enterprises. Hence, machinery/equipment contributes to the resources for competitive advantage.

### **Regression Analysis of Resources and Competitive Advantage**

The research further confirms the results of the t-test using regression analysis. Linear regression model was employed to model the relationship between the dependent variable (competitive advantage) and independent variable- firm resources. This hypothesized that there is a direct and positive association between resources and CA. The relationship among the variables is depicted as:

$$Y = B_0 + BX ; \text{ where}$$

Y= Competitive advantage of foreign SMEs

B<sub>0</sub>= Constant (coefficient of intercept)

B= Regression coefficient

X= Resources

The coefficient of determination ( $R^2$ ) and correlation coefficient (R) show the degree of association between resources and competitive advantage strategy. The result of the linear regression indicate that  $R^2=0.319$  and  $R=0.565$  (indicating that 31.9% of the variation in competitive advantages is explained by resources) this is an indication that there is a moderate linear relationship between resources strategy and competitive advantage. This implies that an increase in resources such as human, finance and physical strategy leads to an increase in CA of non-indigenous construction SMEs (presented in table 4.41).

**Table 4.41:Model Summary**

Model	R	R Square	Adjusted R Square
1	.565	.319	.313

Predictors: (Constant), Resources

Dependent Variable: Competitive advantage

The adjusted  $R^2$  compares reasonably well with those obtained in earlier studies. Ong and Ismail (2015) discovered that resources can significantly explain 15 percent of variability in cost advantage. This tallies with the Resource Base View (RBV) and theories of Industrial Organization (I/O); Barney (1991) and Grant (2001). These theories see a firm as a collection of resources from human resources, physical resources, social resources and organizational resources. Only resources considered to be strategic are sources of competitive advantage and improve performance. It also aligns with Vele (2012) that gaining CA is influenced by the firm's resource which is.

It can be inferred that the competitive advantage strategy of non-indigenous construction SMEs is associated by the higher level of human, financial and physical resources. Thus, this study shows that human, financial and physical resources strategies are keys to the competitive advantage of construction SMEs. Furthermore, an Analysis of Variation (ANOVA) on the independent variables in table 4.42 shows the results of ANOVA test which revealed that resources strategy have significant effect on competitive advantage of non-indigenous construction SMEs.

**Table 4.42: Analysis of Variance**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.278	1	2.278	51.086	.000
1 Residual	.225	5	.045		
Total	2.503	6			

Dependent Variable: Competitive advantage

Predictors: (Constant), Resources

Since the P value is actually 0.000 which is less than 5% level of significance. Table 4.42 shows that the p-value due to this Regression Model (0.000) is less than 0.05. It is therefore concluded that the model is significant and therefore fit for use. The result is depicted by Linear Regression model  $y = b + ax$  where x is resources strategy. The Linear Regression analysis shows that the linear relationship between resources and the competitive advantage of non indigenous small and medium construction industries in North Central Nigeria is  $y = 0.395 + 0.583x$ , the P-value of the slope of the model (0.000) is less than 0.05. These findings show that resources strategy is significant determinant of the competitive advantage of non indigenous small and medium construction enterprises.

Further was the establishment of the exact model fit. As shown by Martinez (2010), the size of a correlation corresponds to the level of interdependence. For research factors with strength of association more than 0.6 were considered highly correlated. Medium correlation was considered between 0.4 and 0.6 but factors below 0.4 were not considered due to high probability of being statistically insignificant. The result shown in table 4.43 indicates that there is a positive gradient which reveals that an increase in resources strategy lead to increased competitive advantage.

**Table 4.43: Coefficients**

Model	Unstandardized		Standardized	T	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
1	(Constant)	.395	.069		5.749 .000
	Resources	.583	.082	.565	7.147 .000

Dependent Variable: Competitive advantage

$$y = 0.395 + 0.583x_1$$

Inference can be drawn from the finding and literature (Ceramic & Popovic, 2010; Gal, 2010; Vele, 2012) that indigenous construction companies should focus more on human, financial resources and physical resources to be competitive. The results indicate that the linear relationship between the resources and competitive advantages of non-indigenous small and medium construction industries in North-Central Nigeria is  $y = 0.395 + 0.583x_1$ . Where  $y$  is competitive advantages of non-indigenous small and medium construction industry in North-Central Nigeria and  $x_1$  is resources. The p-value of the slope of the model (0.000) is less than 0.05. Therefore the null hypothesis ( $H_{01}$ ) is rejected and it is concluded that resources is a significant determinant in the competitive advantages of non-indigenous small and medium foreign construction industries in North-Central Nigeria.

#### **4.7.2 The t-test and Regression Analysis of Competitive Strategy and Competitive Advantage**

This section presents the t-test and regression analysis of competitive strategy sub-variables (differentiation, cost leadership and niche market). The results are presented in tables. Comparisons were also made with literature and deductions and conclusions thereby drawn.

### **The t-test of Differentiation and Competitive Advantage**

Descriptive statistics show that the foreign enterprises have more factors that supported differentiation than the indigenous in the last five years. The test statistic for independent sample, t-test was deployed to find out whether the population mean (supporting factors) of foreign SMEs is larger than the population mean (supporting factors) of the indigenous SMEs. The research model was derived from Porter's (1980) generic strategy framework. This hypothesized that there is a direct and positive association between differential strategy and CA. The independent sample test between differentiation factors of the foreign and the indigenous enterprises was measured using t-test of two proportions at 5% level of significance. The table 4.44 of the independent t-test also shows that the p-value of the t-test (0.048) is less than 0.05. This shows that foreign construction SMEs deploy more of project duration, subcontractors, artisans, supervisors and equipment as strategy of differentiation.

**Table 4.44: Independent Samples Test**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
-1.832	10	0.048	-18.5	17.48761

This is in agreement Yan, Chew and Cheah (2006) who showed that most indigenous construction SMEs in China pursue labour intensive project at home leading to low differentiation in products and services quality. It is concluded that foreign SMEs use more project duration, subcontractor, artisans, supervisors and equipment to achieve product differentiation as competitive strategy to gain competitive advantage over indigenous SMEs.

### **Cost Leadership and Competitive Advantage**

The independent sample test between cost leadership of the foreign and the indigenous enterprises was measured using t-test of two proportions at 5% level of significance. The table 4.45 shows the approach to cost leadership strategy by both foreign and indigenous enterprises. Table 4.49 shows that the p-value of the t-test (0.738) is greater than 0.05. This indicates that the factors that supported the approach to cost leadership of foreign firms are not significantly different from that of the indigenous firms.

**Table 4.45: Independent Samples Test**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
0.346	8	.738	4.00000	11.54470

It is deduced that the indigenous SMEs cost leadership style, were motivating workers through “finish and go” and minimal profit margin. Foreign firms utilize management process including efficient and effective use of materials, defect management and waste management. However, the p-value shows that these factors do not support cost leadership significantly different from one another. It is concluded that the utilization of materials, defect management and waste management approaches by foreign SMEs do not support cost leadership to gain competitive advantage more significantly than indigenous firms.

### **Niche Market Strategy**

The difference between niche market strategy of the foreign and the indigenous enterprises was tested using t-test of two proportions at 5% level of significance. As presented in Table 4.46, the p-value of the independent t-test (0.245) is greater than 0.05, indicating that the specific markets niche filled by foreign firms is not significantly different from that of the indigenous firms.

**Table 4.46:Independent Samples Test**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1.199	20	.245	9.90909	8.26373

It is therefore concluded that both indigenous and foreign SMEs occupy similar niches.

**Regression of Competitive Strategy and Competitive Advantage**

The research further confirms the results of the t-test using regression analysis. Linear regression model was employed to model the relationship between the independent variable (competitive advantage) and independent variable- competitive strategy. This hypothesized that there is a direct and positive association between competitive strategy and CA. The relationships between the variables are depicted as:

$Y=B_0+B_2X_2$ ; where

Y= Competitive advantage of foreign SMEs

B<sub>0</sub>= Constant (coefficient of intercept)

B<sub>2</sub>= Regression coefficient

X= Competitive strategy

Linear regression model was employed to model the relationship between the dependent variable (competitive advantage) and independent variable –competitive strategy (table 4.47).

