

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,  
KUMASI, GHANA**

**Collaboration in the Ghanaian Construction Industry: Perceived Barriers and  
Benefits**

By

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**MASTER OF SCIENCE**

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**DECLARATION**

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

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## **ABSTRACT**

The construction industry involves high risk-taking activities that result in cost overruns, low productivity, litigation, ineffective communication and construction delays. However, the introduction of collaboration in the construction industry has been frequently used as an inventive approach towards the achievement of quality in project delivery and as a remedy for the pitfalls of the conventional approaches of procurement in the industry of construction. This is a quantitative study that was carried out in some construction firms in the Kumasi Metropolis with an aim of exploring the perceived barriers and benefits of collaboration in the Ghanaian construction industry. The primary research was conducted using design survey questionnaires. These were structured questionnaires used to obtain data to ascertain the barriers and benefits of collaboration in the Ghanaian construction industry. A total number of seventy questionnaires were administered and sixty were retrieved representing a response rate of 85.71%. Relative Importance Index rankings was the main tool used for analysis. The findings of the research revealed that fear of micromanagement, lack of common goals, complacency in collaboration, past negative experience with collaboration and lack of trust among partners were the main barriers to collaboration in the Ghanaian construction industry. However, the main benefits associated with collaboration in the Ghanaian construction industry were also disclosed as total cost perspective in collaboration, technical expertise by partners, availability of resources in collaborations, equal empowerment in collaboration and productive conflict resolution strategy. Future studies to promote collaboration in the construction industry such as strategies to improve collaboration in the construction industry were also proposed.

**Keywords:** Barriers, Benefits, Collaboration, Construction, Ghana

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## **DEDICATION**

I devote this work to the Lord Almighty God for his guidance, my family for their love and support and my friends for their help and encouragement.



## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 BACKGROUND OF STUDY**

The industry of construction according to Ofori (2012) is very key in most economies because of the outcomes and outputs of the industry's activities. The Construction Industry (CI) produces and preserves the built environment which is the foundation for the socio-economic growth of all countries and depicts the growth of a particular nation. According to Ahadzie (2009), construction accounts to the socio-economic growth of a country by rendering substantial employment breakthroughs to both the non-skilled and the skilled labours. Moore et al. (1992) indicated that there is no doubt that the industry of construction stands to be the most riskiest and competitive industry and projects relating to infrastructure are extremely capital demanding; stakeholders such as contractors are often faced with challenges which always affect the project's completion time and to the standard required.

Latham (1994) affirms that collaborative working and partnering can be relevant in minimizing low performance of projects as well as the lack of satisfying clients. Stiles (1995) further highlighted that increase in globalization, competitiveness, risk and uncertainty within the construction industry have given rise to the need for contractors to collaborate so as to remain in business. Furthermore, Stiles (1995) added that companies with the quest to enter new markets or planning long-run studies and growth programs recognize that collaboration aids in distributing the risks of construction investments. Moore et al. (1992) explained that construction companies can survive the industry by recognizing ways that would lead to profits and performance improvement; for many construction firms this can be attained by utilizing collaborative processes.

The persistence of these circumstances have prompted most developed and developing countries like Ghana to adopt collaboration as an effective management method that propagates innovative solutions and improved resolutions to conflicts that arise in the construction industry.

Wood and Ellis (2005) stated that, collaboration forms the most important means of refining construction project performance as it delivers basic swing from the typical combative relationships in the delivery of construction projects. Collaboration is a relationship between two or more contractors designed with the direct intention of boosting performance in project delivery (Scott, 2001). According to Cowan (1991), collaboration refers to the cooperative method to the management of contract with the aim of decreasing litigation, stress and costs within a construction contract. In the same vein collaboration defines the commitment that recognizes the relationship between a client and the contractor as the essential parts among the routine construction operations (Abudayyeh, 1994).

Lowe (2012) explained that collaboration provides trust and goodwill, promotes open communication and helps the parties eradicate adversarial relationships and surprises. Collaboration enables the various parties to forestall and determine disputes through informal conflict management actions.

## **1.2 PROBLEM STATEMENT**

The construction industry has undergone remarkable transformation during the past decade in the form of increased competition; increased costs of construction; rapidly changing technology and construction methods; and increased risk in construction contracts (Stipanowich and Matthews, 1997). Sonnenbery (1992) explained that the changes represent crisis in the construction industry and companies have begun to explore

alternative management approaches to maintain superiority. Contractors in project implementation are faced with challenges such as low profitability, cost overruns, construction delays and an atmosphere of win-lose (Li *et al.* 2000). This environment makes it difficult for contractors to remain in business. According to Anvuur *et al.* (2006) it is prudent to introduce mechanisms which enable contractors to jointly execute projects successfully with less difficulties. Anvuur *et al.* (2006) further affirmed that collaboration is the most prudent solution to the above problem.

However, the extent of knowledge of collaboration among contractors, consultants, clients and other stakeholders is very minimal in the Ghanaian context. There is therefore the need to carry out a research to understudy the nature of collaboration and how it can be developed to assist contractors in their project execution. The intent of this study is to fill the aforementioned gap by exploring the current state of collaboration in the Ghanaian construction industry and its success and failure factors.

### **1.3 AIM AND OBJECTIVES**

#### **1.3.1 Research Aim**

This study aims at exploring the perceived barriers and benefits of collaboration in the construction industry of Ghana.

#### **1.3.2 Objectives**

1. To determine the nature of collaboration in the Ghanaian construction industry;
2. To identify the barriers to collaboration in the Ghanaian construction industry;
- and
3. To determine the benefits of collaboration in the Ghanaian construction industry.

## **1.4 RESEARCH QUESTIONS**

1. What is the nature of collaboration in the Ghanaian construction industry?
2. What are the barriers to collaboration in the Ghanaian construction industry?
3. What are the benefits of collaboration in the Ghanaian construction industry?

## **1.5 SCOPE OF THE RESEARCH**

The study was narrowed to both civil and building contractors in the Ashanti region of Ghana. Contractors in Ghana are categorized into two main groups. Eyiah and Cook (2003) and Dansoh (2005) highlighted that a number of road contractors work with license issued by the Ministry of Transportation and also a number of civil and building engineers work with license issued by the Ministry of Water Resources Works and Housing (MWrWH). The MWrWH utilized the criteria of experience, equipment holding, profitability, asset structure, financial capacity, as well as the structure of management to categorize contractors who undertake building projects into D1K1, D2K2, D3K3 and D4K4 as Eyiah and Cook (2003) opines. Similarly, the Ministry of Transportation also classifies road contractors into A1B1C1, A2B2C2, A3B3C3 and A4B4C4. According to Badu et al. (2012), by this standard typology, companies in each particular group could bid for road and building contracts in the confines of a particular financial threshold. Within the framework of this study, building and civil contractors are thus defined as being those firms within the D1K1, D2K2, D3K3 and D4K4 classifications.

Undeniably, Ahadzie (2010) indicated that construction firms in Ghana are more predominant in Accra and Kumasi metropolis; however, this study will focus in the Kumasi metropolis. The dataset will be obtained from a sample selection of building and civil contractors operating in the Kumasi metropolis. The city stands to be the second largest city in Ghana and hence, enjoys significant measure of the infrastructural



developments. Again, this geographical location was chosen due to proximity to data and the fact that large number of building and civil engineering firms are located in Kumasi.

## **1.6 RESEARCH METHODOLOGY**

The methodology employed for this study considered the critical review of pertinent literature relevant to the barriers and benefits of collaboration pertaining to the construction industry of Ghana. This aided in the identification of the studies previously undertaken, contributions made, current findings as well as its application, limitations, and criticisms. The development of the survey questionnaire was as a result of culmination of other pertinent literature that spun around the study's aim and objectives for the purpose of gathering data. The number of building and civil contractors was determined using the register of registered building and civil engineering firms at the Registrar General's department at the Kumasi metropolis. For the sample size, snow ball sampling technique as employed. The data collected were analyzed using descriptive statistics as well as relative importance index for ranking of the various identified phenomenon. There would be a thorough discussion of the research methodology in chapter three.

## **1.7 SIGNIFICANCE OF STUDY**

Most companies direct their innovative efforts on generating new offerings or achieving efficiencies in operations to gain competitive advantage quickly. Hamel (2006) indicated that for companies to have competitive advantage over rivals, a company must develop into a serial management innovator, systematically looking for breakthroughs in how these company performs crucial managerial processes. Over the coming decades, a quickening pace of change will test the resilience of every society, institution and

individual. As such there is the growing need for the construction firms to adjust themselves and become more prudent especially in their execution of construction projects in order for them to adapt themselves more favorably to the ever changing environment, client requirements and project requirements.

It is therefore envisaged that the study will make a significant theoretical contribution to knowledge on collaboration in the Ghanaian construction industry with particular emphasis on contractors in the study area. The adoption of collaborative approaches will encourage Ghanaian firms to enthusiastically partake in the financing, construction and infrastructure management in the country. Furthermore, the study will help improve contractors understanding of the role of collaboration in the achievement of industrial goals. Lastly, the study will also serve as a vital contribution to knowledge in academia and the country as a whole.

## **1.8 STRUCTURE OF REPORT**

The research work was divided into five (5) interdependent chapters. Chapter1, titled “Introduction”, presented the background, problem statement, research aim and objectives, research questions, as well as scope of the research. The chapter 2; the literature review discussed fully the perceived barriers and benefits of collaboration in Ghanaian construction industry. The chapter 3 being the research methodology described the research approach used and it gain provided discussions on the tools employed to analyse the data collected. The chapter 4 presented the discussions and analysis of data collected from the field survey that answers both the research questions and the research objectives. The chapter 5 presented the Conclusion and Recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This very chapter addresses the relevant perceived barriers and benefits of collaboration in the Ghanaian construction. Content analysis of available theories was visited to determine their validity and practicability particularly to the industry of construction. These theories are expected to assist in the identification of the perceived barriers and benefits of collaboration in the Ghanaian construction industry.

#### **2.2 THE CONSTRUCTION INDUSTRY**

The sector of construction represents a core economic activity for many countries. The construction industry is responsible for the infrastructure developments for other industries as it is among those key single sectors in every country's economy. In careful connection with public works, federal administrations have trusted the construction industry to be a significant sector in the creation of employment as well as growth sustainability (Jacquet, 2002). Moreover, in most developing economies, the construction industry is very crucial as it has connection with the expansion of basic infrastructure, technological transfers, local personnel training, as well as an improved information channels access (International Investment and Services Directorate (IISD), 1999).

