

**A STUDY OF THE COST PLANNING STRATEGIES ADOPTED BY PROJECT  
MANAGERS IN REAL ESTATE PROJECTS**

**BY**

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A Thesis submitted to the Department of Construction Technology and Management,  
Kwame Nkrumah University of Science and Technology, Kumasi in partial fulfilment of  
the requirements for degree of

**MASTER OF SCIENCE IN CONSTRUCTION MANAGEMENT**

**NOVEMBER, 2019.**

# 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 or any other university, except where due acknowledgement has been made in the text.

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## ABSTRACT

The amount of investments and participation of stakeholders in Real Estate building projects is high, hence cost planning process is more complex and has various stages. Therefore, in Real Estate projects there are countless problems of cost overruns. The cost of building a house, however, is directly related to final selling rates. Eventually, the price level of real estate houses becomes very costly and the level of project execution is affected by low patronage. Hence effective cost planning is key in Real Estate construction projects. Therefore, the study aimed at exploring the cost planning strategies used by project managers in the Real Estate Sector in Ghana. The study had three (3) objectives which were to determine the cost planning strategies used by project managers in real estate projects in Ghana, to ascertain the challenges faced by project managers in cost planning in real estate projects in Ghana and to identify the significant strategies that can be adopted by project managers to improve cost planning in real estate projects in Ghana. The study adopted a quantitative research method and thus, a structured questionnaire was developed and distributed to seventy-five (75) respondents and fifty-six (56) were retrieved for the analysis. The collected data was coded and entered into the Statistical Package of Social Scientist (SPSS) version 20, by using mean score ranking and standard deviation tools. With the first objective, it was realized that, the most significant cost planning strategy was elemental cost planning. The second ranked significant cost planning strategy was comparative cost planning. The third ranked cost planning strategy was the cubic method. All the standard deviation values were below one (1) which depicts a low variability between the responses given by the respondents. With the second objective, it was realized that, the most significant challenges were inexperienced project manager. This was followed by unscientific cost planning process and high interest rates on funds from financial institutions. With the third objective, it was realized that, the most significant strategy to improve cost planning was the decrease the dependency on financial institutions for funds. The second ranked significant strategy was adoption of suitable procurement system for specific contract. The third most significant strategy was a clear definition of the scope of a project. From the findings, it was recommended that, project managers must select adequately skilled cost planning personnel to aid in the cost planning process and project managers must try to keep accurate data on cost in other to enhance their cost planning.

Keywords: Cost planning, Real Estate.

## TABLE OF CONTENTS

<b>DECLARATION .....</b>	<b>ii</b>
<b>ABSTRACT.....</b>	<b>iii</b>
<b>TABLE OF CONTENTS .....</b>	<b>iv</b>
<b>LIST OF TABLES .....</b>	<b>vii</b>
<b>LIST OF FIGURES.....</b>	<b>viii</b>
<b>ACKNOWLEDGEMENT .....</b>	<b>viii</b>
<b>DEDICATION .....</b>	<b>x</b>
<b>CHAPTER ONE .....</b>	<b>1</b>
<b>INTRODUCTION .....</b>	<b>1</b>
1.1 BACKGROUND OF THE STUDY .....	1
1.2 PROBLEM STATEMENT .....	4
1.3 AIM AND OBJECTIVES OF THE STUDY .....	6
1.3.1 Objectives of the study .....	6
1.4 RESEARCH QUESTIONS .....	6
1.5 SIGNIFICANCE OF THE STUDY.....	7
1.6 RESEARCH METHODOLOGY .....	8
1.7 RESEARCH SCOPE.....	8
1.8 RESEARCH STRUCTURE .....	9
<b>CHAPTER TWO .....</b>	<b>11</b>
<b>LITERATURE REVIEW .....</b>	<b>11</b>
2.1 INTRODUCTION .....	11
2.2 THE CONSTRUCTION INDUSTRY .....	11
2.3 THE REAL ESTATE INDUSTRY .....	13
2.4 PROJECT COST MANAGEMENT .....	15
2.5 PROJECT COST PLANNING STRATEGIES.....	17
2.5.1 Superficial floor area cost planning method.....	18
2.5.3 Functional method of cost planning .....	18
2.5.4 Life-cycle cost method of cost planning.....	19
2.5.5 Unit cost method of cost planning.....	19
2.5.6 Elemental cost planning.....	19

2.5.7 Comparative cost planning method .....	20
2.5.8 Cubic .....	20
2.6 CHALLENGES ASSOCITED WITH PROJECT COST PLANNING .....	21
2.7 STRATEGIES TO IMPROVE PROJECT COST PLANNING .....	22
2.7.1 Scientific approaches to cost planning .....	22
2.7.2 Decrease financial institution dependency for funds.....	23
2.7.3 Accurate cost data.....	23
2.7.4 Use of skilled and experienced project team .....	23
2.7.5 Selection of an appropriate procurement technique .....	23
2.7.6 Clear definition of scope.....	24
2.7.7 Regularizing the design change order process.....	24
<b>CHAPTER THREE.....</b>	<b>25</b>
<b>RESEARCH METHODOLOGY .....</b>	<b>25</b>
3.1 INTRODUCTION .....	25
3.2 RESEARCH PROCESS .....	25
3.3 RESEARCH DESIGN.....	26
3.3.1 Descriptive research design .....	26
3.3.2 Explanatory research design .....	26
3.3.3 Research design selected .....	26
3.4 RESEARCH APPROACH .....	27
3.5 RESERARCH STRATEGY .....	28
3.6 RESEARCH METHOD .....	28
3.7 POPULATION, SAMPLE SIZE AND SAMPLING TECHNIQUE.....	29
3.8 QUESTIONNAIRE DEVELOPMENT.....	30
3.8.1 Questionnaire distribution .....	31
3.9 TOOLS FOR THE ANALYSIS .....	31
<b>CHAPTER FOUR .....</b>	<b>33</b>
<b>DATA ANALYSIS AND DISCUSSION.....</b>	<b>33</b>
4.1 INTRODUCTION .....	33
4.2 BACKGROUND OF THE RESPONDENTS .....	33
4.2.1 Respondent’s profession.....	34
4.2.2 Level of experience.....	35