**Table4. 47:Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.329	.108	.100	.24168

Predictors: (Constant), Competitive Strategy

Dependent Variable: Competitive advantage



The analysis presented in table 4.47 shows that the correlation between competitive strategy and competitive advantages of small and medium construction industries in North-Central Nigeria is 0.329, implying a linear relationship between competitive strategy and competitive advantages. The coefficient of determination R-Square is 0.108 indicating that 10.8% of the variation in competitive advantages of small and medium construction industries is explained by competitive strategy. This implies that an increase in competitive strategy such as differentiation, cost leadership and focus strategy leads to an increase in competitive advantage of construction SMEs. This coefficient determination though, weak and explains only 10.8% it compares reasonably well with the coefficient of determination of Ong and Ismail (2015) also 11%, to support competitive advantage of foreign construction SMEs.

An analysis of variations was done on the independent variables and presented in table 4.48 shows the result of ANOVA which reveals that competitive strategy have significant effect on competitive advantage of non-indigenous construction SMEs.

**Table 4.48 Analysis of Variance**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.773	1	.773	13.243	.000 <sup>b</sup>
	Residual	.290	5	.058		
	Total	1.063	6			

a. Dependent Variable: Competitive advantage

b. Predictors: (Constant), Competitive Strategy

Since the p-value is actually (0.000) which is less than 0.05. It is therefore, concluded that the model is significant and therefore fit for use. The result is depicted by linear regression model  $y = b + ax$  where  $x$  is competitive strategy. The regression analysis shows that the linear relationship between competitive strategy and the competitive advantage of non indigenous small and medium construction industries in North Central Nigeria is  $y = 0.628 + 0.229x_2$ . Where  $y$  is competitive

advantages in North-Central Nigeria and  $x_2$  is competitive strategy. The p-value of the slope of the model (0.000) is less than 0.05. These findings show that competitive strategy is a significant determinant of the competitive advantage of non indigenous small and medium construction enterprises.

The exact model fit was established and the result is shown in table 4.49.

**Table 4.49:Coefficients**

Model	Unstandardized		Standardized	T	Sig.
	Coefficients				
	B	Std. Error	Beta		
(Constant)	.628	.069		9.109	.000
1 Competitive Strategy	.229	.063	.329	3.639	.000

Dependent Variable: Competitive advantage

$$y = 0.628 + 0.229x_2$$

The analysis presented in table 4.49 indicates that there is a positive gradient which reveals that an increase in competitive strategy leads to increased competitive advantages in North-Central Nigeria. From this finding, which is in line with Porter's (1985) theory, indigenous construction SMEs should choose differentiation strategy and emphasis on process and waste management when adopting cost leadership strategy. Depicted by linear regression model  $y=b + ax.e$ , the results shows that the linear relationship between resources and the competitive advantage of non indigenous small and medium construction industries in North Central Nigeria is  $y = 0.628 + 0.229x_2$ . Where y is competitive advantages in North-Central Nigeria and  $x_2$  is competitive strategy. The p-value of the slope of the model (0.000) is less than 0.05. Therefore, the null hypothesis  $H_{02}$  is rejected and it is concluded that competitive strategy is a significant determinant in the competitive advantages of non-indigenous small and medium foreign construction industries in North-Central Nigeria.

### 4.7.3 The t-test and Regression Analysis of Critical Success Factors and Competitive Advantage

This section presents the t-test and regression analysis of critical success factors sub-variables (alliance and partnering, innovation and owner/manager traits). The results are presented in tables. Comparisons were also made with literature and deductions and conclusions thereby drawn.

#### The t-test of Alliance and Partnering and Competitive Advantage

Descriptive statistics show that more foreign enterprises consider alliance and partnering as critical to strategy for project delivery in the last five years than the indigenous enterprises. The test statistic for independent sample, t-test was deployed to find out whether the population mean (alliance and partnering) of foreign SMEs is more than the population mean (alliance and partnering) of the indigenous SMEs. The research model was derived from the theoretical framework of the Critical Success Factors Model. This hypothesized that there is a direct and positive association between alliance and partnering and CA. The t-test is given as;

$$t = \frac{\bar{x}_1 - \bar{x}_2}{Sp \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

Where t is the student t-statistic with  $n_1+n_2-2$  degrees of freedoms;

$\bar{x}_1$  &  $\bar{x}_2$  are the sample mean of the group one and two (foreign and indigenous enterprise).

Sp is the pooled standard deviation of the two groups

$n_1$  and  $n_2$  are the sample sizes of group one and two respectively The difference between the alliance and partnering with others and competitive advantage (table 4.49) of the foreign and the indigenous enterprises was tested using t-test of two proportions at 5% level of significance.

**Table 4.50: Test of two Sample Proportions**

T	df	Sig. (2-tailed)	Mean Difference
34.350	85	.000	.550555

The p-value (0.000) of the test of two sample proportions is less than 0.05, (table4.50) indicating that the difference in the alliance and partnering factor of the foreign and the indigenous enterprises is significant. This is in line with Yan *et al.*, (2006) described as a form of co-petition where competition and cooperation co-exist together simultaneously. It is then concluded that foreign construction SMEs exploit more alliances and partnering innovation and owner manager traits to gain competitive success.

### **Innovation Strategy**

The difference between the innovation strategies as indicated by annual budget for research and development (R&D) of the foreign and the indigenous enterprises was tested (table 4.55) using t-test of two proportions at 5% level of significance. As presented in Table4.55, it shows that the p-value (0.042) of the independent sample t-test is less than 0.05, indicating that the average budget for research and development of the foreign enterprises is significantly more than that of the indigenous enterprises.

**Table 4.51:Independent Samples Test**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
-2.324	8	.042	-311.20000	122.49619

This concurs with Dilver’s (2015) survey of South African and Turkish SMMEs which show that Turkish indigenous SMMEs do not value technology as a tool to be used to create a competitive advantage. The finding aligns with Vele (2012) that identifies technological innovation as new and improved ways through research and development of the best ways to satisfy customer needs and expectation to gain CA. It is therefore established that foreign construction SMEs exploit innovation strategies as critical success factor to gain competitive success more than indigenous enterprises.

### **Owner/ Manager Characteristics**

The difference between the owner/manager traits as shown by their work experience of the foreign and the indigenous enterprises was tested and presented in table 4.52 using t-test of two proportions at 5% level of significance. The p-value of the t-test (0.001) is less than 0.05.

**Table 4.52: Owner/Manager Construction Experience**

T	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
3.300	85	.001	3.206	.972

Therefore it is concluded that there is a significant difference in the working experience of indigenous and foreign owners and the mean difference indicates that the foreign owners have more work experience than the indigenous owners and a source of CA. Pellissier and Nenzhelele (2013) similarly found that years of experience of SMEs owner or managers have influence on awareness and practice of competitive intelligence. It is therefore established that foreign construction SMEs owner/manager trait is a predictor of critical success factors to gain competitive edge over indigenous enterprises.

### **Regression Analysis of Critical Success Factors and Competitive Advantage**

The research further confirms the results of the t-test using regression analysis. Linear regression model was employed to model the relationship between the independent variable (competitive advantage) and independent variable- critical success factor. This hypothesized that there is a direct and positive association between critical success factors and CA. The relationship between the variable is depicted as:

$$Y=B_0+B_3X_3; \text{ where}$$

Y= Competitive advantage of foreign SMEs

B<sub>0</sub>= Constant (coefficient of intercept)

B<sub>2</sub>= Regression coefficient

X= Critical Success Factors

Linear regression model was employed to model the relationship between the critical success factors and competitive advantage.

**Table 4.53:Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.476 <sup>a</sup>	.226	.219	.22511

a. Predictors: (Constant), Critical success factor

b. Dependent Variable: Competitive advantage

The analysis in Table 4.53 shows that the correlation between critical success factors and competitive advantages of small and medium construction industries in North-Central Nigeria is 0.476, implying a linear relationship between critical success factors and competitive advantages. The coefficient of determination R-Square is 0.226 indicating that 22.6% of the variation in competitive advantages is explained by critical success factors. Although this shows a low correlation between critical success factors and competitive advantage and a weak coefficient of determination ( $R^2$ ) in the model, they compare with Powell cited in Schmalansee (2008) on a critical success factor in industrial organization variables and strategy- locus of control of CEO with  $R^2$  of 21%. Powell also cites Schmalansee (2008) with  $R^2$  of 17% that when compared these coefficients of determination are not unusual.