The services of construction are in most cases supplied by way of formation of service suppliers near or at the construction site for the work by regional or local operators. On-site establishment is normally restricted to the duration of a particular project, whereas local or regional presence may be ensured on the basis of permanency to provide services several projects (Jacquet, 2002). Cooperative undertakings between local and foreign companies are very ordinary – mostly out of requirement for technology transfer and

know-how; providing funding for projects; and assistance to adhere to local laws, practices, and regulations (IISD, 1999).

The services of construction in most countries may be provided by the contractors who execute every bit of work of the project's proprietor, or by sub-contractors who carried out parts of the project. Some analysis undertaken by the World Trade Organisation Secretariat shows that quite a number of countries have few large-sized firms, a moderate number of medium-sized ones, and a higher percentage small-sized firms who concentrate in some particular fields or who conduct business in small geographical zones (IISD, 1999).

### **2.2.1 Global Supply of Construction Services**

According to Gary (2004), the construction industry stands to be the world's largest industry. Gary (2004) affirmed that the total worth of the construction industry surpassed four trillion dollars in 2004. Moreover, the construction industry is of eminent importance over other industries because approximately 25% of labor force in the global perspective worked directly under the industry or as a unit supporting it. According to Conway et al. (2005) the construction industry grew by 6.6% between 2003 and 2004. Conway et al. (2005) further indicated that the largest construction firms in 2003 were *Vinci* of France (\$12 Billion (B) domestic or \$8B international revenue) and *Skanska* of Sweden (\$3B domestic or \$14B international revenue). However, the major international market for construction in the world is Europe (Briscoe and Dainty, 2005). The next largest to Europe in terms of international market for construction is Australia/Asia with solely China being the wildest expanding market. Conway et al. (2005) further affirmed that transportation forms the largest sector considering the international market for

construction having a percentage of 27.5, trailed by general building with a percentage of 25.4, and petroleum infrastructure also with a percentage of 18.7.

### **2.2.2 The Ghanaian Construction Industry**

According to Hillebrandt (2000) construction forms a vital part in almost every country's economy. Activities of construction can principally consider incomes to alleviate poverty even in isolated communities. This implies that Ghana as a relatively large country needs reasonable large number of construction firms in each region. As specified by the Ghana National Commission for United Nations Educational, Scientific and Cultural Organization (UNESCO), the Ghanaian construction sector just like the others in other countries is huge and very key in economic development.

Highlighted below are the challenges confronting the Ghanaian construction sector as Laryea (2010) opines:

- Mistakes in the genuine and institutional context;
- Problems in achieving the sector's inputs like materials, but predominantly, finance, with time-consuming delays in the payment of contractors for work executed completed:
- Weak systems of classification and endorsement for contractors registration;
- Reduction in the industry's performance, which is measured on the basis of standard limitations of the industry: quality, environmental performance, cost, safety, quality, health, and time;
- Poor methods of procurement, with regular rupturing of the guiding principles in the procurement procedures, including incidences of misbehavior and corruption;
- Lack of information reception;

- Inappropriate assignment of participants' roles in project delivery, and problems in the incorporation of their hard work, due to the endorsement of the typical procurement organization;
- Lack of or ineffectiveness of regulatory bodies;
- Lack of strategic development the construction sector; and
- Lack of an industry coalition as well as delicate industry-academic institution matters.

It ought to be evident that the one responsible to the challenges facing firms in the industry is the government, who owes to having strategies to address some of the above mentioned challenges. The demand for action still exist across the wide front as there is some form of necessity.

Between the 1970's and the 80's, the contribution of the construction sector to the growth of GDP increased from 4.5% in the 1975 to 8.5% which has ever since been nearly maintained. According to the reports of the Government of Ghana (2005), the contribution of the sector to the GDP rate expanded or increased by 10% which after a year recorded a 1% reduced growth rate as a result of depreciation in the entire economy of the world. There has been a cyclical fluctuations in the economy of the country that is driven by instability of costs in the world's markets for gold, cocoa, and timber (Government of Ghana, 2005).

Developing countries like Ghana have hitches in their industry of construction, which studies have shown three significant causes for these challenges (Laryea, 2010). Basically, at the initial stage, lack of resources for the development and maintenance of the construction industry indicates the weakness of the economy in these countries. Additionally, the construction industry fails in creating incentives for workers as a result

of the lack of support for innovation by the forces of the market. Again, the fact that federal administrations of such emerging countries do not acquaint themselves with the inadequacy and significance of the industry, and thus, fails to devise and as well implement platforms for developing the construction industries. Lastly, the inherent under-expansion of these industries clearly indicates the incapability of spotting out the industries own weaknesses. According to Laryea (2010), these better still appeal for assistance in supporting the federal administrations develop the construction industries.

With the issue of curbing unemployment in the Ghanaian economy, different contracts are now on freeze as the commissioning of projects will increase the opening of job for skilled labours in the sector of construction. According to Laryea (2011), one may hear the construction of schools, gas projects, afforestation projects, roads and the like to be the efforts of the federal administration trying to create jobs. Crant (1995) examined that the decreasing rate of the enlargement of infrastructure was impeding the growth of construction partnering in the Ghanaian setting. A vital way to stimulate economic development is to have a strong industry of construction in a developing country whereby collaboration is utilized in improving the industry.

### **2.3 COLLABORATION**

Collaboration is grounded on mutual trust, common goals, commitment, and effective communication (Nystrom, 2005; Chan et al., 2004; Liu and Fellows, 2001). Regarding the competitive nature of the construction industry, Fong and Lung (2007) and Abudayyeh (1994) argue that collaboration aims to resolve difficulties between the participants, transform confrontational relationships into cooperative ones, establish continuous development, provide on-time and within-budget delivery, enhance communication, increase the quality of the product and provide better customer

satisfaction. However, evidence in support of collaboration is not always conclusive. According to Li et al. (2000) some scholars use collaboration interchangeably with partnering. However, the most denoted definition came by the Construction Industry Institute (CII). As identified by the CII (1991), collaboration is referred to as a longstanding commitment that exist between several organizations with the intent of reaching particular business objectives through efficient exploitation of resources of each participant. This necessitates varying relationships that are traditional to a shared culture overlooking the regards to organizational restrictions. CII (1991) further indicated that this relationship is grounded on dedication to set goals, trust, and an understanding of the values and expectations of each other individual.

Earlier researches on contractor, client and consultant relationships show that collaboration has some kind of positive impact in the direction of project performance, not only quality, cost and time, but also raising the profit margins and reducing litigations. Swan and Khalfan (2007) highlighted collaboration to be optically recognized by most people in the public sector to be the means of deviating from the confrontational relationships in the delivery of projects and as an approach to a more collaborative means to the management of construction projects. The drivers for public bodies in most developed and developing countries to adopt collaboration has been because these public bodies have the mandate to do so by national strategies, reports, articles and panels (Swan and Khalfan, 2007). Abdul-Nifa and Ahmed (2010) highlighted that collaboration forms behavioural set among organizations with shared responsibilities and resources to reach mutual objectives as well as perceived benefits. On the other hand, Naoum (2003) also defined collaboration to a concept that render a framework for the purpose of establishing mutual objectives by project team with the intention of reaching an agreement over a resolution of dispute procedure and also giving encouragement to the principle of



incessant improvement. Collaboration is regarded as a tool/process for achieving efficiency in organisations (Barlow and Cohen, 1997).

However, according to Crowley and Karim (1995), collaboration can be defined in two traditional ways. First, in relation to its attributes like shared vision, long-term commitment, and trust; and secondly, through the processes where collaboration remains to be a verb like developing a mission statement, agreeing on set goals and steering collaborative workshops. This type of collaboration definition can be recognized to the present moment. Moreover, collaboration is mostly conceived as a commitment by partners who are in a project or who are contracting out to work together instead of working in a competitive and adversarial manner. Collaboration according to Egan (1998) refers to the management approach that is used by organisations with the intent of reaching some particular set business objectives through effective maximization of the resources of each participant. Moreover, collaboration demands participants to come together and work in a trusting and open relationship on the basis of mutual objectives, an agreed means of resolving problems and finally a search on ways to continuously improve their collaborative work. Collaboration is between two or several organizations who come together with the intent of improving performance by agreeing on mutual objectives, bringing out ways in dealing with disputes and finally committing to ways of continuously improving on their collaborative undertaking.

In the same vein, Latham (1994) explained collaboration to be a method used by people in order to minimize conflicts when they come together in a complex project as this unifies participants in the project team. Collaboration has again been defined to be putting back the grasp of business and including a return of the traditional way of carrying out business on the basis of trust, good faith, and respect instead of skepticism, suspicion, and

contempt and in a time where a person's word are considered as bonds and people accept responsibilities (Cheung *et al.* 2003).

Barlow and Cohen (1997) affirmed that collaboration is a collaborative set of processes. Collaborative processes that lay emphasis on the significance of common goals as well as raised questions on how those set goals will be considered. According to Chris (2004), the definition of collaboration is regarded to be set processes of collaboration instead of being in a relationship form; a cooperative arrangement existing between organizations on the basis of reaching set mutual objectives and increasing efficiency through continuous improvement, shared resources, and open communication as this would be applied in project collaboration or strategic collaboration. Furthermore, Rasmus *et al.* (2008) cited in Fugar (2010) described collaboration as a philosophy of introducing trust and teamwork into construction processes, engendering commitment to common objectives, encouraging shared focus on projects and ensuring best delivery.

## **2.4 ORIGINATION OF COLLABORATION**

According to MacDonald (2008) collaboration is generally seen as originating from the USA even though quite a number of these processes espoused in collaboration emanated from the construction industry of Japanese and relates to the application of the concepts of lean manufacturing and total quality management. Gransberg *et al.* (1999) stated that, the purpose of this is to reduce the total costs of public projects through the avoidance of legal disputes, which in time past was very common the construction field. Imai (1986) highlighted that the origins of the collaborative concept can be found in the Japanese management strategy Kaizen, which emerged after the end of World War II. Imai (1986) opined that collaboration emphasizes on the importance of process, in which all parties have commitment, rather than a top-down approach. In order to achieve organizational

goals, firms should have a balance between high differentiation (specialization in architecture, structural engineering, environmental science, electrical and mechanical systems) and integration (some sort of collaboration) (Lawrence and Lorsch, 1967).

Moore et al. (1992) attested that collaboration in industry of construction is rooted in the 1990s, in the time where Total Quality Management (TQM) evolved the means of carrying out business in the US and the business and legal communities were interested in the abrupt upsurge of the unsettled litigation and claims in commercial cases of construction. Moore et al. (1992) explained that incoming strategies were at that time being considered to change the old adversarial setting that besotted the construction community; in the powers of the TQM, business communities started in focusing on changing the adversarial business relationships to an updated archetype of cooperation through the initiation of continuous improvement in services and processes that would ensure quality engagement of labours and the addressing of client satisfaction.