4.2.3 Level of education .....	36
4.3 MEAN SCORE RANKING ANALYSIS .....	37
4.3.1 Cost planning strategies .....	37
4.3.2 Challenges associated with cost planning.....	39
4.3.4 Strategies to improve cost planning.....	40
4.4 SUMMARY OF FINDINGS .....	41
<b>CHAPTER FIVE .....</b>	<b>43</b>
<b>SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS .....</b>	<b>43</b>
5.1 INTRODUCTION .....	43
5.2 SUMMARY OF FINDINGS .....	44
5.3 STUDY LIMITATIONS AND FUTURE STUDIES.....	45
5.4 CONCLUSION.....	45
5.5 RECOMMEDATIONS.....	46
<b>REFERENCES .....</b>	<b>47</b>
<b>APPENDIX.....</b>	<b>54</b>

## LIST OF TABLES

Table 2.2 Factors that affect the accuracy of a cost plan.....	22
Table 4.1: Cost planning strategies.....	38
Table 4.2: Challenges to cost planning.....	39
Table 4.3: Factors to improve cost planning .....	41

## LIST OF FIGURES

Figure 1.1: Structure of the report .....	10
Figure 2.1: Data flow diagram for a cost management system .....	16
Figure 4.1: Category of employment.....	34
Figure 4.2: Level of employment .....	35
Figure 4.3: Highest level of education.....	36



## **ACKNOWLEDGEMENT**

I would like to acknowledge the Almighty God for giving me the strength to complete this work. I would also like to express my special thanks and gratitude to my Supervisor Ayiribi Danso and all my lecturers and course teaching assistants who gave me this opportunity and fruitful guidance to do this project on the topic by embarking on this project, I have been enriched with in-depth information which will help me in my field of work today and the future ahead

## **DEDICATION**

I dedicate the entire work to the Almighty God for seeing me through this program

## **CHAPTER ONE**

### **INTRODUCTION**

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

There has been tremendous growth in the Ghanaian construction industry. It reported a 14.8 percent growth rate in 2014 and is considered to be Ghana's biggest increasing industry (Ghana Statistical Service, 2015). According to Agyakwa-Baah (2007), the Ghanaian construction industry is therefore directly connected to the economy. The industry's performance in terms of time, budget and quality directly impacts the growth of the economy. Building project management has acquired a lot of popularity in this regard and has developed over the years. One of the critical sectors of the construction industry is the Real Estate sector.

The real estate sector adds considerably to the economy of the United States as it is one of the main categories of investment property (Brent and Kenneth, 2008). The real estate sector has realized tremendous achievement in China, along with the booming economy, attracting enormous economic development and contributing considerably to the growth of the country (Gao, 2009). In 2008, China invested 3,000 billion Renminbi (RMB) in real estate building. Liang and Gordon (2003) stated that Gross Domestic Product (GDP) can be used to measure the effect of real estate on a country's economy. In Africa, the contribution of the actual property sector to GDP varies from 8% to 28%. In Ghana in particular, the actual property sector is projected to contribute 15% of GDP to the economy using the Huges and Arissen formula. (Anim-Odame, 2010). A research undertaken by the Bank of Ghana (2007) stated that its source of financing and structural rigidities and input prices is a significant challenge facing the Ghanaian real estate sector. The high cost of construction inputs combined with low investment possibilities

in Ghana generates the need to handle property project costs efficiently. The cost of projects is a critical component of project management.

Construction project management is a professional and science expertise, as it is usually restricted, temporary and needs innovation (Munns and Bjeirmi, 1996). Consequently, numerous scientific instruments have been created to assist in improving the construction industry's efficiency. Numerous studies in the Ghanaian construction industry focused on defining problems. Ofori (2012), for example, pointed out that, some of the problems facing the Ghanaian construction industry are the inability to secure appropriate financing, inadequate leadership, inadequate engineering ability and bad workmanship. Badu and Owusu-Manu (2012) also stated that Ghana's big and small construction companies face enormous challenges in accessing project financing. The interest tends to be very large in circumstances where debt funding is accessible. This usually leads to building projects being abandoned. The Ghanaian construction industry's performance is therefore a significant source of concern among customer organizations and other stakeholders in the construction industry. Hence project cost is very imperative in the assessment of the performance of a project.

The cost of a project includes the project's expense from beginning to finish and not just the tender amount. The general cost of a building project is influenced by the capacity of the contractor to plan funds, estimate, budget and regulate costs efficiently (Gyadu-Asiedu et al., 2013). These procedures are described as cost management for the project. Cost control, according to Ashworth (2004), attempts to restrict the spending of the client within the agreed contract amount. The tender amount and the final account should therefore be roughly within the estimate budgeted. Cost control is performed using a cost plan consisting of cost estimation and cost budgeting outputs. Therefore, the efficiency of project cost management is capable of affecting the general building cost. Numerous

studies as reported by Frimpong et al., (2003); Olawale and Sun, (2010) have shown that cost efficiency is one of the most appropriate criteria for measuring project success. This is because cost efficiency provides an indication of the building company's profitability. It also demonstrates how efficient an organization is at any point of the construction cycle (Rahman et al., 2013).