**Table 4.54:ANOVA<sup>a</sup>**

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.616	1	1.616	31.898	.000 <sup>b</sup>
	Residual	.255	5	.051		
	Total	1.871	6			

- a. Dependent Variable: Competitive advantage
- b. Predictors: (Constant), Critical success factor

Table 4.54 shows that the p-value of the ANOVA of this regression model (0.000) is less than 0.05 it is therefore concluded that the model is significant and therefore fit for use.

**Table 4.55: Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.612	.049		12.380	.000
1 Critical success factor	.311	.055	.476	5.648	.000 <sup>b</sup>

- a. Dependent Variable: Competitive advantage

$$y = 0.612 + 0.311x_3$$

Table 4.55 shows that the linear relationship between the critical success factors and competitive advantages of small and medium construction industries in North-Central Nigeria is  $y = 0.612 + 0.311x_3$ . Where y is competitive advantages of small and medium construction industries in North-Central Nigeria and  $x_3$  is critical success factors. The p-value of the slope of the model (0.000) is less than 0.05 we therefore establish that critical success factors strategy is a significant determinant in the competitive advantages of small and medium foreign construction SMEs in North-Central Nigeria.

This finding establishes the model developed by Kin man and Liu (2004) that showed that competition depend on critical success factor and most competitive companies always consistently out perform their competitors and continually improve their critical success factor. The findings buttress Martinuzzi's *et al.*, (2011) theoretical synthesis that in construction, critical success factor parameter has

increased from the traditional cost, quality and time to include owner/manager characteristics, innovation, use of technology, development of partnership with sub-contractors', efficient management chain and others. It confirms Yan's *et al.*, (2006) empirical studies that the capacity for innovation is a critical factor for construction SMEs success.

#### **4.7.4 The t-test and Regression Analysis of Value Chain Activities and Competitive Advantage**

This section presents the t-test and regression analysis of value chain activities sub-variables (in-bound logistics, operations and after sale services). The results are presented in tables. Comparisons were also made with literature and deductions and conclusions thereby drawn.

##### **The t-Test of Supply Management and Value Chain Activities**

For the supply management and value chain activities analysis, the t-test of two sample proportion was deployed. The p-value (0.000) of the t-test in table 4.56 of difference of two proportions is less than 0.05, implying that the difference between the in-bound logistics of the foreign and the indigenous enterprises is significant (indigenous SMEs recorded more work stoppage than non- indigenous due to in-bound logistics thus reducing their competitiveness).

**Table 4.56: Test of two Sample Proportions of Work Stoppage**

T	Df	Sig. (2-tailed)	Mean Difference
-21.56	85	0.000	0.33

This finding is in agreement that, though indigenous firms in Nigeria (Akenbor & Okoye, 2011) and Jordan (Alnawaiseh, Al-Rawashdi & Alnawaiseh, 2014) conduct value chain analysis, their approach does not lead to their competitive advantage. It is



therefore concluded that the foreign SMEs deploy in-bound logistics as a value chain strategy to compete better than the indigenous enterprises.

### **Operation**

The difference between the construction project delivery methods of the foreign and indigenous enterprises as indicated (table 4.57) was tested using t-test of two proportions at 5% level of significance. The p-value (1.226) of the test of difference of two proportions is more than 0.05 which implies that the difference is insignificant.

**Table 4.57: Test of two Sample Proportions of Management of Operations**

T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
1.226	85	.223	.23214	.18931

The analysis presented in table 4.57 shows the independent sample t-test to compare the method of management of unit handled by sub-contractors of indigenous and foreign constructions firms, the p-value of the t-test (0.223) is greater than 0.05. This agrees with Jordan on indigenous firms, (Alnawaiseh *et al.*, (2014) that determine activities in the value chain, just like Akenbor and Okoye (2011) found in Nigeria. We therefore conclude that there is no significant difference in method of management of unit handled by sub-contractors of indigenous and foreign constructions firms. The construction project delivery operation of foreign enterprises is insignificantly better than that of the indigenous enterprises as a value chain strategy for competitive advantage.

### **After Sale Services**

The significance difference between the after sale services provided by the foreign and indigenous enterprises was tested using t-test of two proportions at 5% level of significance and presented in table 4.58. The independent sample t-test compared the post construction services operated by indigenous and foreign constructions firms.

The p-value (0.000) of the test of difference of two proportions is less than 0.05. We therefore conclude that there is a significant difference in the post construction services operated by indigenous and foreign constructions firms. The mean difference indicates that the foreign firms operate more post construction services than the indigenous firms.

**Table 4.58: Test of two Sample Proportions**

T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
4.059	85	.000	1.41767	.34924

This aligns with Alnawaiseh *et al.*, (2014) where Jordan firms gain CA by providing good services to customers. Going by the analysis, it can be said that the difference in after sale services provided by the foreign and the indigenous enterprises is significant and a source of value chain strategy for competitive success.

### **Regression Analysis of Value Chain Activities and Competitive Advantage**

The research further confirms the results of the t-test using regression analysis. Linear regression model was employed to model the relationship between the independent variable (competitive advantage) and independent variable- value chain activities. This hypothesized that there is a direct and positive association between value chain activities and CA. The relationship between the variable is depicted as:

$$Y=B_0+B_2X_2; \text{ where}$$

Y= Competitive advantage of foreign SMEs

B<sub>0</sub>= Constant (coefficient of intercept)

B<sub>2</sub>= Regression coefficient

X<sub>2</sub>= Value Chain Activities

Linear regression was employed to model the relationship between the dependent variable value chain activities and independent variable competitive advantage and presented in table 4.59.

**Table 4. 59: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.316 <sup>a</sup>	.100	.092	.24282

a. Predictors: (Constant), Value chain activities

b. Dependent Variable: Competitive advantage

The analysis in Table 4.59 shows that the correlation between value chain activities and competitive advantages of small and medium construction industries in North-Central Nigeria is 0.316, implying a linear relationship between value chain activities and competitive advantages. This finding concurs with Evans, Smith and Rajive (2006) that these activities result in the competitive advantage of firms if performed at lower cost or in such that is able to create values for the clients. It is also in agreement with Porter's (1985) theory that value chain is a source of competitive advantage. The coefficient of determination R-Square is 0.100 indicating that 10% of the variation in competitive advantages is explained by value chain tools.

**Table 4. 60: ANOVA**

Model		Sum of Squares	of Df	Mean Square	F	Sig.
	Regression	.713	1	.713	12.094	.001 <sup>b</sup>
1	Residual	.295	5	.059		
	Total	1.008	6			

a. Dependent Variable: Competitive advantage

b. Predictors: (Constant), Value chain activities

An ANOVA test was performed on value chain activities. Table 4.60 shows that the p-value of the ANOVA of this regression model (0.001) is less than 0.05 we therefore conclude that the model is significant and thereby fit for use.

**Table 4. 61:Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	
	B	Std. Error	Beta			
	(Constant)	.599	.080	7.509	.000	
1	Value chain tools	.305	.088	.316	3.478	.001

a. Dependent Variable: Competitive advantage

$$y = 0.395 + 0.583x_4$$

The analysis presented in table 4.61 shows that the linear relationship between value chain activities and competitive advantages of small and medium construction industries in North-Central Nigeria is  $y = 0.305 + 0.599x_4$ . Where y is competitive advantages of small and medium construction industries in North-Central Nigeria and  $x_4$  is value chain activities. The p-value of the slope of the model (0.001) is less than 0.05. Consequently,  $H_{04}$  is rejected and it is concluded that value chain activities strategy is a significant determinant in the competitive advantages of small and medium foreign construction industries in North-Central Nigeria is drawn.

#### 4.8 Overall Multiple Regression Analysis

This section presents the overall multiple regression analysis between the indicators of competitive advantage and the predictors of CA in one section and the variables of the independent variables and the dependent variable. The results are presented in tables. Comparisons were also made with literature and deductions and conclusions thereby drawn.