Carr et al. (2002) further explained that legal as well as business communities were having the experience of destructive impact in terms of the economic cost and the increasing numbers that are in connection with litigation and were again testing the alternative approaches to dispute resolution like mini-trials and mediation. Leverick and Litter (1993) highlighted that there were increased collaboration among firms in the manufacturing industry in the 90s. Simpson (2001) confirmed that the impetus for collaboration stems largely from Latham's report in 1994. The ideas of Latham were propelled by the Construction Industry Board which was instituted in July 1995 as it resulted in a publication of collaboration team in the 1997. This publication made it clear

the basic principles of collaboration and as well how collaboration theory can successfully be put into practice (Latham, 1994).

#### **2.4.1 Initial Construction Collaboration Approach**

Schriener (1991) affirmed that collaboration started from the private sector and the earliest firm to adopt collaboration was DuPont engineering Casey. It was noted that the use of collaboration was in to bring various competitions into the world's market. The first construction firm being Fluor-Daniel first to partake in collaboration with DuPont. Moore et al. (1992) highlighted that a senior manager at Fluor-Daniel observed collaboration as a different environment that fosters cooperation, team-building and replaces the "them" verses "we" assertiveness with "us" mindset.

#### **2.4.2 Prosperity Elements of Collaboration**

Black et al. (2000) identified some collaboration prosperity factors as clear goals, consistency, communication, flexible posture, trust, and understanding of roles. Eriksson et al. (2008) indicated that among the vital factors that intensify an enhanced collaboration projects in the earliest involution of the supplier as well as the contractor. The increase in knowledge and work sharing and with the initial involution, the peril of these parties dividing up as a result of difficulties in times of projects are reduced. Among the advantages attained in utilizing collaboration from the contractor's perspective include less risk for delays and cost overruns, heightened productivity, minimization to litigation exposure, incremented profit opportunity, and amended reaction/decision time (Slater, 1998). However, the benefits available to clients also include reduction in the overall cost of project, low exposures to cost increments, efficient resolutions for challenges, and an improved quality of projects.

## **2.5 TYPES OF COLLABORATION**

Scott and European Construction (2001) indicated that collaboration exist in two forms which are project collaboration and strategic collaboration. Project collaboration was adopted to be a trial before the term strategic collaboration. This specific approach of collaboration is currently in use across the globe bearing different names like partnering, relational contracting framework arrangement, and alliancing (Udaya, 2012). Collaboration is engaged in either project situation which is referred to as project collaboration or in long-term relationship also referred to as strategic collaboration which may include framework contracts and agreements specifically written with the intent of covering many projects so as to gain greater benefits from the strategic collaboration arrangements (Simpson, 2001).

Broome (2003) identified strategic collaboration to be one in which a client and a contractor and consultant come to reach an agreement so as to undertake a project of related nature within a vast period of time usually years; where strategic collaboration arrangements ought to be considered in preference to specific collaboration of project arrangements. According to Broome (2003), this forms an important aspect in terms of keeping together successfully project teams in the delivery of projects with an upsurge in value improvements. Simpson (2001) further heightened that a substantial planning on the side of client smoothens the troughs and peaks in workload. The project specific collaborative arrangements can in most cases be successfully entered into other stages of construction and even after the stage of construction has been done with; it should also be emphasized that collaboration benefits will only be maximized from the starting of the process even at the initial stage of the project (Udaya, 2012).

## **2.6 STAKEHOLDERS PERSPECTIVE OF COLLABORATION**

Saeed (2011) highlighted that there are three main parties involved in collaboration namely the owner, designer and contractor. Other stakeholders in collaboration are sub-contractors, suppliers, labourers and fabricators. According to Simpson (2001) stakeholders in the construction industry have different perspective on construction partnering. These perspectives are:

### **2.6.1 Client's Perspective**

Simpson (2001) explained that the benefit that clients derived from collaboration is relatively small. Irrespective of everything, in a normal contract, the project contractor is obliged to build according to an agreed structure on an agreed fee within a set time frame. If the construction project is delayed, penalty clauses of the contract are activated. Again, if the construction project fails to meet budget, it is not never the problem of the client. If there arise any serious dispute, there is always proceedings to courts. Client are realizing that collaboration offer important benefits, as soon as the groundwork starts. Deciding by the client to go down the collaboration course does include substantial commitment from his or her side in times of evaluation of potential members of the team. Simpson (2001) noted that it is relevant to evaluate conceivable main contractors in order to develop a shortlist with a similar commitment and a confirmed track record to collaborate.

### **2.6.2 Main Contractor's Perspective**

Simpson (2001) opined that the perspective of the main contractor as identified in a general or traditional contract, the main project contractor is always at the severe end and inside a competitive tender circumstance and that up-front costs become hopeless of succeeding. In cases where tender is successful, cost ought to be then squeezed out in each stage of the project mostly by taking a very hard stance with his or her sub-

contractors. Again, great deal in terms of administration ought to be invested in disputes that arise at site involving site access disputes or design detailing (Simpson, 2001).

### **2.6.3 Sub-contractor's Perspective**

In most cases, collaboration has a lot benefits for the specialist sub-contractor. In general adversarial contracts, it is mostly the sub-contractor who feels at the end of the collaboration. The project's up-front costs in terms of the preparation of detailed documentations for tender, it is quite rare for a particular project to make a presentation of 6 – 12 months' turnover on the side of the sub-contractor. The cost of the project is escalating, the margins that get squeezed is the sub-contractor's. That is, just a single defect action could cause the firm to fail. The situation gets worsened as most specialist sub-contractors are in a case consulted late when certain decision taken on the project design has affected the project on the verge of completion. Simpson (2001) further affirmed that situations as such are compounded with pressure from delays or trades at the initial phases of construction which affect negatively on the team's ability to undertake their respective roles.

### **2.6.4 Consultant's Perspective**

Simpson (2001) explained that the parties inside the construction team, like the architects and the quantity surveyors, are probable to have a feel of the slightest direct impact from collaboration. If any benefit, it is expected to come from the early liaison and consultation with the main contractor as well as the sub-contractors. Conceivably, the utmost benefit for the consultants depend on the initial involvement on the side of the sub-contractors. Mostly in construction projects, beneficial inputs from sub-contractors cannot be considered in that decisions that are irreversible preventing the implementation of such inputs have taken already (Simpson, 2001). In collaboration projects, it becomes easier in terms of key packages and thus permitting the suppliers as well as the sub-contractors'

skill to be integrated into the entire project design at the initial stage (Simpson, 2001). This assist the design team in taking a strong gestalt over the knowledge concept that the plan would not get to an unforeseen snags in time implementation on project site (Simpson, 2001).

### **2.6.5 Supplier's Perspective**

Collaboration seems to have little impact on suppliers' business. However, it is currently being appreciated to be improving relationships between project team members and also unlocking vast pool of expertise and knowledge particularly for the design team. Simpson (2001) indicated that suppliers in construction are adopting collaborative approaches with their components and further outspreading the assistances of collaboration via the entire chain of supply.

### **2.6.6 Contractor-Supplier Partnering**

Generally, the contractor who wins the contract would in most cases divide the entire project into different subcontracts; this is because the project contractor may be deficient in certain skills and expertise. Hinze and Tracey (1994) indicated that 85% of the tasks on construction sites are carried out by sub-contractors, that is, sub-contractor performance normally defines either the success or the failure of a project. General contractor and sub-contractor transactions normally involves a substantial amount of indecision as well as the dependence on sub-contractors place a lot of stress on the relationship between the main contractor and the sub-contractor. Koushki et al. (2005) explained that 75% of the total cost resulted from purchased services and materials. Consequently, the utmost possible cost savings depend on subcontractors' ability to highlight the relevance of handling suppliers. Matthews et al. (1996) indicated that for main contractors to perform



productively, contractors ought to work in connection with sub-contractors through developing a close relationships.

Unfortunately, Dainty et al. (2001) highlighted that a number of relationships between subcontractors and main contractors are in most cases stressed and confrontational. Cook and Hancher (1990) opined that collaboration could be adopted to reduce these stressed and confrontational problems between parties by reassuring an improved cooperation and integration. According to Weston and Gibson (1992), collaboration project do better when compared to projects that are managed in an adversarial means. Bresnen and Marshall (2000) also opined that collaboration presents an improvement in managing risk in both downstream and upstream relationships that turns to help promotes client satisfaction. Meng (2012) explained that contractor and client relationship is considered upstream whilst sub-contractor and contractor relationships is regarded downstream. Saad et al. (2002) indicate that the underperformance of project is caused by the tendency of the main contractor to focus on relationships that exist between themselves and the clients; abandoning the importance of suppliers and sub-contractors.

## **2.7 PILLARS OF COLLABORATION**

Collaboration consist of seven pillars which include benchmarking, equity, project process, strategizing, integration, feedback and membership (Bennett, 2000). Bennett (2000) further indicated that strategy of collaboration in organisation aspires to have plans for the long-term goal in the teamwork of the organization, reducing construction cost and time without any defects. While benchmarking is the main target to improve the performance of collaboration which uses factors to make comparison of performance of a firm with other firms in the global market (Bennett, 2000). Further, equity lends a hand to allow the project teams focus on completing successfully the project; this can be

maintained through affecting the ideas of the strategic team and this requires doing away with disputes over resources. Project process is also a pillar that increases the strength of the organizational collaboration in the sense that, companies raise up procedures and standards level so as to attain a higher performance level (Saeed, 2011). Integration refers to companies involved in the collaboration putting together standards, procedures, processes and methods to improve them to achieve successful collaboration (Saeed, 2011). However, feedback is also an important pillar to monitor and control performance and also to determine in case it meets the standard required to be developed (Bennett, 2000); and membership also leads to making contribution to the development of multidisciplinary team that would ensure definitive experience to drive their exertions to the extreme (Saeed, 2011).

## **2.8 ARRANGEMENTS OF COLLABORATION**

Collaborative arrangements could be short-term one-off connected to a single project and a long-term commitments that is between organizations with the intent of reaching a specific business objectives through the maximization of resources of each participant. Relationships between parties in a project is based on understanding the expectations of each participant, trust, and dedication to set objectives (CII, 1987). This long-term arrangement in most cases known as strategic alliance leads to some sort of considerable confusion that makes discussions among parties disadvantageous and collaboration and alliancing challenging. Project based collaboration was primarily advocated by Colonel Charles Cowan, formerly of the US Army Corps of Engineers, with important achievement (US Army Corps of Engineers, 1991).