Eli foo, (2000) said cost control in construction is covered by cost planning as it runs through the beginning to the end of a project to meet the budget of the client. Nwachukwu (2003) stated that cost scheduling is a cost advice scheme during a project's design phase. Seeley (1976) gave a more comprehensive description of cost planning, who believed that the method by which cost is governed in a predetermined amount throughout the design phase and mostly forecast cost plan preparation and cost control execution. Ramabodu and Verster (2010) expressed another view that cost scheduling methods can help in this respect for the client to understand anticipated final costs. For instance, among others, furniture, demolitions, land, experts, taxes, legal problems, connections, funding and management.

Cost planning became very common at the moment, when it was a contract pre-requisite to strategize building project costs from its original phase to project completion (Corbett and Rowley, 1999). Efficient and effective price advice puts the owner in a good position to make excellent budgeting choices (Knipe et al., 2002). Cost planning is therefore very important to guarantee that at the end of the building project a high cost quality is attained.

Gao (2009), opined that, the cost of a real estate construction project can be categorized into four (4) main parts. The first part is the cost of land which accounts for 30% of the total cost. The cost of land consists of the building land, greening land, equipped facility

land and property management land (Gao, 2009). The second part is the construction cost which covers 20% to 50% of the total cost. The material cost forms roughly 60%. The third aspect is the cost of machinery and materials to fulfill operational, management and maintenance requirements. The final portion comprises of other costs including research and design costs, project oversight costs and cost of leadership. With these components of the cost of the Real Estate project, it is crucial to adequately plan the cost of the project before project starts to avoid uncalculated cost overruns. This research is therefore performed to explore the cost planning strategies used by project managers in the Real Estate Sector in Ghana.

## **1.2 PROBLEM STATEMENT**

Construction is a crucial sector that contributes to the development of the socio-economy of the country. It plays an important part in the economic development of the GDP of the country (Rahman et al., 2013). In addition, it offers services such as highways, hospitals, schools and other amenities. Hence, the construction industry is regarded to increase the quality of life. Therefore, ensuring the effective completion of building projects on time, budget and necessary quality is fundamentally essential. However, the sector is complicated, fragmented and restricted hence facing difficulties such as low quality, low productivity, price overrun, time overrun, building waste and others (Rahman et al., 2013). Cost overruns have been shown to be the most severe despite the severity of each of the listed issues (Cantarelli, 2009, Olawale and Sun, 2010).

Globally, poor cost efficiency is of concern even in developed countries such as the UK where approximately one-third of customer complaints are usually exceeded by the allocated budget (Jackson, 2002; Olawale and Sun, 2010). In developing countries like

Ghana, the cost overrun problem is at the extreme where the cost overruns in some cases exceed 100 percent of the estimated cost of the project (Vaardini et al., 2016). The cost overrun problem poses as fear to investors, therefore countless studies have been performed in nations such as UK, Malaysia and Australia to determine the causes and solutions to overrun costs in the construction industry.

There are similar trends in the Real Estate Industry. There are enormous investments made in the w\Worldwide Real Estate industry. This was obvious in Gao (2009) research in China and Brent and Kenneth (2008) in the United Kingdom. In the Ghanaian Real Estate sector, similar comparative investment trends are observed. Effective cost planning of real estate projects is therefore very important. The amount of investments and participation of stakeholders in Real Estate building projects is high, hence cost planning process is more complex and has various stages (Gao, 2009). Therefore, in Real Estate projects there are countless problems of cost overruns. The cost of building a house, however, is directly related to final selling rates (Glaeser et al., 2005). Eventually, the price level of real estate houses becomes very costly and the level of project execution is affected by low patronage. Hence effective cost planning is key in Real Estate construction projects.

In view of the discussion above, the study seeks to explore the cost planning strategies used by project managers in the Real Estate Sector in Ghana.

### **1.3 AIM AND OBJECTIVES OF THE STUDY**

The aim of the study was to explore the cost planning strategies used by project managers in the Real Estate Sector in Ghana.

#### **1.3.1 Objectives of the study**

With the above aim, the study had three (3) objectives. They were:

1. To determine the cost planning strategies used by project managers in real estate projects in Ghana,
2. To ascertain the challenges faced by project managers in cost planning in real estate projects in Ghana and;
3. To examine the significant strategies that can be adopted by project managers to improve cost planning in real estate projects in Ghana.

### **1.4 RESEARCH QUESTIONS**

The study seeks to answer the following questions;

1. What are the cost planning strategies used by project managers in real estate projects in Ghana?
2. What are the challenges faced by project managers in cost planning in real estate projects in Ghana?
3. What are the strategies that can be adopted by project managers to improve cost planning in real estate projects in Ghana?



## **1.5 SIGNIFICANCE OF THE STUDY**

As already stated, by providing infrastructure and contributing to the country's GDP, the Ghanaian construction industry makes an important contribution to the country's socio-economic growth. Consequently, any research that helps to improve the construction industry's output increases the country's economy. This research is therefore very important in boosting the Ghanaian economy's performance as it increases the construction industry's efficiency by improving the effectiveness of real estate industry in cost planning.

Building cost overruns is both locally and worldwide regarded as a significant challenge. This research will therefore make an approximate contribution to the construction management dimension as it could guide policymakers, consultants and contractors in addressing the cost overrun challenge facing the Ghanaian real estate industry, thereby improving project delivery. In addition, this research will raise awareness of cost overruns problems among real estate companies and thus enhance their knowledge of applying a good cost planning technique for the project. This research will also serve as a guideline for further research related to real estate project management and future development in order to reduce the hazards associated with cost overruns. The research will also add the literature on cost planning, causing them to eliminate the occurrence of cost overruns in real estate projects.