##### 4.8.1 Multiple Regression Analysis between Sub-Variables of Dependent Variables and Independent Variable.

The linear regression analysis, models the linear relationship between the sub variables of dependent variable (revenue growth and market share) and the independent variables. Therefore, a comprehensive regression analysis was

undertaken to investigate the influence of the independent variables; Resources, Competitive Strategy, Critical Success Factor, and Value Chain activities on the dependent sub-variables (revenue growth and market share). The coefficient of determination  $R^2$  (table 4.62) show the degree of association between the independent variables and revenue growth and market share of non-indigenous construction SMEs in Nigeria.

The results indicated in table 4.62 show overall regression results and the value of the  $R^2$  (coefficient of determination) for revenue growth is 0.5872, implying that 58.72% of variation of the revenue growth is explained by the independent variables; Resources, Competitive Strategy, Critical success factor, and Value Chain activities. It is inferred that to gain competitive advantage through revenue growth, the non-indigenous construction SMEs emphasized the independent variables (resources, competitive strategy, critical success factors, and value chain activities). This concurs with Gal (2010) empirical studies that show market performance and profitability among others as competitive advantage indicator. Arasa and Gathinji, (2014) empirical study in examined sales (earnings) as the key performance indicator influenced by competitive strategies and strategic.

Furthermore, the value of the  $R^2$  (coefficient of determination) for market share is 0.4885, implying that 48.85% of variation of the revenue market share is explained by the independent variables; Resources, Competitive Strategy, Critical success factor, and Value Chain activities. The results also indicate that all the variables have significant effect competitive advantage. It is inferred that to gain competitive advantage through market share, the non-indigenous construction SMEs emphasized the independent variables (resources, competitive strategy, critical success factors, and value chain tools). This agrees with the SMEs competitiveness indicators in Gal (2010) shown as domestic share and turnover, export market share and turnover. It aligns with Meyer (2016) analysis of Ford's original model deploying Porter's (1980) generic cost leadership to increase dealership and sale volume. Finally this study is in alignment with Arasa and Gathinji (2014) who deployed market share and

customer retention as key performance indicators in competitive strategies that explained 60.5% of the variations in firm performance.

The table 4.62 shows that the p-value for revenue growth and market share (0.000) of the analysis of variance (ANOVA) of the regression analysis are less than 0.05, it is therefore concluded that the model is significant and therefore fit for use.

**Table 4.62: Overall Regression between the Sub-Variables of Independent and Sub-Variables of Dependent Variables**

Regression Equation 1:		
Dependent Variable: Competitive Advantage		
Regression Equation:	Revenue Growth	Market Share
Variables	Coefficient( <i>p</i> -value)	Coefficient( <i>p</i> -value)
Constant	43.532 (0.0000)***	13.032 (0.0000)***
Resources	5.171(0.0000)***	1.608(0.0000)***
Compleitive strategy	6.893 (0.0000)***	0.610(0.0000)***
Critical success factors	3.213(0.0000)***	0.492(0.0100)**
Value chain activities	7.344(0.0000)***	6.004 (0.0000)***
<b>Statistics</b>		
R2	0.5872	0.4885
F-statistic(6)	485.61	290.63
<i>p</i> -value	0.0000	0.0000

The models are as follows:  $RG = 43.532 + 5.171x_1 + 6.893x_2 + 3.213x_3 + 7.344x_4$  and  $MrkC = 13.032 + 1.608x_1 + 0.610x_2 + 0.492x_3 + 6.004x_4$

Where  $RG$  is revenue growth and  $MrkS$  is market Share.

The table 4.62 shows that the multiple linear regression model of the variables (revenue growth) is given by where  $RG = 43.532 + 5.171x_1 + 6.893x_2 + 3.213x_3 + 7.344x_4$  where  $RG$  is revenue growth and  $x_1$  to  $x_4$  are Resources, Competitive Strategy, Critical success factors, and Value Chain activities respectively. The p-value of all the coefficients (0.000) are less than 0.05 we therefore conclude that all the independent variables contribute significantly to the revenue growth.

Furthermore, table 4.62 shows that the multiple linear regression model of the variables (market share) is given by:  $MrkC = 13.032 + 1.608x_1 + 0.610x_2 + 0.492x_3 + 6.004x_4$

where  $MrkC$  is market share and  $x_1$  to  $x_4$  are Resources, Competitive Strategy, Critical success factor, and Value Chain activities respectively. The p-value of all the coefficients (from 0.000 to 0.0100) are less than 0.05 we therefore conclude that all the independent variables contribute significantly to the market share. The f-value show that the predictors of competitive advantage contribute more to revenue growth with value of 485.61 than market share of 290.61

#### **4.8.2 Overall Multiple Regression Analysis between the Dependent Variable and the Independent Variables.**

The linear regression analysis models the linear relationship between the dependent variable and which is competitive advantage and the independent variables. Therefore, a comprehensive regression analysis was undertaken to investigate the influence of the independent variables; Resources, Competitive Strategy, Critical success factor, and Value Chain activities on the dependent variable Competitive advantage. The coefficient of determination  $R^2$  and correlation coefficient (R) show

the degree of association between the variables and the competitive advantage of non-indigenous construction SMEs in Nigeria.

The results of the linear regression (table 4.63) reveals that there is 0.992 linear relationship between the independent variables; Resources, Competitive Strategy, Critical Success Factors, and Value Chain activities and the dependent variable Competitive advantage, the value of the  $R^2$  (coefficient of determination) is 0.984, implying that 98.4% of variation of the Competitive advantage is explained by the independent variables; Resources, Competitive Strategy, Critical success factor, and Value Chain activities.

**Table 4.63: Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.992 <sup>a</sup>	.984	.951	.05244

a. Predictors: (Constant), Value Chain tools, Critical success factor, Competitive Strategy, Resources

It is inferred that to gain competitive advantage, the non-indigenous construction SMEs emphasized the independent variables (resources, competitive strategy, critical success factors, and value chain activities). These findings concur with Kavitha, Karthikeyan and Davi (2013) who showed a strong relationship between cost and quality (cost leadership and differentiation) and competitive advantage. Al-Rfou and Trawel (2010) discovered a significant relationship between human resources (job development) and competitive advantage. Ong and Ismail (2008) found the strong relationship between information technology competence of entrepreneurs in SMEs and competitive advantage.



**Table 4.64: ANOVA<sup>a</sup>**

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.333	4	.083	30.301	.032 <sup>b</sup>
Residual	.005	2	.003		
Total	.339	6			

a. Dependent Variable: Competitive Advantage

b. Predictors: (Constant), Value Chain activities, Critical success factors, Competitive Strategy, Resources

The table 4.64 shows that the p-value (0.032) of the analysis of variance (ANOVA) of the regression analysis is less than 0.05, it is therefore concluded that the model is significant and therefore fit for use

**Table 4.65: Coefficients<sup>a</sup> of Combined Variables**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.143	.021		6.846	.000
Resources	.974	.080	.824	12.203	.000
Competitive Strategy	.991	.191	.552	5.179	.000
Critical success factors	.097	.038	.093	2.527	.015
Value Chain activities	.502	.119	.304	4.218	.000

a. Dependent Variable: Competitive Advantage

$$y = 0.143 + 0.974x_1 + 0.991x_2 + 0.097x_3 + 0.502x_4$$

The table 4.65 shows that the multiple linear regression model of the variables is given by  $y = 0.143 + 0.974x_1 + 0.991x_2 + 0.097x_3 + 0.502x_4$  where  $y$  is the competitive advantage,  $x_1$  to  $x_4$  are Resources, Competitive Strategy, Critical success

factor, and Value Chain activities respectively. The p-value of all the coefficients (from 0.000 to 0.015) are less than 0.05 we therefore conclude that all the independent variables contribute significantly to the competitive advantage

#### **4.8.1: Interpretations:**

**Null Hypothesis 1: The resources exploited by the non-indigenous Small and Medium Construction Enterprises have no influence on their competitive advantage strategy.**

The results shown in table 4.65 reveal that resources have a significant and positive influence on the competitive advantage of non-indigenous construction SMEs. This is mirrored by the regression analysis value of t-calculated (12.203) which is greater than 2 and P value is 000 at 95% level of significance. Therefore, the null hypothesis ( $H_1$ ) is rejected and it is concluded that resources are significant determinant in the competitive advantages of non-indigenous small and medium foreign construction industries in North-Central Nigeria.