Collaboration is currently being used by the Corps agencies in every construction contracts as it is widely accepted used in the United State for procurement in the public

sector. Collaboration, precisely project-specific collaboration has been embraced in the United Kingdom according to Latham (1994). Eghan (1998) also reported that key drivers for agenda of change in the industry of construction are integrated processes and project teams.

## **2.9 BENEFITS OF COLLABORATION**

Successful collaboration factors constitute the significant expanses that are key for successful management. Collaboration can work well when relevant skills in management and a favourable environment exist (Cheung et al., 2003). It is vital to create a suitable working environment that will support relationship. Skills in management are important for effective regulation of relationships. These relationships form the foundation for initiation and facilitation of the partnering process (Cheung et al., 2003). However, some collaboration characteristics can affect the collaboration relationships. Majority of the collaboration characteristics form the favourable environment and establishes interdependence as well as self-willingness. Chan et al. (2003) and Cheung et al. (2003) indicated that these characteristics include willingness to share resources, mutual trust, long term commitment, top management support and commitment to the attitude of winning.

Crespin-Mazet and Ghauri (2006) explained that successful collaboration exists only when there is trust which results in teamwork. Trust can only be obtained when dealings are done in clear and transparent transactions. The extent of trust among team members affects collaboration success. Furthermore Scott and European construction (2001) as cited in Saeed (2011) identified seven inevitable elements of successful collaboration which include, Commitment which participants are expected to fulfill and as well respect the character of collaboration particularly at the management level; to appreciate others it

requires to listen, respect the thoughts of others; participants collaboration shall make provision for the utmost quality of service to a certain reputation and it requires to make use of the standards of work; parties ought to have open minds and to communicate either individual or shared targets; parties ought to clarify their set goals towards the project in every respect; successful undertaking cannot be carried out in the absence of perseverance on time base using open ongoing communication; continues communication as well as getting feedback and afterwards analyzing them for the success of the collaboration (Scott and European Construction, 2001).

Furthermore, Osborne (2012) highlighted that nine principles which include; believing in the collaboration relationship and then being prepare to change old habits that do not agree with the collaboration philosophy. Agreeing to the set objectives that will mutually benefit all parties and involve truly shared gains and risks; managing behavioural change within the parties' organizations; effective communication for the purpose of forming an effective and efficient collaboration team (Osborne, 2012). Encouraging the acceptance of new ideas and innovations within a set time limit; effective collaboration on the basis of mutual goals, honesty, respect and openness through the support of the top management body. External training can assist in rendering effective collaboration across separate organizations; expanding mutual understanding among the involved parties, for instance, one extra process for each and every party could allow other parties eliminate the complicated stage of project process. This according to Osborne (2012) requires confidentiality and trust.

## **2.10 BARRIERS TO COLLABORATION**

Anglisger and Jenk (2004) explaining the barriers to collaboration indicated that alliance and collaboration fall well in terms of expectations as a result of the following causes:

shift in partner's direction of strategy; top management attention rambles; champions urge on; shortage of staff and lack of career path; and clash of commercial cultures. According to Sconnenbery (1992), the identified key reasons behind the failure of collaboration are poor communication, lack of commitment, failure of individual relationship, and culture difference. Barlow and Cohen (1997) also identified the following barriers to be contributing to the fiasco of collaboration; Lack of Trust and undefined roles and responsibilities; inadequate flow of information; lack of clear understanding and distribution of responsibilities, roles and authorities; and lack of access to the latest management and technological knowledge (Yashiro, 1996). Lack of consultation between partners (Chan and Kumaraswamy, 1997); and legal uncertainty that surrounds new contracting form (Osborn, 2012).

## **2.11 RISK ASSOCIATED WITH COLLABORATION**

Projects in the construction industry are all dissimilar in so many ways. Clients need to evaluate the most appropriate strategy when it comes to culling procurement documents as this fits to the needs of the project. Love et al. (1998) explained that what is considered dominant factor in terms of culling the fitting procurement method is proposed to be the danger. This suggests the need to thoroughly consider collaboration in the construction industry. Collaboration has a unique way of allocating risks than most other authorizing procedures. Eriksson and Westerberg (2011) indicated that the contractor and client share the liability to a more extremely huge amount than in an ordinary project. Furthermore, if an emerging procurement form ought to be received by the construction industry, clients are supposed to have idea about how to exploit it as well as what consequences the form will bring on the success of the project.

According to Fugar (2010) all engineering and construction works are subject to risks which can affect their successful completion. Risk cannot be eliminated which means any mischance can happen. Osborne (2012) further highlighted that risks that might surface on a collaboration project includes; collaboration needs commitment as well as high-level management time in order to succeed. Small-sized projects may not validate this; lack of interest may be next to commitment as well as initial enthusiasm. Appointing consultants or team members who will encourage collaborative approach could assist in overcoming problems as such. Osborne (2012) explained that disillusionment could be introduced if disputes are encountered in a successful collaboration project.

## **2.12 COLLABORATION IN THE GHANAIAN CONSTRUCTION INDUSTRY**

Collaboration being a concept for interaction has been very popular in the construction industry of Ghana. The purpose of collaboration is to develop a good relations between participants and as well integrate the abilities that already exist in the project, making the construction process effective (Construction Industry Board, 1997). According to Gransberg et al. (1999), the development of partnering Ghana has not come far, for instance in the US and the UK.

Kadefors (2002) indicated that one key reason that causes the lack of interest in collaboration in Ghana is the consideration people have within the construction industry about themselves of having history in terms of good informal cooperation; and conflicts which in most cases occur happened to be resolved in lowest level in the ladder of the organization. Quality as well as delays flaws as a result of conflicts causes cost to increase, that do not differentiate itself just like lawyer's fee (Kadefors, 2002). Kadefors (2002) further indicated that a lot of people believe the industry in the Ghanaian setting is burden with quite a number of conflicts and thus causing it to work ineffectively as

compared to the other industries. Barlow and Cohen (1997) mention a fact that distinguishes Ghana from the other countries making it a strong role for the contractor. This is as a result of domination of very few contractors on the market.

Barlow and Cohen (1997) believes that to improve collaboration in Ghana, management plays a very key role as it supports the collaboration concept, promote it to the people who are around and under the concept, and handle detractor's argument in the ladder. Management at the top of the ladder also has to make available sufficient resources, dare to exercise authority to their staff, and build interest among co-workers (Edelman et al., 1991). Again, aside management, commitment also forms additionally important in terms of preventing interaction from deviating into a usual behaviour in times where inevitable challenges arise (Scott and European Construction, 2001). Scott and European Construction (2001) claim that one vital component for ensuring good relations among parties is dedication of the contractor's client top management.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter makes presentation of matters imperative to the method used in attaining the intent of the research as well as the overall research aim and its objectives. A rigorous account on the research methodology, source of data collection, design of research instruments and source of instruments are all pinpointed in the proceeding sub-headings of this particular chapter. Again, data presentation mode and the statistical tools that would be employed for the analysis of the gathered data is talked over.

#### **3.2 RESEARCH DESIGN**

Creswell (2003) defined research design as the information needed to provide intensifying answers to the research question in every study and indicates the gathering and analysis of the data. Creswell (2003) indicated that in the last two decades, there have been improvement in research approaches to a different stage where inquirers or investigators have a number preferences. There are three (3) design types which include: qualitative, quantitative and mixed methods (Newman, 2003). Undeniably, these three methods are as separate as they appear at a glance. Newman (2003) opined that quantitative as well qualitative methods ought not to be regarded as polar contradictions; rather, they indicate varied ends in a range. The qualitative research is considered as a canopy term that comprise of different methods, which include discourse analysis, ethnographic, interviews, and case studies. Qualitative data do not normally come in numerical form, and as result cannot be analyzed using statistics. Hence, whereas quantitative research is basically about accumulating data in numerical form to explain and explicit sensation, definite questions seem directly appropriate to being answered by way of quantitative methods.



The quantitative survey was essentially engaged in this research. Quantitative research represents an elaborating phenomenon through the accumulation of numerical data that could be scrutinized using methods that are mathematically based in specific statistics as Aliaga and Gunderson (2000). While quantitative research is on the basis of numerical data that is analyzed statistically, qualitative research on the hand practices non-numerical data. This study would however be based on a case study because the researcher wants to have little or no control of the data to be collected.

### **3.3 SOURCES OF DATA**

Two types of data exist which consist of Primary Data as well as Secondary Data. The primary data refers to the type of data gathered straight from personally experience. Primary data was gathered with the use of questionnaire survey for the collection of data. Secondary data refers to data from published and past ones as well as from other relevant parties. The facts, figures and statistics in relation to collaboration in the industry of construction was discovered through Books, Periodicals, Journals, and the internet.

### **3.4 RESEARCH INSTRUMENT**

Lorelle Frazer and Lawley (2000) highlighted that questionnaire survey is a recognized question collected for achieving information from participants. It encompasses instruction for its inference, response substitutes where appropriate as well as specific means for making responses. A survey comprises collecting information from individuals who are directly connected to the study. The varieties of information will take recognition of the individual's or organizations' personalities, attitude, level of knowledge, beliefs, or choice of preferences.

Questionnaires are normally adopted to collect such information. Well-made questionnaires are really organized to let the same forms of information to be collected

from a number of people in the comparable way and quantitatively examining the data and systematically. Questionnaires are employed for collecting accurate data. Oppenheim (1996) indicated that questionnaire survey advances uniformity of observations and advances repetition as result of its vital consistent sampling techniques and measurement.

### **3.6 TARGET POPULATION**

The population for the study are management professionals (Architects, Quantity Surveyors, Project Managers and Engineers) of construction firms in the Kumasi metropolis. These construction firms are those that relate to the building and civil industry. A total of fourteen (14) building and civil engineering firms were contacted for the study.

### **3.7 SAMPLING TECHNIQUE AND SAMPLE SIZE**

Due to time and financial constraints, especially when there is large population, it is rare for a research to survey the entire population. Parasuraman (2004) described sampling as the selection of a part of the total number of units of interest to decision makers for the decisive goal of being able to draw conclusions about the whole units.

According to Patton (1990), purposive sampling try to find information-rich cases for in depth study. Furthermore, Berg (2001) explained that purposive samples are employed to confirm certain types of individuals showing certain features are included in the study. Also, snowball sampling was used. This study therefore utilised purposive and snowball sampling techniques to determine the sample size due to the difficulty in determining the population size. This was due to the fact that some contractors that were encountered gave lead to others who were relevant to the study. The target population is building construction and civil firms located within the Kumasi Metropolis.