Finally, the results of this research will serve as a step for further research in the field of cost management and performance management as a whole.

## **1.6 RESEARCH METHODOLOGY**

The study adopts a purely quantitative research method. This study was conducted through the review of relevant literature and analysing the research papers gotten. This aided in the development of a structured questionnaire to be answered by project managers associated with real estate projects. Their responses were coded in SPSS and subsequently analysed using mean score ranking technique in conjunction with standard deviation. The standard deviation was used to generate more insight on the mean values generate.

The research design is explanatory as the study seeks to assess the cost planning strategies used by real estate construction firms in Ghana. Furthermore, this research made use of only primary data as a source of information for the study. Primary data involves the collection of new data for a specific study. Hence, primary data does not exist for a study at the time that it begins. It is the duty of the researcher to collect the primary data from scratch.

## **1.7 RESEARCH SCOPE**

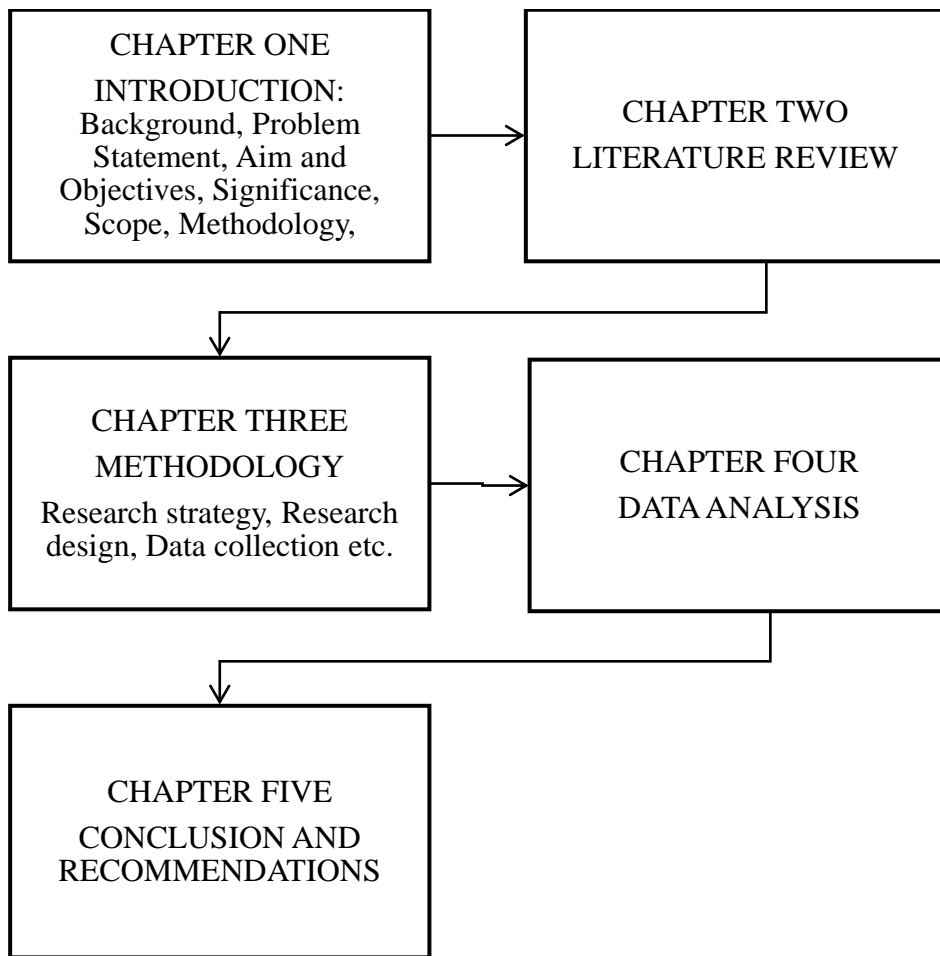
Scope definition is an important aspect of the process in social research as it creates a contextual and geographical focus for the researcher. The contextual scope for this research is restricted to cost planning alone. There are other cost management tools like cost control, however, this research focused on cost planning.

There are a lot of different stakeholders involved in the real estate construction industry. A survey of this caliber must therefore be restricted to particular experts who have to contribute to managing and planning of the cost of a real estate project. Hence, this research was restricted to project managers who have been involved in real estate

construction projects. This research was geographically restricted to project managers in Greater Accra.

## **1.8 RESEARCH STRUCTURE**

The structure of the report is shown in figure 1.1. The study comprises of five (5) chapters. The chapter one focused on the introduction of the study which includes the background of the study, the problem statement, aim, objectives and significance of the study. The chapter two (2) focused the review of literature whiles the chapter three discussed the methodological approach adopted for the study. The chapter four focused on the analysis and discussion of results and finally the chapter concluded the study by providing recommendations based on the findings of the study.



**Figure 1.1: Structure of the report**

Source: Author's construct, (2019).

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 INTRODUCTION**

This chapter concentrates on the review of literature for this study. The literature review helps in the gathering of the requisite information needed to effectively conduct the study. This serves as a guide for the achievement of the aim and objectives of the study. This review begins with a discussion on the Ghanaian construction industry. This is followed by a review of real estate industry. Also, literature is reviewed on project cost management which led to a review of the strategies that are adopted in cost planning. Subsequently, literature is reviewed on cost planning and the challenges involved in cost planning. Finally, the strategies in effectively planning cost is reviewed.