**Null Hypothesis 2: The competitive strategy exploited by the non-indigenous Small and Medium Construction Enterprises has no relationship with their competitive advantage strategy.**

The results shown in table 4.65 indicate that competitive strategy has a positive association with competitive advantage of non-indigenous construction SMEs against rivals but less than all other predictors of competitive advantage in the study. This is displayed by the regression analysis value of t-calculated (5.179) which is greater than 2 and P value is 000 at 95% level of significance. Therefore, the null hypothesis ( $H_2$ ) is rejected and it is concluded that competitive strategy is a significant determinant in the competitive advantages of non-indigenous small and medium foreign construction industries in North-Central Nigeria.

**Null Hypothesis 3: Critical success factors exploited by the non-indigenous Small and Medium Construction Enterprises have no influence on their competitive advantage strategy.**

The results shown in table 4.65 indicate that critical success factors also positively influence the competitive advantage of non-indigenous construction SMEs. This is portrayed by the regression analysis value of t-calculated (2.527) which is just greater than 2 and P value is .015 which is less than 0.05. Therefore, the null hypothesis (H<sub>3</sub>) is rejected and it is concluded that critical success factors strategy is a significant determinant in the competitive advantages of non-indigenous small and medium foreign construction industries in North-Central Nigeria.

**Null Hypothesis 4: The value chain activities exploited by the non-indigenous Small and Medium Construction Enterprises does not contribute to their competitive advantage strategy.**

The results shown in table 4.65 indicate that value chain activities has a significant positive association with the competitive advantage of non-indigenous construction SMEs as shown by the regression analysis value of t-calculated (4.218) which is greater than 2 and P value is 000 at 95% level of significance. As such, the null hypothesis (H<sub>4</sub>) is rejected and it is concluded that value chain activities strategy is a significant determinant in the competitive advantages of non-indigenous small and medium foreign construction industries in North-Central Nigeria. From the results, resources deployed by non-indigenous construction SMEs contributed most to their competitive advantage with the greatest t- value of 12.203. Furthermore, critical success factors strategy contributed the least with t- value of 2.527.

#### 4.8.2 Revised Conceptual Framework

From the study, the regression coefficients of the variables are:

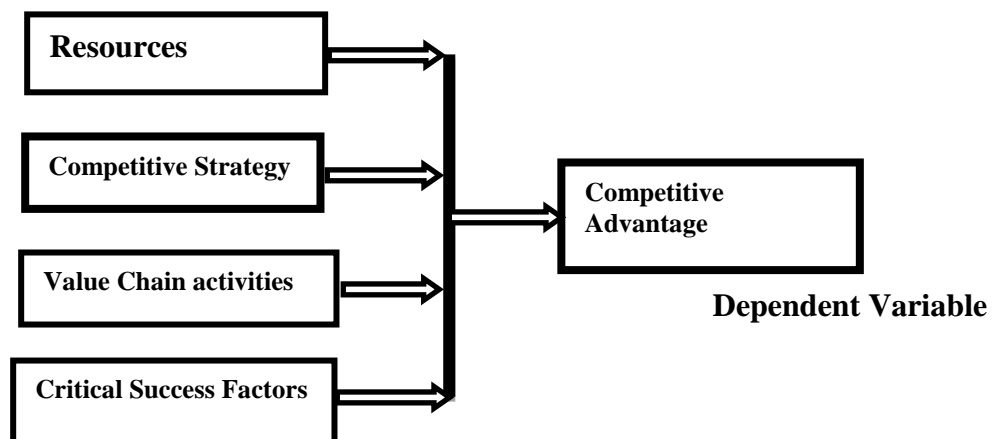
Resources (B1) 0.974

Competitive Strategy (B2) 0.991

Value Chain Activities (B3) 0.502

Critical Success Factors (B4) 0.097

With the above values, the revised conceptual framework is represented with figure 4.18.



**Independent Variables**

**Figure.4.18: Revised Conceptual Framework Model**

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND RECOMMENDATION**

#### **5.1 Introduction**

The study investigated the determinants of non-indigenous small and medium construction enterprises strategy for competitive advantage in North-Central Nigeria. The purpose is to establish the competitive behavior of the foreign rival that can be deployed by indigenous SMCEs entrepreneur and managers to more competitive. It is also for the purpose of stimulating more academic discourse on strategies for competitive power.

This chapter summarises the major findings of the study on the basis of the specific objectives and the research hypothesis. It describes the role of resources, competitive strategy, critical success factors and value chain tools strategies to gain competitive advantage by the foreign construction SMEs in North Central Nigeria. The conclusions drawn, relate directly to the specific objectives/research hypothesis. Furthermore, the recommendations are predicated on the key determinants of the strategy that indigenous construction SMEs can adopt for competitive advantage and gain market share at home and also win contracts abroad.

#### **5.2 Summary of Findings**

This section summarises the findings of the study on the basis of the specific research objectives of the study. A pilot study was first undertaken with 25 construction SMEs.

##### **5.2.1 Resources and Strategy for Competitive Advantage.**

On human resources, the study established that there is a 10.3% difference in the annual budgets for training in favor of the foreign construction SMEs, and the p-value (0.020) of the independent t-test is less than 0.05, indicates that the indigenous 1.8 million budgets is significantly less than the foreign firms ₦1.96 million. On financial resources, to finance projects the study showed that, majority of the

indigenous firms relied on mobilization fees 90%, (foreign firms 71%). The reliance on financial institutions and profit retention by the indigenous and foreign construction SMEs for the same purpose were; 80% and 43% then 43% and 0%). However, the P-value, 0.905, of the t-test is greater than 0.05 which indicates that the difference between the sources of project financing of the foreign and the indigenous SMEs is insignificant.

For physical resources, as showed by equipment and machinery value, foreign enterprises had grand average of 163.03 million compared to indigenous firms 120 million naira. However the P-value of the independent t-test (0.024) is less than 0.05. This established that the average value of equipment of foreign firms is significantly more than indigenous. The correlation between resources and competitive advantage shows  $R^2 = 0.319$  and  $R = 0.565$  indicating linear relationship and 31.9% of the variation is explained by resources. These findings aligned with the literature review that resources (human, financial and physical) are sources of competitive advantage. Therefore resources are factors recognized as sources of competitive advantage of foreign construction SMEs in North-Central Nigeria.

### **5.2.2 Competitive Strategy and Strategy for Competitive Advantage**

The study established that the foreign SMEs adopted differentiation strategy (14.4%) more than indigenous. They deployed project duration (85.7% and 22%), sub contracting (71.4% and 44%) and equipment (85.7% to 62%) to achieve differentiation. The P-value (0.048) of the independent t-test is less than 0.05, indicates that foreign SMEs deploy more project duration, subcontractors, artisans, supervisors and equipments as strategy of differentiation.

Where foreign enterprises deployed cost leadership strategy the study showed that they emphasizing effective use of materials (71% and indigenous 68%) defect management (71% and indigenous 64%) and waste management (71% and indigenous 45%). Indigenous SMEs deployed minimal profit margin (96% and foreign 43%). The P-value of the t-test (0.738) is greater than 0.05 established that

the factors that supported the foreign SMEs approach to cost leadership are not significantly different from that of the indigenous firms.

On focus market the study showed that, all the foreign SMEs (100%) filled market niche unfilled by rivals compared to 66.3% indigenous SMEs in roofing (57% and 23%) and land scapping (71% and 60%). However, the P-value of the independent t-test (0.245) is greater than 0.05 indicating that the niche occupied by foreign SMEs is insignificantly different from those of the indigenous. The correlation between competitive strategy and CA of SMEs is 0.329 implying a linear relationship. The coefficient of determinants R-square is 0.108 indicating 10.8% expiation. These findings concur with the literature review that competitive strategy (differentiation, cost leadership and niche market) are sources of competitive advantage. Therefore it is established that competitive strategy is a source of competitive advantage of foreign construction SMEs in North-Central Nigeria.