### 3.8 DATA ANALYSIS AND STATISTICAL TOOLS

In order to translate the collected information into a meaningful research result, a statistical technique was used. This was done using Statistical Package for Social Sciences (SPSS) a computer program that helps to accelerate the statistical figures like generating frequency tables, descriptive statistics together with Microsoft excel and the Relative Importance Index (RII). The SPSS would assist in the analysis of the quantitative data. Tables, charts, percentages and textual write-ups of the data gathered among others would be used in the case of the quantitative technique.

$$\text{Relative Importance Index (RII)} = \frac{\sum W}{AN}$$

Where, W = weights given to each factor by the respondents and ranges from 1 to 5, where '1' is very low and '5' is very high.

A = the highest weight (i.e. 5 in this study)

N = the total number of respondents

## **CHAPTER FOUR**

### **RESULTS AND DISCUSSION**

#### **4.1 INTRODUCTION**

The results, analysis, discussions and findings of the data collected is presented in this chapter. The field study was conducted in the Kumasi metropolis in the Ashanti Region of Ghana to explore the perceived barriers and benefits of collaboration in the Ghanaian construction industry. A purposive sample of seventy (70) questionnaires were designed and administered to construction firms within the study area. Out of the 70 questionnaires distributed to construction sites, 60 questionnaires representing 85.71% were retrieved.

#### **4.2 DESCRIPTIVE ANALYSIS OF DATA (DEMOGRAPHIC)**

This segment of the questionnaire encompassed questions in quest of obtaining basic information and some related issues from the respondents to determine the respondents' understanding about the study in order to provide comprehensive respondent characteristics. One key importance of this section is to establish the trustworthiness or otherwise, and generate confidence in the data collected.

##### **4.2.1 Years in Firm**

Respondents were asked to indicate the number of years they had been in their various firms. This was to determine how conversant respondents were with issues relating to their various firms. 7 of the respondents indicated they had been with their firms between 1-2 years, 13 respondents indicated 3-5 years and 12 respondents indicated between 2-3 years whilst majority of the respondents representing 24 respondents indicated they had been with their firms for more than 5 years. However, the remaining 4 respondents

indicated they had been with their firms for less than 1 year. It can therefore be concluded that respondents had enough knowledge to help in the study.

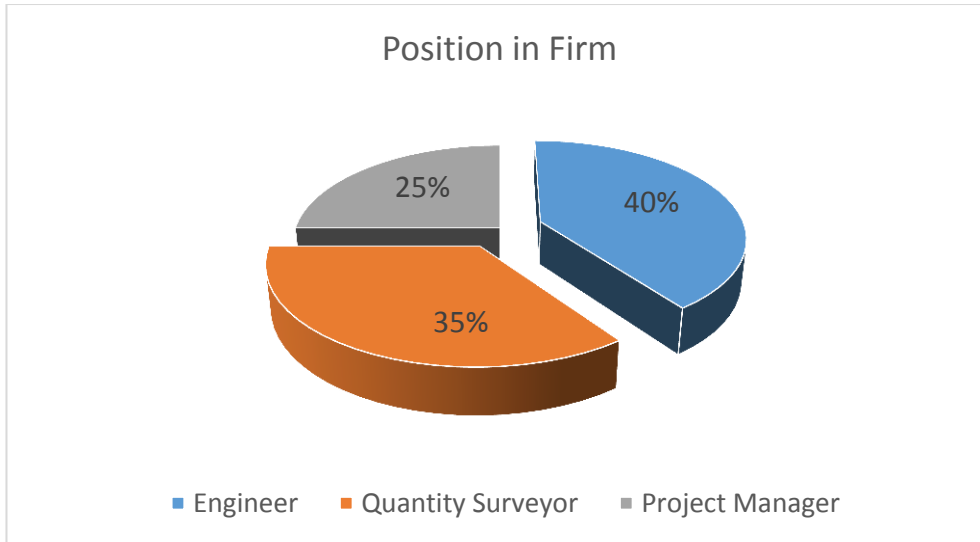


**Figure 4.1: Years in firm**

*Source: Survey data, 2016*

#### **4.2.2 Position in Firm**

The purpose of this question is to find the various positions respondents occupy within their various organisations. Figure 4.2 established the various positions respondents hold within the various organisations and it suggests itself to the ensuing explanation; 35% of the respondents showed that they were Quantity Surveyors, 40% of the respondents were Engineers and 25% were Project Managers. The respondent position is vital to ensure some degree of reliability of the data. The high representation of quantity surveyors, engineers, project managers etc. was inevitable as these professionals are very key and usually engage in the construction activities. This makes them credible and reliable source of information which is needed for this study.

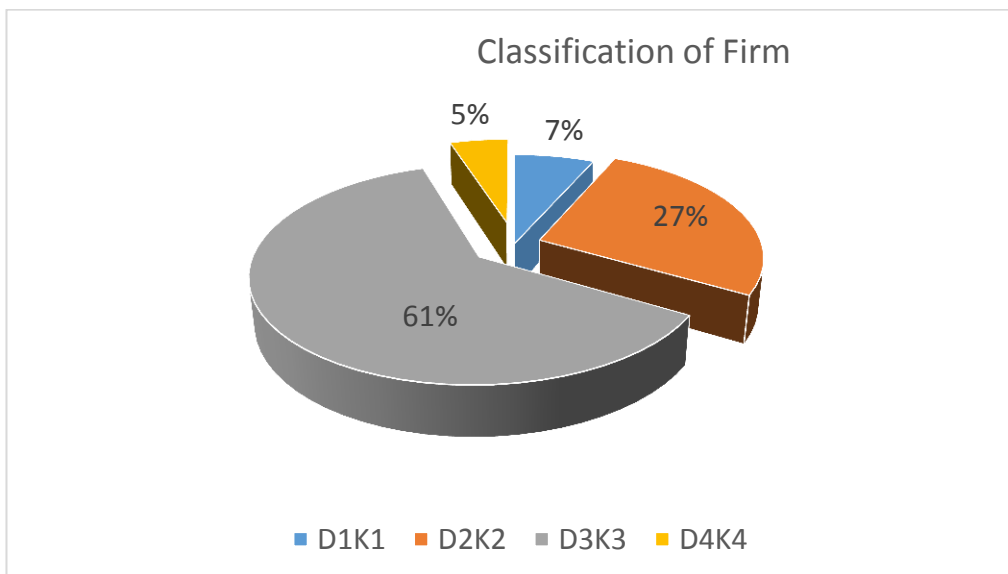


**Figure 4.2: Position in firm**

*Source: Survey data, 2016*

#### 4.2.3 Classification of Firms

Respondents were questioned to show the classification of their companies per the category they belong to. The results indicate that 7% belong the class of D1K1, 27% belong to class of D2K2 and 61% also belong to D3K3 contractors. However, the remaining 5% of respondents belong to class of D4K4 contractors (see fig.4.3).

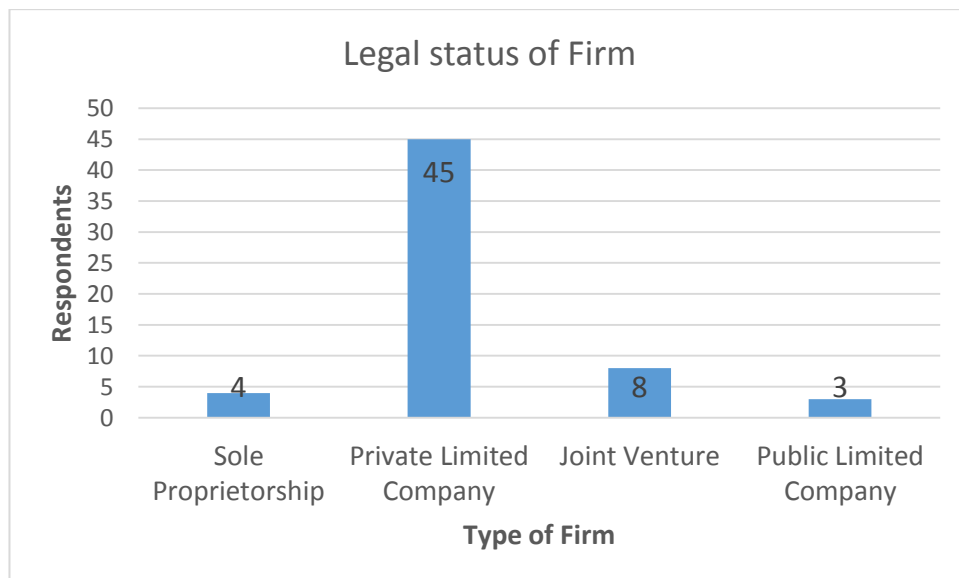


**Figure 4.3: Classification of firm**

*Source: Survey data, 2016*

#### 4.2.4 Legal Status of Firm

The legal framework determines the control of the business, acquisition of capital, extent of risks, the distribution of profits and losses, legal formalities, taxation payment and where legal liabilities rests (Owusu-Manu and Badu, 2011). The government of Ghana works requires that firms are legally registered in order to conduct businesses. Respondents were asked to indicate the legal status of their firms. The results indicate that majority of respondents constituting 45 respondents belong to private limited company, 3 respondents belong to public limited company and 4 respondents also belong to sole proprietorship. However, the remaining 8 respondents belong to joint ventures (see fig.4.4).

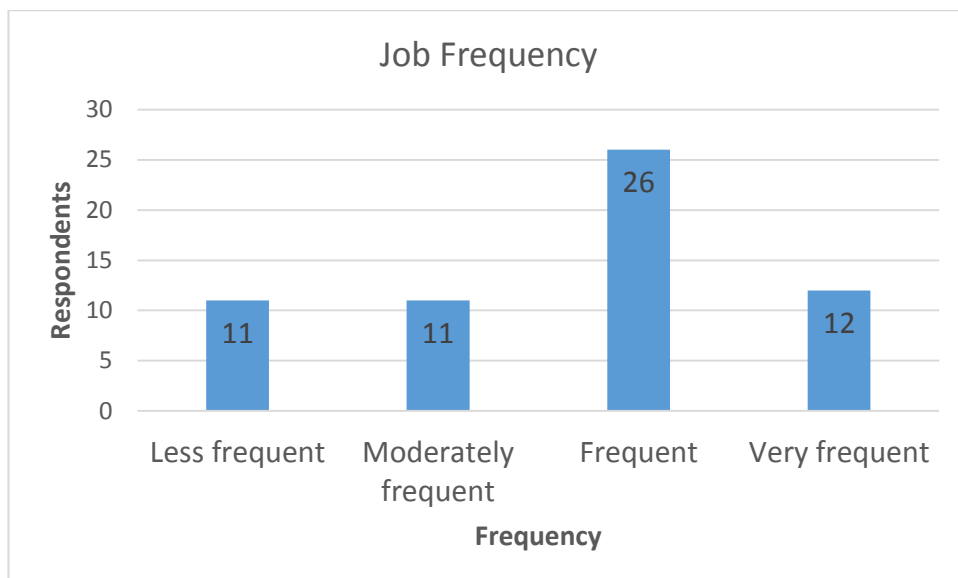


**Figure 4.4: Legal Status of firm**

*Source: Survey data, 2016*

#### 4.2.5 Frequency in securing jobs

The intention of this question is to identify how often respondents secure jobs because how frequent respondent secure jobs will affect the quality of responses that will be given. Figure 4.5 indicates the respondent's frequency in securing jobs. Respondents were asked to indicate how often they secure jobs. 11 of the respondents indicated they secure less frequently, 12 respondents indicated very frequently whilst the majority of the respondents constituting 26 respondents indicated they secure jobs frequently. However, the remaining 11 respondents indicated moderately frequent.