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

According to the Statistical Services of Ghana (2015), the Ghanaian construction sector had a growth rate of 30,6% and a share of 14,8% of nominal GDP. The Ghanaian Construction Industry is directly connected to the Ghanaian economy (Agyakwa-Baah, 2007). This is because Ghana's Government is the major customer of the industry. The Ghanaian construction sector grew steadily from 26.6% in 2014 to 26.9% in 2015 (Ghana Statistical Services, 2015). It is therefore the fastest increasing sector in the nation relative to other sectors. Although Ghana's construction industry has experienced steady growth over the years, the sector is facing intrinsic challenges.

A study published in 2000 by the industry's road sector identified a series of problems facing the industry. They included significant maintenance issues, ineffective reporting and information management system, road sector decentralization, failure to secure

appropriate working capital, bad workmanship among others. The industry's construction segment also faces comparable issues and needs severe attention. The sector faces performance issues in terms of cost, time, quality, safety and workers' health due to these intrinsic issues. These issues highlighted the need to create domestic programs to enhance the industry's efficiency and effectiveness. It must be noted that, there is a link between economic growth and the construction industry and as real estate operations help to provide physical infrastructure and asset-based development, it serves as a foundation on which growth and development are accomplished (Songwe, 2014).

Ofori (2012) examined Ghanaian construction companies' challenges. In his studies, he recognized issues such as the failure to secure appropriate working capital, insufficient abilities in project management and bad workmanship as having a significant impact on Ghanaian construction industry's advancement. Badu and Owusu-Manu (2012) clarified that construction companies in Ghana find it hard to access project funding, so they generally opt for debt funding with elevated interest rates.

In addition, delays in payment are a major issue facing the construction industry in Ghana. Adams (2008), argued that delays in contractors' payment for finished job are very prevalent and are a significant cause of delays in completing projects in Ghana. Building delays can lead to high cost escalations due to elevated inflation rates. It is not surprising, therefore, that construction projects in Ghana registered an average cost overrun of 60% to 180% (Kpamma and Adjei-Kumi, 2010). There is also a lack of dedication to Ghanaian building workers' health and safety (Ankomah et al., 2010). The issues affecting the efficiency of Ghanaian contractors include bad access to credit, delays in payment, cumbersome payment method, bias in contract awards among others, according to Ofori-Kuragu (2013).

Despite all these challenges, an estimated amount of 1600 construction firms have been operating in Ghana since October 2012 (Oxford Business Group, 2014). The construction industry is considered the backbone of any economy (Rameezdeen, 2005). In Ghana, the sector is generating government revenue and also creating jobs. These issues facing the Ghanaian construction industry affect the industry's performance, particularly in terms of the cost efficiency of the project. However, from the experiences of other nations, the Ghanaian construction industry can take helpful lessons (Ofori, 2012). Benchmarking against nations with stronger industrial structures will provide advice in the fight to attain industry-wide organizational and project improvements in the construction sector in Ghana.

Therefore, to experience important economic growth, it is very important to improve the efficiency of the construction industry.

### **2.3 THE REAL ESTATE INDUSTRY**

Smith et al. (1981), described a real estate as a physical entity which includes land and improvement affixed to the land while a real property is a legal concept that gives the individual the right to use and control the real estate.

The Ghanaian real estate sector is making a significant contribution to the growth of the Ghanaian economy in terms of housing supply. This industry is made up of housing and commercial developers from both the private and public sectors. In 2008, the Ministry of Works and Housing report stated that real estate developers in the public sector constructed around 2,500 units of the country's estimated annual production of 40,000 units of housing (Appau, 2015). Benjamin (2000) also stated that Real Estate developers

supplied 11,934 between 1987 and 1997. These documents indicate a substantial increase in the provision of real estate house.

Despite the Real Estate industry's important contributions, there are significance challenges facing the real estate industry owing to the country's present debt rise combined with unsustainable macroeconomic stability. According to Appau, (2015), the elevated price of credit is one of the most important problems facing the real estate sector. The investments that have been created in the real estate sector are very costly and long-term. Therefore, a long-term funding plan is needed to allow developers of Real Estate to remain in business. An elevated interest rate combined with a short repayment period therefore makes it hard to expand the operations of Real Estate and to remain in business. It is also an undisputed reality that, in the form of making land accessible for growth, the sector also lacks public assistance, lowering the reserve ratio to allow more banks to distribute mortgages at affordable rates, and creating a policy that provides a free atmosphere for operation but does the downside. There is a need to introduce a more flexible housing fiancé scheme that would encourage many real estate stakeholders to invest. In addition, real estate contractors should strive to adopt cost management procedures like cost planning in order to effectively regulate the costs engaged in real estate project execution. Real Estate projects have a high amount of investment and participation of stakeholders; hence the cost management process is more complex and has various stages (Gao, 2009).