### **5.2.3 Critical Success Factors and Strategy for Competitive Advantage**

The study established that 85.7% and 67.5% of foreign SMEs and indigenous enterprises respectively were in some form of partnership or alliance with other firms. The P-value (0.000) of the independent sample t-test is less than 0.05 indicating that the difference in the alliance and partnering factor of the foreign and the indigenous SMEs is significant.

Furthermore, the average investment of foreign SMEs in innovation is between 5 to 10 million naira while indigenous SMEs spent less. The P-value (0.042) of the independent sample t-test of average budget for research and development of the foreign enterprises is significantly more than the budget for indigenous SMEs. The percentage work experience shows 57.1% have 11 to 15 years of foreign owner/manager working in construction related businesses before starting a construction business compared to 17.5% of indigenous owners. The P-value (0.001) of the work experience of the owner/ manager of the foreign SMEs is significantly more than the work experience of the indigenous SMEs.

The correlation between critical success factors and CA is 0.476 implying a linear relationship. The coefficient  $R^2$  is 0.226 indicating that 22.6% of the variation in CA is explained by CSFs. These findings agree with the literature review that critical success factors (alliance and partnership, innovation and owner/manager traits) strategy is a source of competitive advantage. Therefore it is established that critical success factors strategy is a sources of competitive advantage of foreign construction SMEs in North-Central Nigeria.

#### **5.2.4. Value Chain Activities and Strategy for Competitive Advantage**

The study showed that all (100%) of foreign SMEs strategically structure entire construction projects into a set of units of activities (value chain) but it was 71.1% of the indigenous SMEs. Supplies deficiency stopped construction operation in 85.7% of foreign firms and 93.8% of indigenous SMEs. The P-value (0.000) of the t-test is less than 0.05, implying that the difference in work stoppage recorded by indigenous SME is significantly more than foreign SMEs. Results show that 85.7% of foreign SMEs managed construction operation as a system (coordinated as a chain) while 60% of indigenous SMEs. The results also show the independent management of operations. The P-value (1.226) of the t-test of management of construction operation is more than 0.05.

The study also revealed that foreign SMEs (57.1%) sought opportunity throughout the life of a project through facility management compared to 25% indigenous. Also 71.4% of foreign did same in general maintenance compared to 68.8% of the indigenous. The P-value (0.000) of the t-test of difference of post construction services show that foreign SMEs operated post construction services significantly more than the indigenous SMEs. The correlation between value chain tools and CA of SMEs is 0.316, implying a linear relationship between value chain tools and CA. The  $R^2$  is 0.100 indicating 10% of variation in CA is explained by value chain activities. These findings agree with the literature review that value chain strategy (in-bound logistics, operations and after sale services) are sources of competitive advantage. Therefore it is established that value chain strategy is a source of competitive advantage of foreign construction SMEs in North-Central Nigeria.



### 5.2.5 The Overall Effect of the Variables

The study findings show all the independent variables contribute significantly to the revenue growth and market share. The f- value show that the predictors of competitive advantage contribute more to revenue growth with value of 485.61 than market share of 290.61. The multiple linear regression of the study shows that 58.72% of variation of the revenue growth is explained by the independent variables and is given by:  $RG = 43.532 + 5.171x_1 + 6.893x_2 + 3.213x_3 + 7.344x_4$ ; (where  $RG$  is revenue) Furthermore, 48.85% of variation of the revenue market share is explained by the independent variables and is given by  $MrkC = 13.032 + 1.608x_1 + 0.610x_2 + 0.492x_3 + 6.004x_4$  (where  $RG$  is  $Mrk$  Sis market share). The p-value for revenue growth and market share (0.000) of the analysis of variance (ANOVA) of the regression analysis are less than 0.05, it is therefore concluded that the model is significant and therefore fit for use.

The findings indicate that human and physical resources, especially construction machines and equipment are key determinants of competitive advantage strategy. The indicators are, to create values and serve customers better and therefore increasing earnings, winning more contracts in the market place (increasing market share) and being more profitable.

### 5.3 Conclusions

The focus of this study was to determine the strategy of non-indigenous construction SMEs to gain competitive advantage. Based on previous studies, the predictors of competitive advantage were expected to be the strategy deployed to gain competitive power. The output of the study presented in chapter four and the summaries contained in Section 5.2 of this thesis, show a positive relationship between these strategies and competitive advantage. Therefore, the study concludes that;

### **5.3.1 Resources and Strategy for Competitive Advantage.**

The Nigerian aspiration has been that indigenous construction SMEs will take advantage of the vast resources at home and tap into the opportunities offered by their accession to WTO, regional treaties and globalization. However, the linear regression analysis of this study showed that 31.9% of the variation in CA is explained by resources and is given by:  $y = 0.395 + 0.583x_1$ . Therefore, the null hypothesis is rejected and it is concluded that resources strategy is a significant determinant (influence) of the strategy for competitive advantage of non indigenous small and medium construction enterprises. The t- value of the overall multiple regression analysis further indicate that human and physical resources, especially construction machines and equipment, contribute the most to the non- indigenous SMEs strategy for competitive advantage. Gaining CA is influenced by company's utilization of resources. Thus, the findings revealed that Nigerian indigenous contracting SMEs must focus most on resources especially human and physical resources as key determinant of their competitive advantage strategy (create value to their clients, serve customers better and therefore be more profitable) to win contract in the market p lace.

### **5.3.2 Competitive Strategy and Strategy for Competitive Advantage**

The regression relationship between competitive strategy and competitive advantage is given by  $y = 0.628 + 0.229x_2$ . Furthermore, 10.8% of the variation in the competitive advantage of foreign SMEs is explained by competitive strategy. As a result, the null hypothesis is rejected and it is established that competitive strategy has relationship with strategy for competitive advantage of non-indigenous small and medium construction enterprises.

From the findings, it can be concluded that competitive strategy is a tradeoff between differentiation and cost leadership. Also non-indigenous SMEs deployed differentiation strategy (deploying project duration (timeliness), subcontractors and equipment) to gain competitive advantage against rival, and when they used cost leadership, they rely on effective and efficient construction operation defect and waste management. On the other hand, indigenous contractors deployed cost

leadership through reduced profit margin as a strategy for competitive success. Furthermore, indigenous SMEs are competing better through the strategy that focuses more on niche opportunities that allow them to capitalize on familiar home customer values.

### **5.3.3. Critical Success Factors and Strategy for Competitive Advantage**

The findings of the study show that 22.6% of the variation in competitive advantage is explained by the critical success factor. The linear relationship between critical success factor and competitive advantage is given by  $y=0.612+0.311x_3$ . Where  $y$  is competitive advantages of small and medium construction industries in North-Central Nigeria and  $x_3$  is critical success factors. Consequently, the Null hypothesis ( $H_0$ ) is rejected and it is concluded that critical success factors strategy is a significant influence in the competitive advantages of small and medium foreign construction SMEs in North-Central Nigeria. The most competitive construction SMEs always consistently out perform their competitors in construction critical success factors parameter. The t-value of the overall multiple regression further, show that CSF contributes the least to the competitive advantage of non- indigenous construction SMEs. However, foreign SMEs have exploited “co-petion” (cooperation and competition simultaneous) to gain competitive advantage over rivals.

### **5.3.4 Value Chain Activities and Strategy for Competitive Advantage**

The work reveals that linear relationship between value chain and competitive advantage indicate that 10% of the variation in CA is explained by value chain activities and it is expressed by the equation  $y= 0.395+0.583x_4$ . The Null hypothesis ( $H_{04}$ ) is therefore rejected and it is concluded that value chain strategy is a significant contributor to the competitive advantages of small and medium foreign construction industries in North-Central Nigeria.

Non-indigenous competitive companies have deployed in-bound logistics and supply chain management to reduce losses due to work stoppage and move to dominant positions. Competitive firms have also broken down construction projects production chain into individual activities which allows for the understanding of the specific parts of the construction activities that create value that mostly satisfy customer needs with the overall effect to minimize cost associated with all activities. Finally, the competitive edge of construction firms against rivals is as a result of a well managed value chain as an “integrated project package”.