**Figure 4.5: Job frequency**

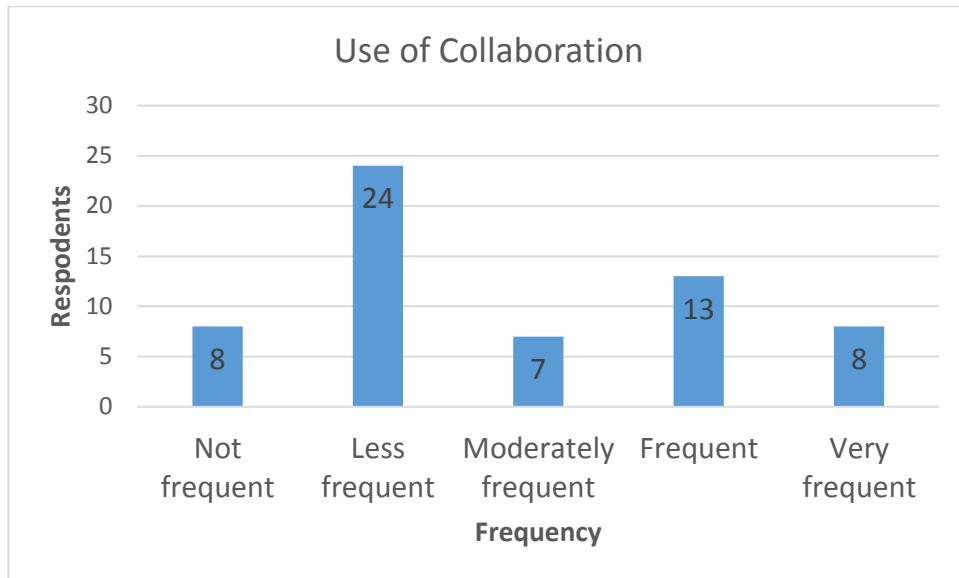
*Source: Survey data, 2016*

#### 4.2.6 Frequency in use of Collaboration

The intention of this question is to identify how often respondents use collaboration in construction because how frequent respondent use collaboration will affect the quality of responses that will be given. Figure 4.6 indicates the respondent's frequency in using collaboration for construction projects. Respondents were asked to indicate how often they use collaboration in construction. 8 of the respondents indicated they use



collaboration not frequently, 8 respondents indicated very frequently and 13 indicated frequent whilst the majority of the respondents constituting 24 respondents indicated they use partnership less frequently. However, 7 of respondents indicated moderately frequent.



**Figure 4.6: Use of collaboration**

*Source: Survey data, 2016*

#### **4.2.7 Number of projects executed using collaboration**

The intent of this question is to identify the number of projects respondents' firms have undertaken using collaboration. The number of projects undertaken using collaboration will influence the response that will be given. Therefore, respondents were asked to indicate the number of projects their companies have undertaken using collaboration (see Table 4.1). 35% of the respondents indicated 1-5 projects, 5% of respondents also indicated 11-15 projects and majority of the respondents which constitute 46.7% of respondents indicated 6-10 projects. However, 13.3% of the respondents indicated above 15 projects.

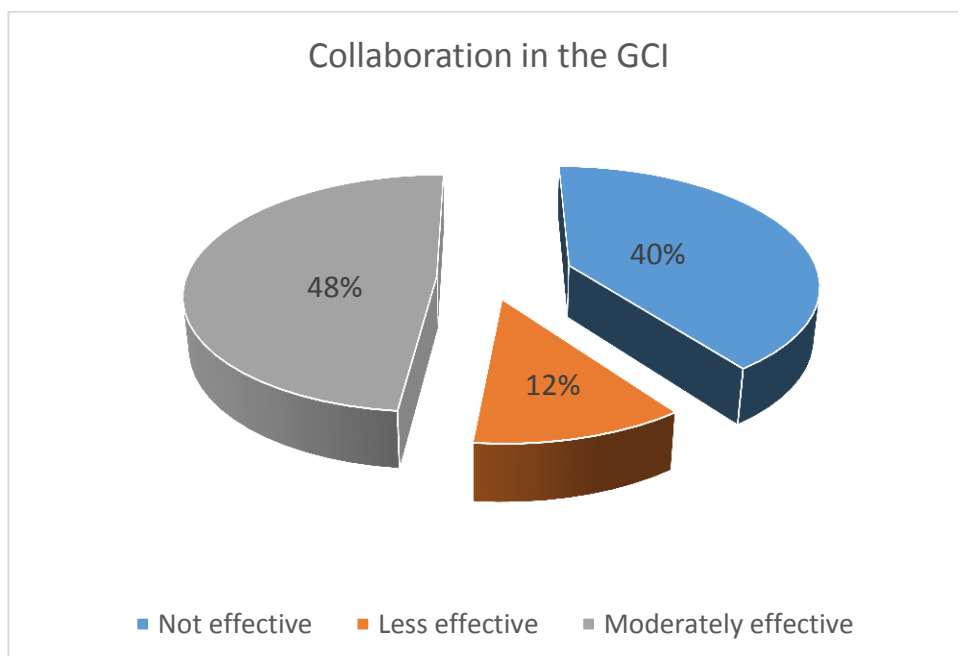
**Table 4.1: Number of projects executed using collaboration**

| <i>Projects</i>  | <i>1-5</i> | <i>6-10</i> | <i>11-15</i> | <i>Above 15</i> | <i>Total</i> |
|------------------|------------|-------------|--------------|-----------------|--------------|
| <i>%Response</i> | 35.0       | 46.7*       | 5.0          | 13.3            | 100          |
| <i>Number</i>    | 21         | 28          | 3            | 8               | 60           |

\* shows majority of respondents

#### **4.2.8 Effectiveness of Collaboration in the Ghanaian construction industry**

This question was intended to assess the effectiveness of the use of collaboration in the Ghanaian construction industry. Respondents were asked to indicate their assessment of the effectiveness of collaboration in the construction in industry. From figure 4.7, majority of the respondents constituting 48% indicated that collaboration in the construction industry of Ghana was moderately effective whereas 12% indicated it was less effective. However, 40% of respondents indicated collaboration in the construction industry was not effective.



**Figure 4.7: Effectiveness of collaboration in the Ghanaian construction industry**

Source: Survey data, 2016

### 4.3 BARRIERS TO COLLABORATION IN THE GHANAIAN CONSTRUCTION INDUSTRY

From the response, barriers with mean score values more than 3.50 were deemed to be significant. Respondents ranked *fear of micromanagement in collaboration* as the 1<sup>st</sup> barrier to the application of collaboration in construction, evident with an RII value of 0.81 and a mean value of 4.03. Most construction firms hesitate to the using of collaboration for the reason of being afraid of micromanagement. Collaboration and alliances fall well of expectations due to micromanagement (Anglisger and Jenk, 2004). It was closely followed by *lack of common goals* with an RII value of 0.80 and a mean value of 4.02. Normally common goals of partners propel this partners to do business together. Where there are no common goals, partners lose interest in partnering each other. This buttresses Barlow and Cohen (1997) assertion that firms need to have common goals to implement collaboration effectively. *Complacency in collaboration* is ranked 3<sup>rd</sup> by respondent with an RII value of 0.77 and mean value of 3.33. It was closely followed by *past negative experience with collaboration* with an RII value of 0.76 and a mean value of 3.80. Respondents indicated that past experience with the use of collaboration in the construction industry has yielded negative results and this prevented them from using collaboration for the fear of the negative experiences repeating themselves. *Lack of trust among partners* is ranked 5<sup>th</sup> with an RII value of 0.75 and a mean value of 3.77.

Furthermore, respondents also ranked *fear of the unknown* is ranked 6<sup>th</sup> with ah RII of 0.75 and mean value 3.73. Most construction firms hesitate to the using of collaboration for the reason of being afraid of the unknown. *Lack of consultation between partners* is ranked 7<sup>th</sup> with an RII of 0.72 and mean value of 3.62. It was followed by *Uneven*

*commitment of firms* with an RII value of 0.71 and 3.55. Respondents further ranked *poor management by partners* 10<sup>th</sup> with an RII value of 0.71 and a mean value 3.53. Furthermore, respondents ranked *past adversarial relationships in collaboration* 11<sup>th</sup> with an RII value of 0.70 and a mean value of 2.50. Sconnenbery (1992) confirmed that important reasons why collaboration the construction industry include lack of consultation by firms, uneven commitments, previous adversarial relationships and poor management.