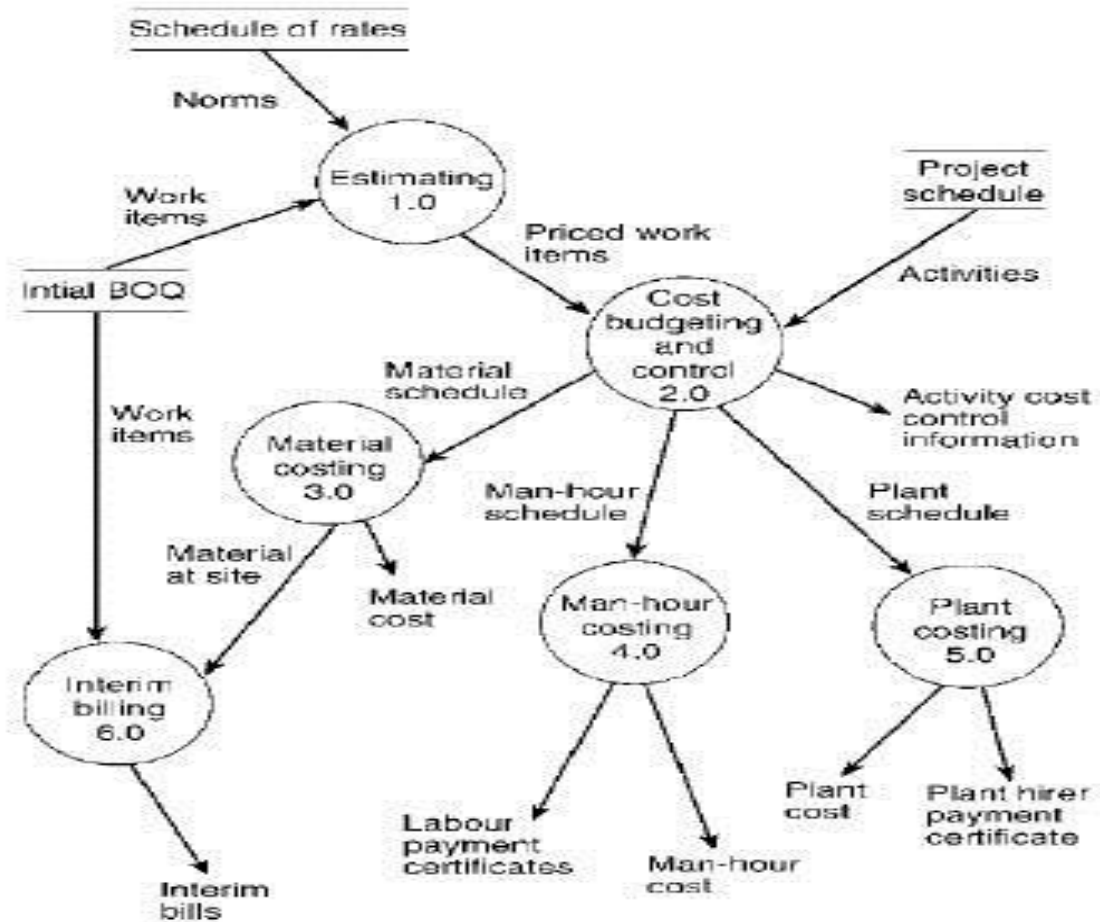
## **2.4 PROJECT COST MANAGEMENT**

Cost performance is the simplest method used to measure project success (Salter and Torbett, 2003). A project's cost includes not only the tender amount, but also the cost from start to finish. Project cost performance generally stems from extensive site investigation that helps in deep, effective planning to clarify the scope successively. The distinction between the real project cost and the project budgeted cost is called cost variance and it is regarded as a good measure of project success (Georgy et al. 2005). The general cost of a building project is influenced by the capacity of the contractor to plan for funds, estimate, budget and regulate costs efficiently (Gyadu-Asiedu et al., 2013). These procedures are categorized as cost management processes of the project, which is an important element of project management as it helps to control and improve cost performance. Project cost management enables the project manager and the contractor to keep the project within budget boundaries. Poor cost management may result in overruns of project costs. Cost management is most often used as a synonym for cost control. Godey (1994), however, pointed out that cost management varies from cost control as cost management is a proactive method.

Project cost management can be classified into four significant stages. According to Jha (2011), this includes schedules for resource planning, cost planning, budgeting, and cost control. The project cost management method, according to the PMI (2000), includes the following steps:

1. Planning,
2. Estimating,
3. Budgeting,
4. Funding, handling and
5. controlling expenses within the authorized budget.

However, Pereira and Imriyas (2010), developed an integrated project cost management scheme as shown in figure 2.1. This system comprised of the sub-systems and the interactions between them.



**Figure 2.1: Data flow diagram for a cost management system**

**Source:** Pereira and Imriyas, (2010).

From the framework, it is observed that, the schedule of rates is used in preparing the project estimates which then subsequently used in cost budgeting and cost control. The integrated method guarantees that cost performance of the entire project. Cindrela and Ananthanarayan (2017), however, stated that in construction projects, there are too many complexities that do not allow the cost of a project to be managed effectively. As a

result, most projects face cost overruns created mainly by scope creeps, construction delays, rework and contract awarding method of the lowest evaluated bidder wins.

The cost of a real estate construction project can be divided into four (4) primary components (Gao,2009). The first portion is land costs, while the second part is building costs. The third part is the cost of materials and machines to fulfill operational, management and maintenance requirements, and the final part consists of other costs including research and design costs, project oversight and management costs. All these costs must be efficiently managed to guarantee that the project is carried out within budget limitations.

## **2.5 PROJECT COST PLANNING STRATEGIES**

During the design phase of a construction project, budgets need to be set for the project to assist the client make economic preparations and generate avenues for cost control and cost performance measurement (Baccarini, 2005). Cost planning is an important method that helps the advisor of the client prepare appropriate budgets to define the economic obligations of the client for the project. Ostrowski (2013), argued that a healthy scheme of cost planning should guarantee that the tender price is near to the first estimate or that any probable difference is expected between the two values. In addition, the funds available for the project are allocated to the elements and sub-elements effectively and economically. Furthermore, measurement and cost of estimated amounts must always be included at some point of the process. Finally, at the required rate of spending, the cost planner must strive to obtain good value. Effective project cost planning in a project decreases the likelihood of cost overruns.