#### **5.3.4 Competitive Advantage**

The Nigerian construction SMEs needs to deploy resources, competitive strategy, value chain activities and critical success factors strategies to emphasize revenue growth and improve market share. Since the f-value shows that the predictors of CA contribute more to revenue growth, these strategies should be deployed focusing more on growing the revenue of Nigerian indigenous construction SMEs. To bust their market share is also important.

#### **5.4 Recommendations**

The study’s output is a justification of the fact that construction firms and entrepreneurs that deploy appropriate resources, competitive strategy, critical success factors, and well-managed value chain activities will gain competitive advantage over rivals in North-Central Nigeria. Therefore, based on the findings of this study and the desire to increase the competitiveness of the Nigerian construction enterprises, the following recommendations are made:-

##### **5.4.1 Resource Strategy and Competitive Advantage**

To take advantage of Nigerian content law, procurement law, other legal instruments and regional and international conventions, Nigerian construction SMEs should strategically exploit resources especially human and physical (equipment and machinery)to increase their competitive strength. They should deploy resources

strategy to get around the resources voids in Nigeria to be more competitive. A lot still needs to be put in place by indigenous SMEs to ensure continuous human resources development.

Since retained profit is a major source of project funding of indigenous construction SMEs, a legal instrument like Delayed Payment Act to prevent default or delayed payment for project executed should be provided. With a liberal macroeconomic environment that is not very protective of the indigenous SMEs, a Construction Bank providing credit for construction SMEs, where valuation certificates will act as collateral, is an appropriate strategy. Such should be primarily for SMEs construction project financing and equipment acquisition. A vibrant plant and equipment leasing industry is also necessary to support indigenous constructors' needs.

#### **5.4.2 Competitive Strategies and Competitive Advantage**

The current cost leadership strategies being exploited should focus more on firm's organizational processes (process improvement, waste management and defect reductions) to gain competitive success. Indigenous construction SMEs should be more innovative deploying differentiation strategy to counter rivals. Contract duration urgency (timeliness) as a sustainable source of competitive advantage should be explored. Premium price gained by providing quality products and services to clients rather than low profit margins will move indigenous SMEs to dominant positions. Furthermore, indigenous construction SMEs should focus much more on market segments that are unsatisfied by non-indigenous SMEs. The avoidance of head-to-head coalition with non-indigenous SMEs (because of their competitive strength) is a good strategy.

#### **5.4.3 Critical Success Factors Strategy and Competitive Advantage**

Nigerian construction SMEs should partner appropriately to gain competitive advantage. The strategy of 'co-petition' (competition and cooperation together) is will move SMEs to dominant position. For penetration into a new market, especially a foreign shore, alliance should be with native SMEs. For technological gains,

alliance should be with foreign SMEs and for premium price, partnership it should be with market leaders. Indigenous construction SMEs should increase their budgets for research and development to be more innovative. Innovation and creativity should be the bedrock of all other strategies. Construction owners/managers should ensure enough exposure in the construction industry to learn the ‘ropes’ and know enough of the strategies of construction business, thereby gain the required skill and experience required at start up.

#### **5.4.4 Value Chain Activities and Competitive Advantage**

To move to dominant positions, firms should break the entire construction process to the component value chain activities and isolate the parts that provide values to clients. Since indigenous SMEs evolved within the Nigerian system, indigenous SMEs should have their way round vagaries of in-bound logistic, source quality inputs/materials at cheaper price and transportation cost and be more competitive. More opportunities after “handing over” through facility and estate management, servicing, repairs and upgrading schedules will improve competitive chances. Firms could consider getting round the construction operation voids and make their operation more effective and efficient to compete.

#### **5.4.5 Competitive Advantage**

The study reveals that the overall multiple linear regression model shows 99.2% corresponding change in competitive advantage of construction SMEs for every change in the predictor variables jointly. The analysis of variance (ANOVA) also shows that the model is significant, fit for use and all the independent variables contribute significantly to the competitive advantage of the foreign construction SMEs. Therefore it is recommended that Nigerian indigenous SMEs should deploy resources strategy, competitive strategy, value chain activities strategy and critical success factors strategy to bust revenue growth and market share to be more competitive.

### **5.5 Recommendations for Future Studies.**

The hypothesis presented in this study is that a strategic fit is needed for a firm's business model to achieve competitive advantage. The results of this research show that foreign construction enterprises deploy resources, competitive, critical success factors and value chain strategies to gain competitive success against rivals in North Central Nigeria, thereby confirming the 'qualified guess'. The firms gave strong indications that the variables in this business model proposition are essential to gaining competitive advantage.

However, as it was emphasized in the research philosophy, a verification of hypothesis is not enough to confirm it. Being a 'qualified guess', repeated experiments would be needed to reinforce what leads to the competitive strength of the foreign construction SMEs against rivals, so that the underlying assumptions can be enhanced. A direct replica could be a study of larger firms, or multiple respondents (SMEs and large firms). Furthermore, there will be values in exploring the variables in other regions of Nigeria, and other emerging markets where different sets of macro environment exist. With these, it can be verified if the results will be the same.

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## **APPENDICES**

### **APPENDIX 1**

#### **Letter of Introduction to the respondents**

School of Human Resources Management,  
Jomo Kenyatta University of Agriculture and  
Technology, Nairobi – Kenya.

5<sup>th</sup> December, 2014.

Dear SME Contractor/Consultant,

**Research: Determinants of Non-Indigenous Small and Medium Construction Enterprises Strategy for Competitive Advantage in North-Central Nigeria.**

We are carrying out a research project aimed at developing a model that will enable construction enterprise compete based on a sound strategy. You have been identified as an active participant in the Nigerian construction industry. We therefore invite you to participate in this research study by completing the attached questionnaire. Information collected will be kept confidentially.

Please answer the questionnaire as honestly as possible and return the completed questionnaire promptly through the addressed prepared envelope or e-mail: [medubi.raymond@gmail.com](mailto:medubi.raymond@gmail.com). The result of the study will be used in the researcher's PhD Thesis, Journal Paper Publications and presented at conferences. For further information or clarification please contact:

Email: [medubi.raymond@gmail.com](mailto:medubi.raymond@gmail.com)

Yours faithfully,

Arc. Medubi Raymond Darijimi

## Appendix 2

### SURVEY QUESTIONNAIRE

#### Section A: Respondents Preliminary Information

Please tick the most appropriate responses.

1. Where is the location of your firm's head office in Nigeria? :  
Abuja  Kaduna
2. What is the main type of project undertaken by your firm?  
Building Construction only  Civil Engineering only   
Building and Civil Engineering  Consulting and Building   
Others (specify) .....
3. Who are the Firm's major clients? Individuals  Private   
Companies  Government  International Agencies
4. What is your current market geographical coverage?  
Local  Regional  National  International

#### Section B: Specific Respondents Information.

##### 1: The Influence of Resources on Competitive Advantage:

###### Human Resources

- i. Does the competitive strength of your enterprise depends on the capability (unique, rare and hard to copy skills) of human resources?  
Yes  No
- ii. If No, how often do you train for skill improvement?  
Quarterly  Half yearly  Yearly  Others (Specify)



iii. What was your budget for training and skill acquisition in the last five (5) years, (estimate in Naira)?

**Estimate in Naira      Estimate in Naira      Estimate in Naira**

2009  2010   
2011  2012

iv. How do human resources influence the competitive advantage of your firm?

.....  
.....

**Financial Resources**

i. Does your firm have access to required working capital for your projects?

Yes       No

ii. If yes, what are the sources of project financing available to your organization? Tick as many appropriate box(es)

Project Mobilization Fees       Trade Credits   
Financial Institutions       Firm Parent Organization   
Government Assistance       Previous Profit Retentions

iii. What impact does this access to financial resources have on the competitive success of your firm?

.....  
.....  
.....

**Machinery/Equipment**

i. Do you estimate the value of machinery and equipment when bidding for construction projects for strategic reasons (depreciated estimates in company accounts)?

Yes  No

ii Does your firm have competitive strength ICT leverages (website, E-mail address, Internet and Intranet services) on your enterprise information system?

Yes  No

iii What is the estimated values (in Naira) for machinery and equipment for the last five (5) years?

2009  2010  2011   
2012  2013

vi. How does machinery and equipment contribute to the competitive success of your firm?