**Table 4.2: Barriers to Collaboration**

| BARRIERS  | RATING |    |    |    |    | Total | ΣW  | Mean | RII  | Rank |
|---|--------|----|----|----|----|-------|-----|------|------|------|
|   | 1      | 2  | 3  | 4  | 5  |       |     |      |      |      |
| Fear of micromanagement in collaboration        | 0      | 5  | 14 | 15 | 26 | 60    | 242 | 4.03 | 0.81 | 1st  |
| Lack of common goals                            | 0      | 0  | 18 | 23 | 19 | 60    | 241 | 4.02 | 0.80 | 2nd  |
| Complacency in collaboration                    | 0      | 5  | 18 | 19 | 18 | 60    | 230 | 3.83 | 0.77 | 3rd  |
| Past negative experience with collaboration     | 0      | 0  | 27 | 18 | 15 | 60    | 228 | 3.8  | 0.76 | 4th  |
| Lack of trust among partners                    | 0      | 0  | 31 | 12 | 17 | 60    | 226 | 3.77 | 0.75 | 5th  |
| Fear of the unknown                             | 3      | 4  | 19 | 14 | 20 | 60    | 224 | 3.73 | 0.75 | 6th  |
| Lack of consultation between partners           | 4      | 4  | 11 | 33 | 8  | 60    | 217 | 3.62 | 0.72 | 7th  |
| Lack of career paths by partners                | 0      | 8  | 21 | 20 | 11 | 60    | 214 | 3.57 | 0.71 | 8th  |
| Uneven commitment of firms                      | 4      | 3  | 13 | 36 | 4  | 60    | 213 | 3.55 | 0.71 | 9th  |
| Poor management by partners                     | 5      | 3  | 15 | 29 | 8  | 60    | 212 | 3.53 | 0.71 | 10th |
| Past adversarial relationships in collaboration | 0      | 13 | 13 | 25 | 9  | 60    | 210 | 3.5  | 0.70 | 11th |
| Clash of corporate cultures of partners         | 4      | 9  | 17 | 18 | 12 | 60    | 205 | 3.42 | 0.68 | 12th |
| Loss of interest by partners                    | 5      | 11 | 16 | 11 | 17 | 60    | 204 | 3.4  | 0.68 | 13th |
| Misunderstanding of collaboration concept       | 3      | 8  | 16 | 28 | 5  | 60    | 204 | 3.4  | 0.68 | 14th |
| Cultural differences of firms                   | 8      | 4  | 20 | 18 | 10 | 60    | 198 | 3.3  | 0.66 | 15th |
| Lack of believe in collaboration                | 0      | 16 | 23 | 16 | 5  | 60    | 190 | 3.17 | 0.63 | 16th |
| Lack of commitment                              | 4      | 22 | 24 | 10 | 0  | 60    | 190 | 3.17 | 0.63 | 17th |

|  |    |    |    |    |   |    |     |      |      |      |
|--|----|----|----|----|---|----|-----|------|------|------|
| Undefined roles and responsibilities of partners | 0  | 20 | 16 | 20 | 4 | 60 | 188 | 3.13 | 0.63 | 18th |
| Lack of skills from partners                     | 0  | 17 | 37 | 3  | 3 | 60 | 172 | 2.87 | 0.57 | 19th |
| Contract size too small                          | 18 | 7  | 23 | 7  | 5 | 60 | 154 | 2.57 | 0.51 | 20th |

#### 4.4 FACTORS THAT PROMOTE COLLABORATION IN THE GHANAIAN CONSTRUCTION INDUSTRY

From Table 4.3, factors with mean score values more than 3.50 were considered significant, *commitment to quality* is the most ranked factor to promote partnering in the construction industry by respondents, evident with an RII of 0.80 and mean value of 4.02. This is followed by *long-term orientation* with an RII of 0.73 and a mean value of 3.64, which is also very high indicating that long-term orientation will significantly influence collaboration in construction. This affirms Black et al. (2000) argument that commitment to quality and long-term orientation are vital prosperity factors for collaboration in construction. *Win-win attitude of collaboration* is third ranked factor to promote collaboration in the construction industry with an RII value of 0.79 and mean value of 3.95.

It can be deduced that a win-win attitude will inspire firms to adopt partnering. Scott and European Construction (2001) claim that the most important component for good relations between parties where the win-win attitude is a priority. *Trust and confidence amongst partners* is the fourth ranked factor with RII value of 0.78 and mean value of 3.88. Trust and confidence are the two most important ingredients to help succeed in business and that is a pre-requisite for good partnering. Saeed (2011) indicated that trust and confidence are inevitable elements of successful collaboration. It is closely followed by *cost performance of collaboration* with an RII of 0.74 and mean value of 3.72. *Success of firms in collaboration* is ranked sixth with an RII value of 0.72 and mean value of 3.52. However, *collaboration education and workshops* is ranked seventh with an RII value of

0.70 and a mean value of 3.52. This confirms Crowley and Karim (1995) assertion that successful collaboration relies on attributes such as education and collaborative workshops, cost performances and firms' success in the industry.

**Table 4.3: Factors that promote Collaboration**

| FACTORS                               | RATING |    |    |    |    | Total | ΣW  | Mean | RII  | Rank |
|---------------------------------------|--------|----|----|----|----|-------|-----|------|------|------|
|                                       | 1      | 2  | 3  | 4  | 5  |       |     |      |      |      |
| Commitment to quality                 | 0      | 0  | 7  | 45 | 8  | 60    | 241 | 4.02 | 0.80 | 1st  |
| Long-term orientation                 | 0      | 0  | 16 | 27 | 17 | 60    | 241 | 4.02 | 0.80 | 2nd  |
| Win-win attitude of collaboration     | 0      | 7  | 15 | 12 | 26 | 60    | 237 | 3.95 | 0.79 | 3rd  |
| Trust and confidence amongst partners | 0      | 8  | 16 | 11 | 25 | 60    | 233 | 3.88 | 0.78 | 4th  |
| Cost performance of collaboration     | 0      | 9  | 8  | 34 | 9  | 60    | 223 | 3.72 | 0.74 | 5th  |
| Success of firms in collaboration     | 0      | 7  | 25 | 12 | 16 | 60    | 217 | 3.62 | 0.72 | 6th  |
| Collaboration education and workshops | 0      | 5  | 29 | 16 | 10 | 60    | 211 | 3.52 | 0.70 | 7th  |
| Improved performance                  | 0      | 11 | 14 | 31 | 4  | 60    | 208 | 3.47 | 0.79 | 8th  |
| Scarcity of resources                 | 0      | 20 | 11 | 20 | 9  | 60    | 198 | 3.3  | 0.66 | 9th  |
| Innovation in collaboration           | 0      | 7  | 33 | 20 | 0  | 60    | 193 | 3.22 | 0.64 | 10th |
| Competitive edge of firms             | 0      | 9  | 43 | 3  | 5  | 60    | 169 | 2.82 | 0.56 | 11th |
| Risk sharing                          | 13     | 7  | 21 | 16 | 3  | 60    | 169 | 2.82 | 0.56 | 12th |

#### 4.5 BENEFITS ASSOCIATED WITH COLLABORATION

From Table 4.4, *total cost perspective in collaboration* is the most ranked benefit of collaboration, evident with an RII of 0.84 and mean value of 4.20. This confirms Cheung et al. (2003) assertion that firms in collaboration are better equipped to ensure that projects are completed within cost since each firm presents some expertise. This is closely followed by *technical expertise by partners* with an RII of 0.84 and a mean value of 4.18,

which is also very high indicating that each firm in collaboration presents some aspect of technical expertise which complement each other so as to ensure a successful completion of the project. *Availability of resources in collaborations* is third ranked with an RII value of 0.78 and mean value of 3.88. Chan et al. (2003) highlighted that firms in collaboration benefit from the availability of resources since collaborative firms are willing to share resources and committed to a win-win attitude. *Equal empowerment in collaboration* is fourth ranked benefit with an RII value of 0.78 and mean value of 3.88 whilst *productive conflict resolution strategy* is fifth ranked by respondents with an RII value of 0.75 and a mean value of 3.73. It is followed by *Mutual trust of partners* with an RII value of 0.73 and a mean value of 3.67. These affirm Osborne (2012) argument that collaboration ensures trust and confidentiality which provide the parties equal empowerment and productive conflict resolution.

However, *flexibility to change by partners* is ranked seventh with an RII value of 0.73 and mean value of 3.67. It is followed by *dedicated team by partners* with an RII value of 0.73 and mean value of 3.67. However, *financial security in collaboration* is the 11<sup>th</sup> ranked benefit with an RII value of 0.70 and mean value of 3.50 indicating that respondents do not recognize financial security as a significant benefit derived by partners in collaboration. However, financial security is regarded as a benefit of collaboration to partners (Scott and European construction, 2001).

**Table 4.4: Benefits associated with Collaboration**

| <b>BENEFITS</b>                             | <b>RATING</b> |          |          |          |          | <b>Total</b> | $\Sigma W$ | <b>Mean</b> | <b>RII</b> | <b>Rank</b> |
|---|---------------|----------|----------|----------|----------|--------------|------------|-------------|------------|-------------|
|   | <b>1</b>      | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |              |            |             |            |             |
| Total cost perspective in collaboration     | 0             | 0        | 12       | 24       | 24       | 60           | 252        | 4.2         | 0.84       | 1st         |
| Technical expertise by partners             | 0             | 0        | 12       | 25       | 23       | 60           | 251        | 4.18        | 0.84       | 2nd         |
| Availability of resources in collaborations | 0             | 0        | 13       | 41       | 6        | 60           | 233        | 3.88        | 0.78       | 3rd         |
| Equal empowerment in collaboration          | 0             | 0        | 19       | 29       | 12       | 60           | 233        | 3.88        | 0.78       | 4th         |
| Productive conflict resolution strategy     | 0             | 10       | 11       | 24       | 15       | 60           | 224        | 3.73        | 0.75       | 5th         |
| Mutual trust of partners                    | 0             | 4        | 24       | 20       | 12       | 60           | 220        | 3.67        | 0.73       | 6th         |
| Flexibility to change by partners           | 4             | 8        | 27       | 18       | 3        | 60           | 220        | 3.67        | 0.73       | 7th         |
| Dedicated team by partners                  | 0             | 6        | 17       | 28       | 9        | 60           | 220        | 3.67        | 0.73       | 8th         |
| Effective communication in collaboration    | 0             | 5        | 23       | 20       | 12       | 60           | 219        | 3.65        | 0.73       | 9th         |
| Commitment to quality by partners           | 4             | 0        | 20       | 28       | 8        | 60           | 216        | 3.6         | 0.72       | 10th        |
| Financial security in collaboration         | 0             | 9        | 22       | 19       | 10       | 60           | 210        | 3.5         | 0.70       | 11th        |
| Collective acceptance of collaboration      | 5             | 4        | 23       | 21       | 7        | 60           | 201        | 3.35        | 0.67       | 12th        |



## **CHAPTER FIVE**

### **CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter summarizes the results from the research and draws deductions from the collated data. It commences by summing up all the core issues discussed earlier in the preceding chapters including a recap of the key research questions. Afterward, a review of how the key objectives were satisfied and a summary of the results are described. Finally, conclusions are drawn and recommendations for action are also included.

#### **5.2 ACHIEVING THE RESEARCH OBJECTIVES**

This research was introduced with the goal of discovering the perceived barriers and benefits of collaboration in the Ghanaian construction industry. In an attempt to accomplish the mentioned aim, Objective 1 was achieved through existing literature this was achieved by focusing on some relevant previous studies on collaboration in the construction industry. whilst 2 and 3 were achieved through the literature reviews as well as the questionnaires survey which were administered.