Barret and Stanley (1999) felt that, the execution of cost planning operations depends heavily on information provided and resources cost quality and adequacy. Therefore, the function of cost planning is mostly suitable for those who do take-off activities because they are committed to project parameters. The QS experience is a very appropriate parameter for a cost estimate's precision. The precision of the data also determines the cost plan's precision. For clarity, it is imperative that the cost planner and the person executing the take-off have a perfect working relationship.

There are countless strategies for cost planning. The subsequent section discusses the identified cost planning strategies.

### **2.5.1 Superficial floor area cost planning method**

The superficial area technique includes the use of each floor area measured from the interior size of the construction without deductions for inner walls, stairs and lift areas. Subsequently, this region is compared to earlier comparable construction costs per square meter (Berthouex, 1972). Adjustments can be made for locations and price changes (Brook, 1998). However, it is much harder to adjust the specification. In addition, subjective measurements can be performed for size, shape, number of stories and finishing standard.

### **2.5.3 Functional method of cost planning**

The functional technique basically depends on monetary rates applied to a building-specific unit commensurate to the function of the building (Ashworth, 2004). This can be used to examine a product's component expenses in relation to the value that the client perceives.

#### **2.5.4 Life-cycle cost method of cost planning**

Life-cycle cost analysis (LCCA) aims at estimating the overall cost of project alternatives and selecting the design that ensures that the facility provides the lowest overall cost of ownership consistent with the quality and function of the facility (Ashworth, 2004). Ideally, in the design process, LCCA must be performed early while there is still an opportunity to refine the design to ensure LCC reduction. The most difficult job in LCCA is to determine the financial impacts of alternative construction models and construction systems in order to quantify and communicate these impacts in quantities. This technique is an efficient instrument in selecting alternative designs despite this challenge.

#### **2.5.5 Unit cost method of cost planning**

This method of cost planning involves the selection of a standard unit of accommodation and multiplying by an appropriate cost per unit. For instance, hospital-cost per bed, school-cost per pupil, car parks-cost per car space (McNeil and Hendrickson, 1982). According to Brook (1998), this method is usually used by national bodies such as educational and health services at the inception stage of construction. However, this method is flawed with the lack of precision and at best, can only be a rather-blunt-tool for establishing general guidelines.

#### **2.5.6 Elemental cost planning**

The process of elemental cost planning became very popular during the years after the Second World War, when the art of accurate single price estimating became very difficult due to the unsettled economic conditions and the use of a non-traditional design (Kirkham, 2007). This process is still in use as it allows the project cost to be kept under supervision at every stage of the design development. According to Kirkham (2007), an element can be described as a major part of a building, which always performs the same

function irrespective of its location or specification. A combination of elements is used to perform cost analysis, which is a major feature of elemental cost planning. Ashworth (2004), cost analysis is the systematic breakdown of cost data on the basis of agreed elemental structure.

### **2.5.7 Comparative cost planning method**

In cost planning the comparative cost planning method is a very common type. Using collected project cost data, comparative cost planning can be used to predict the project cost (Ashworth, 2004). It is therefore an experienced cost estimator that compares expenses connected with present projects with costs connected with earlier finished projects. This type of cost planning relies strongly on archives of cost information. However, modifications are allowed for variation in any type of materials and construction techniques.

### **2.5.8 Cubic**

The cube method was extensively used at the beginning of the century but has since been overthrown because of inherent demerits. In some European countries like Germany, Architects and Engineers are familiar with building costs expressed as cubic meter prices. All architect's offices used to keep "cube book" for future estimating purposes. Once the contract was signed its cost would be divided by the cubic content and entered into the office price book. The cost of a new project could then be determined by calculating its volume and selecting an appropriate rate from the book. Ashworth (1994), indicated that, the superficial area method correlates better with the cost of a building compared to the cube rates. Furthermore, with the cube method, there is no allowance for the number of storey or plan

## **2.6 CHALLENGES ASSOCIATED WITH PROJECT COST PLANNING**

A number of studies were conducted from different countries to show the factors affecting the accuracy of a cost plan. Oladokun et al. (2011), for example, performed a survey in Nigeria and recognized the project size and project sector as having the greatest effect on a cost plan's precision. Studies undertaken by Odusami and Onukwube (2008) also addressed the factors affecting a pre-tender cost plan and identified six variables including consultant knowledge, data quality, project team experience on building type, tender duration, market circumstances and design and construction complexity. Similarly, Azman et al. (2013) recognized the project size, number of bidders, place and project types, contract duration, scope of design, price and place information, and key variables affecting the precision of a cost plan.

Studies undertaken by Pasco and Aibinu (2008) stated that variables related to the project may affect the discrepancy between the conceptual cost estimate and the summation of the tender, thus affecting the precision of the cost plan. The variables with important impact on the precision of the cost plan, according to their results, are the project size, project procurement technique and project location. In another research undertaken by Alumbugu et al. (2014), they found that the estimator's experience and skill level are the most influential variables affecting the precision of the pre-tender cost estimate. Table 2.2 shows the factors that affects the accuracy of a cost plan from various studies in different countries.

**Table 2.2 Factors that affect the accuracy of a cost plan.**

<b>Researchers</b>	<b>Region</b>	<b>Factors affecting the accuracy of cost estimate</b>
Akintoye (2000)	UK	Project complexity, technological requirements, project information, project team requirement, contract requirement, project duration and market requirement
Elhag et al. (2005)	UK	Late changes to design, management team (suitability, experience, performance), deadline requirements, complexity of the project, level of competition and level of construction activity.
Chan and Park (2005)	Singapore	Technological level, technical expertise,
Toor and Ogunlana (2008)	Singapore	Lack of resources, poor contract management, changed orders, planning and delay deficiencies
Odusami and Onukwbe (2008)	Nigeria	Expertise of the consultants, quality of information, the tender period, market conditions, project team experience
Alumbugu et al., (2014)	Nigeria	Accuracy and reliability of information, quality of information and flow requirements, design and the complexity of design and construction
Azman et al., (2013)	Malaysia	Contract period, use of accurate historical data

Source: Muhammad et al, (2018).