.....  
.....  
.....

## Competitive Strategy

### Differentiation

- i. What strategy/strategies have you adopted in the delivery of projects at different times? (Tick as many appropriate options)

Differentiation (Uniqueness and costly)

Cost Leadership (Cheap and well)

- ii. Have you delivered project(s) whose consideration is to achieve uniqueness?

Yes  No

- iii. If yes, identify from the options the reason(s) for the success. Tick as many appropriate box(es)

Project Duration  Sub Contractor(s)  Materials

Artisans  Supervision  Equipment

- iv. How has this strategy affected your competitiveness?

.....  
.....

### Cost Leadership

- i. Have your enterprise successfully completed a project in which the policy is affordability (Fit for purpose, cheap and well)?

Yes  No

- ii. If yes, what was/were your approach (es)? Tick as many appropriate box(es)

Motivated workers through “finish and go”

Efficient and effective use of materials      Defect management

Minimal profit margin       Waste management

iv. How does this strategy affect the competitiveness of your Enterprise?

.....  
.....

**Niche Market**

i. Does your enterprise have a strategy of filling market niches unfilled by rivals?

Yes  No

ii. If yes in which specifically do you fill markets not filled by rivals? Tick as many appropriate box(es)

Surveying  Mechanical Works  Conducting tests   
Air Conditioning  Lifts and Escalator  Electrical Works   
Roofing  Building Skeletons  Landscaping   
Interior Decorations  fittings (Doors, Windows Other (Specify)

iii. How does this niche market impact on your competitive advantage?

.....  
.....

**3 Critical Success Factors**

**Alliance and Partnering**

i. What are the factors considered as critical to your firm strategy for project delivery? [Tick as many appropriate box (es)]

Alliance and Partnering with others

Innovation

Owner Manager traits, qualities and characteristics

ii. Is your enterprise in any form partnership or alliance with any firm?

Yes  No

iii. How has partnering and alliance strategy influence the competitive advantage of your firm?

.....  
.....  
.....

**Innovation**

i. Does your enterprise have a storage / data base for latest innovative ideas/products (soft ware, materials, technologies)?

Yes  No

ii. If yes, what were your estimated research and development budgets for the last five(5) years? Tick as many appropriate box(es)

Less than 5million  5 million - 10million

10million – 15million  15million – 20million

Above 20million

iii. How do these innovative products influence the competitiveness of your enterprise?

.....  
.....

**Owner Characteristics**

i Before engaging in Construction business what were you doing?

Government Employment  Non Construction Business

Employment in a Construction Firm

ii. Have you had a working experience in the construction industry before going into the construction business?

Yes  No

iii. How long did you work there?

.....

iv. How has the previous knowledge and experience contributed to the competitiveness of your firm?

.....  
.....  
.....

**Value Chain Tools**

**Inbound Logistics**

i. Do you strategically structure entire projects into a set of units of activities?

Yes  No

ii. Has any of your construction operations stopped because of supplies (materials out of stock)?

Yes  No

iii. How does material supply management influence the competitiveness of your firm?

.....  
.....  
.....

**Operation**

i. How many construction bid or project site have you won that you are working on or have handed over to your clients in the last five years (total in numbers)

.....  
.....

ii. Does your firm ensure effective construction project delivery by braking operations into small units?

Yes  No

ii. If yes, how do you manage unit handled by subcontractors? Tick as many appropriate box (es)

Managed independent units  Coordinated as a chain

iii. How does your strategy (choice in (Ai) above) impact the competitive edge of your enterprise?

.....  
.....

**After Sale Services**

- i. Do you have strategy of “follow up services” (defect remedies, installations and drawings) your enterprise renders after project completions?

Yes  No

- ii. If yes, does your firm operate a post construction services in the following areas (pleas tick as many appropriate boxes)

	Yes	No
Estate management		
Facility management (Lifts, escalators, acoustics and ventilators)		
General maintenance (Routine, repairs and renovation)		
Safety (Fire kits, installations, detectors and sprinklers)		

- iii. Have you won new project due to (because of) your customer care services?

Yes  No

- iv. What is the total estimated values (in Naira) of the yearly contract earnings (value of construction works executed) of your firm for the last five (5) years?

2009  2010  2011   
 2012  2013

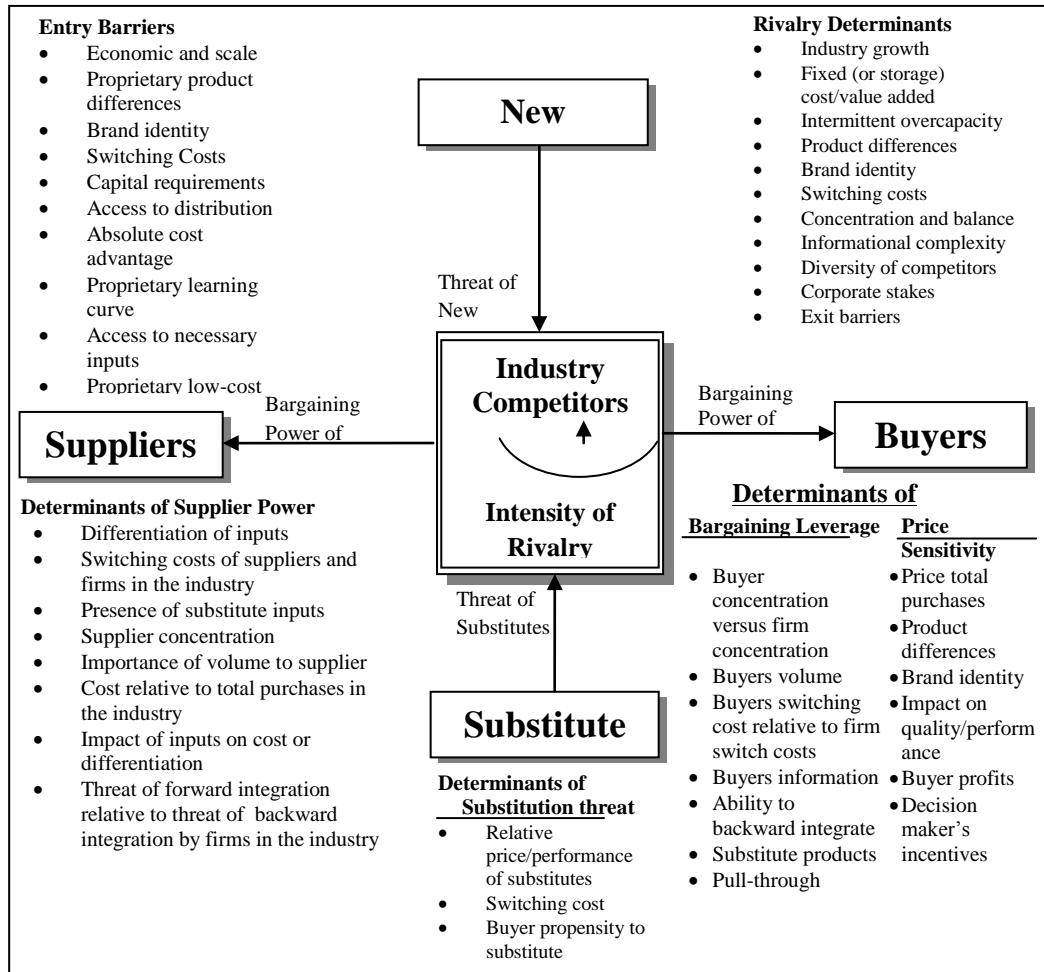


v. How do support services (post final certificate customer care) contribute to the competitive edge of your firm?

.....  
.....

## Appendix 3

### FIVE FORCES- ELEMENTS OF INDUSTRY STRUCTURE



Porter's Five Forces- Elements of Industry Structure. (Porter, 1985)

## Appendix 4

### COMPETITIVE STRATEGY

		Competitive Advantage	
		Lower Cost	Differentiation
Competitive Scope	Broad Target	1. Cost Leadership	2. Differentiation
	Narrow Target	3A. Cost Focus	3B. Differentiation Focus

Porter's Generic Strategies (Porter, 1985)

## Appendix 5

### VALUE ACTIVITY TEMPLATE