##### **5.2.1 The Second Objective; To identify the barriers to the implementation of collaboration in the Ghanaian construction industry**

With the background knowledge on the implementation barriers of collaboration in the building industry obtain from literature, a questionnaire was considered to report the second objective, of which identified twenty variables and tested on a number of Building and Civil contractors in the Kumasi metropolis. The questions highlighted on barriers such as Lack of believe in collaboration, Lack of commitment, Lack of skills from partners, Contract size too small, Misunderstanding of collaboration concept, Cultural differences of firms, Past adversarial relationships in collaboration, Lack of common goals, Fear of the unknown, Fear of micromanagement in collaboration, Uneven

commitment of firms, Past negative experience with collaboration, Lack of trust among partners, Undefined roles and responsibilities of partners, Clash of corporate cultures of partners, Poor management by partners, Loss of interest by partners, Lack of consultation between partners, Lack of career paths by partners and Complacency in collaboration. Relative Importance Index (RII) was used to rank the barriers and then subsequently discussed.

### **5.2.2 The Third Objective; To analyze the benefits of collaboration in the Ghanaian construction industry**

The background knowledge of the benefits of collaboration in the Ghanaian construction industry gained from literature helped to design a questionnaire to address the third objective. The questions highlighted on benefits of collaboration such as Dedicated team by partners, Flexibility to change by partners, Commitment to quality by partners, Mutual trust of partners, Effective communication in collaboration, Technical expertise by partners, Financial security in collaboration, Productive conflict resolution strategy, Collective acceptance of collaboration, Availability of resources in collaboration, Equal empowerment in collaboration and Total cost perspective in collaboration. Relative Importance Index (RII) was used to rank the factors and then subsequently discussed.

### **5.3 CONCLUSION**

Collaboration is very vital in the growth of every organisation and helps to achieve the successful completion of a construction project. However, research has shown that collaboration in the construction industry faces numerous barriers which adversely affect its incorporation. Notwithstanding these barriers, collaboration presents numerous benefits to the collaborating partners. Furthermore, collaboration provides a competitive advantage, ensure growth and increase the productivity.

#### **5.4 RECOMMENDATIONS**

The aim of this study is to explore the perceived barriers and benefits of collaboration in the Ghanaian construction industry. The following recommendations are therefore prescribed to assist in promoting the utilization of collaboration in the Ghanaian construction industry:

- Collaboration should be widely accepted and practiced across a wider spectrum of the construction industry so as to achieve the full benefits it offers.
- Careful consideration should be given to professional expertise with sufficient skills when selecting partners.
- Workshops should be organized to advocate the use of collaboration in the Ghanaian construction industry

#### **5.5 LIMITATIONS OF THE RESEARCH**

The limitations of this study which have to be known have to do with the scope as well as the research process. They are as follows:

- The limitation of the survey to Building and Civil contractors in Kumasi Metropolis alone may have influence on the findings.
- The possibility of sampling and measurement errors as well as their influence on the gathered data together with the undertaken analysis and the conclusion drawn.

#### **5.6 DIRECTIONS FOR FUTURE RESEARCH**

Numerous research avenues are available in the future due to this work. The succeeding is hence recommended for future research:

- Further research on the effects of collaboration in the building industry.
- Further research on strategies to improve collaboration in the construction industry.



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## APPENDIX

### SURVEY QUESTIONNAIRE

**KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,  
KUMASI**

**COLLEGE OF ART AND BUILT ENVIRONMENT**

**Department of Building Technology**

(MSc. Construction Management)

### **COLLABORATION IN THE GHANAIAN CONSTRUCTION INDUSTRY: PERCEIVED BARRIERS AND BENEFITS**

Dear Sir/Madam

This questionnaire forms part of an MSc. Research project which aims to **explore the perceived barriers and benefits of collaboration in the Ghanaian construction industry**. Collaboration between firms has become very relevant in the success of contemporary organisations and the quest to ensure successful execution of construction projects. The results of this study will identify the various perceived barriers and benefits of collaboration in the construction industry and propose measures for improvement.

I would like to invite you to participate in the above project. Completion of the questionnaire is completely voluntary and returning the completed questionnaire will be considered as your consent to participate in the survey. The questionnaire will take you about 10 minutes to complete.

The data collected will be used purposely for this research and any solutions obtained will be shared for the entire construction industry.

I appreciate that you are already busy and that participating in this survey will be another task to add to your busy schedule, but by contributing you will be providing important information. **All data held are purely for academic purposes and would be treated as strictly confidential.**

In the event of questions or queries, please do not hesitate to contact me. Thank you for your time and valid contribution in advance.

Yours faithfully,

NATHANIEL KWABLAH MENSAH  
MSc. Researcher  
Email: nathanielmensah@gmail.com  
Tel: 0244055857

## SECTION A: RESPONDENT'S PROFILE

Please, kindly respond to the questions by ticking (✓) in the appropriate box(s) for each item.

1. Name.....(please ignore if you wish to remain anonymous)
2. Please state the number of years you have been in the firm/construction industry
  - Less than 1 year
  - 1 – 2 years
  - 2 – 3 years
  - 3 – 5 years
  - More than 5 years
3. Please indicate your position in firm.
  - Engineer
  - Quantity Surveyor
  - Project Manager
  - Managing Director
  - Other .....(please explain further)
4. Please indicate the financial classification of your firm.
  - D1K1
  - D2K2
  - D3K3
  - D4K4
5. Please indicate the legal status of your firm.
  - Sole Proprietorship
  - Private Limited Company
  - Joint Venture
  - Public Limited Company
6. How long (years) has the firm been in existence?
  - Less than 5
  - 5 – 10
  - 11 – 15
  - Above 15
7. How frequent does your firm secure jobs?
  - Not frequent
  - Less frequent
  - Moderately frequent

- Frequent
- Very frequent

8. How frequently do you use collaboration in construction project delivery?

- Not frequent
- Less frequent
- Moderately frequent
- Frequent
- Very frequent

9. How many construction projects have your firm executed using collaboration?

- None
- 1-5
- 6-10
- 11-15
- Above 15

10. What would you say about collaboration in the Ghanaian construction industry?

- Not effective
- Less effective
- Moderately effective
- Effective
- Very effective

**SECTION B: BARRIERS TO COLLABORATION IN THE GHANAIAN CONSTRUCTION INDUSTRY**

1. Below are potential barriers to collaboration in the Ghanaian construction industry. From your experience, express your opinion on your level of agreement to the following barriers. Use the scale: **1 = Not Severe 2 = Less Severe 3 = Moderately Severe 4 = Severe 5 = Very Severe**

| <b>ITEM</b> | <b>BARRIERS</b>                                  | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|-------------|--|----------|----------|----------|----------|----------|
| 1           | Lack of believe in collaboration                 |          |          |          |          |          |
| 2           | Lack of commitment                               |          |          |          |          |          |
| 3           | Lack of skills from partners                     |          |          |          |          |          |
| 4           | Contract size too small                          |          |          |          |          |          |
| 5           | Misunderstanding of collaboration concept        |          |          |          |          |          |
| 6           | Cultural differences of firms                    |          |          |          |          |          |
| 7           | Past adversarial relationships in collaboration  |          |          |          |          |          |
| 8           | Lack of common goals                             |          |          |          |          |          |
| 9           | Fear of the unknown                              |          |          |          |          |          |
| 10          | Fear of micromanagement in collaboration         |          |          |          |          |          |
| 11          | Uneven commitment of firms                       |          |          |          |          |          |
| 12          | Past negative experience with collaboration      |          |          |          |          |          |
| 13          | Lack of trust among partners                     |          |          |          |          |          |
| 14          | Undefined roles and responsibilities of partners |          |          |          |          |          |
| 15          | Clash of corporate cultures of partners          |          |          |          |          |          |
| 16          | Poor management by partners                      |          |          |          |          |          |
| 17          | Loss of interest by partners                     |          |          |          |          |          |
| 18          | Lack of consultation between partners            |          |          |          |          |          |
| 19          | Lack of career paths by partners                 |          |          |          |          |          |
| 20          | Complacency in collaboration                     |          |          |          |          |          |

Please state below any relevant information which you deem necessary

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**SECTION C: FACTORS THAT PROMOTE COLLABORATION IN THE GHANAIAN CONSTRUCTION INDUSTRY**

1. How would you rate the following factors that promote collaboration in the Ghanaian construction industry? Use the scale: 1 = Very low 2 = Low 3 = Moderate 4 = High 5 = Very High

| ITEM | FACTORS                               | 1 | 2 | 3 | 4 | 5 |
|------|---------------------------------------|---|---|---|---|---|
| 1    | Risk sharing                          |   |   |   |   |   |
| 2    | Competitive edge of firms             |   |   |   |   |   |
| 3    | Improved performance                  |   |   |   |   |   |
| 4    | Innovation in collaboration           |   |   |   |   |   |
| 5    | Win-win attitude of collaboration     |   |   |   |   |   |
| 6    | Scarcity of resources                 |   |   |   |   |   |
| 7    | Trust and confidence amongst partners |   |   |   |   |   |
| 8    | Success of firms in collaboration     |   |   |   |   |   |
| 9    | Commitment to quality                 |   |   |   |   |   |
| 10   | Cost performance of collaboration     |   |   |   |   |   |
| 11   | Collaboration education and workshops |   |   |   |   |   |
| 12   | Long-term orientation                 |   |   |   |   |   |
|      |                                       |   |   |   |   |   |
|      |                                       |   |   |   |   |   |
|      |                                       |   |   |   |   |   |

Please state below any relevant information which you deem necessary

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**SECTION D: BENEFITS ASSOCIATED WITH COLLABORATION**

1. Please the following have been identified as the benefits associated with collaboration in the Ghanaian construction industry. Please indicate your level of agreement to the following benefits. **Use the scale: 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree**

| <b>ITEM</b> | <b>BENEFITS</b>                             | <b>1</b> | <b>2</b> | <b>3</b> | <b>4</b> | <b>5</b> |
|-------------|---|----------|----------|----------|----------|----------|
| 1           | Dedicated team by partners                  |          |          |          |          |          |
| 2           | Flexibility to change by partners           |          |          |          |          |          |
| 3           | Commitment to quality by partners           |          |          |          |          |          |
| 4           | Mutual trust of partners                    |          |          |          |          |          |
| 5           | Effective communication in collaboration    |          |          |          |          |          |
| 6           | Technical expertise by partners             |          |          |          |          |          |
| 7           | Financial security in collaboration         |          |          |          |          |          |
| 8           | Productive conflict resolution strategy     |          |          |          |          |          |
| 9           | Collective acceptance of collaboration      |          |          |          |          |          |
| 10          | Availability of resources in collaborations |          |          |          |          |          |
| 11          | Equal empowerment in collaboration          |          |          |          |          |          |
| 12          | Total cost perspective in collaboration     |          |          |          |          |          |
|             |   |          |          |          |          |          |
|             |   |          |          |          |          |          |
|             |   |          |          |          |          |          |

Please indicate your views on any critical matter which in your opinion, this questionnaire did not consider.

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Thank you.