## **2.7 STRATEGIES TO IMPROVE PROJECT COST PLANNING**

This section discusses the various factors that can aid in the improvement of a cost plan.

Seven (7) variables are described in this section as follows;

### **2.7.1 Scientific approaches to cost planning**

Song (2014) confirmed that most project managers ignore cost planning techniques during design stages. The method engaged in managing project costs should also be active all the time and operational, not only with a sequence of cost documents, but with



the propensity of subsequent boards engaged in project cost planning (Bahaudin et al., 2012) In addition, the commitment of most project managers to manage cost techniques is very poor as it is deemed a waste of money for the company although it could save the organization enormous amounts of money with cost planning practices.

### **2.7.2 Decrease financial institution dependency for funds**

Investors must decrease their financial institution dependency for funds. Gao (2009), said investors need to expand their channels of funding further. They must investigate other appropriate funding channels such as asset reengineering, inventory funding, corporate debt issuance, short-term funding, BOT, auction, market listing, etc.

### **2.7.3 Accurate cost data**

The accuracy of cost data used for cost planning has a major impact on cost plan precision. The precision of historical cost data determines the precision of the final estimate (Toor and Ogunlana, 2008). In addition, all accessible techniques of cost planning are based on historical information. Accuracy of cost data is therefore very important in enhancing cost planning practices efficiency.

### **2.7.4 Use of skilled and experienced project team**

Knowledge and experience are an essential instrument in every construction organization to compete in the construction industry (Martin 2010; Ademola 2012). Cost planning knowledge can be considered as technical and managerial expertise, and its absence impacts the practice as a whole (Ademola, 2012). Lack of expertise in using the process of cost planning impacts the effectiveness of the entire cost planning system.

### **2.7.5 Selection of an appropriate procurement technique**

The suitability of the procurement scheme mainly relies on the project's nature. If an appropriate procurement scheme is chosen for a specific project, the overall cost

planning processes taken will be affected. Therefore, adopting the most appropriate procurement technique for a specific project is essential for project executives.

#### **2.7.6 Clear definition of scope**

All characteristics and functions to be included in a product or service may be described as the scope of a project (PMI, 2000). Defining clearly the scope of the project eliminates any uncertainty concerning the project's nature. This in turn clarifies any assumptions taken during a real estate project's assessment.

#### **2.7.7 Regularizing the design change order process**

Design is the very important for cost planning and cost management in real estate construction. Therefore, it is necessary to select a design company carefully, checking its quality, experience, and general competence. By following the principle of convenience, select reasonable design indexes and control construction cost. Select the scheme properly and optimize the design to decrease the investment cost. Strengthen contracts management and supervise subcontracts and external workers. Control the changes of design strictly. Build a system for changing designs which will effectively sets limits in the number of change orders.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 INTRODUCTION**

This chapter covers the methodology espoused by this research. The methods adopted for a study indicates the systems and approaches the researcher adopted for the study. Research methodology details out the procedures and methods needed to put together the requisite knowledge for the set research questions and by so doing realizing the aim as well as the objectives of the study. This chapter discussed the research process, research approach, the research design, research strategy and research method adopted for the study. Also, this chapter describes how the primary data was gathered and handled, and how it was used in solving the problems conveyed by the research aim and objectives. It also explained data analysis method that was used in analysing the acquired primary data, how the sampling population and sample size was determined.

#### **3.2 RESEARCH PROCESS**

The aim of this study was to explore the cost planning strategies used by project managers in the Real Estate Sector in Ghana. In achieving the aim for the research, three (3) objectives were set which were to determine the cost planning strategies used by project managers in real estate projects in Ghana, to ascertain the challenges faced by project managers in cost planning in real estate projects in Ghana and to identify the significant strategies that can be adopted by project managers to improve cost planning in real estate projects in Ghana. The research process adopted include the review of literature and identify various factors whiles focusing on the study area. From the review, a structured questionnaire was designed to collect data from the participants of the research. The questionnaire was designed based on the objectives of the study. The data

collected aided in the achievement of the research objectives and making recommendations from the study.

### **3.3 RESEARCH DESIGN**

According to Spencer-Oatey (1993), research design is a plan created to answer a research question or test a research hypothesis and to control variance. This section discusses the two (2) research designs and selects the most suitable for this dissertation.

#### **3.3.1 Descriptive research design**

This involves the systematic and accurate description of facts and characteristics of a given population or area of interest. It can also be defined as the provision of an accurate account of characteristics of a particular individual, situation or group as a way of discovering new meanings, describing what exists, determining frequency and categorizing information (Kerlinger, 1986).

#### **3.3.2 Explanatory research design**

This involves the development of causal explanations which hinges on the fact that, one phenomenon is affected by various factors. However, De-Vaus (2001), advocated that, correlation is mostly confused with causation which are all geared towards explanatory research. He argued that, the link between two events may be coincidental rather than causal. Thus, explanatory research can either be based on causality or correlation. In some occasions, the two (2) principles are combined in one study.

#### **3.3.3 Research design selected**

Based on the discussions, the descriptive research design was adopted for the study. This is because, this study tries to explain the cost planning strategies used by project managers in the Real Estate Sector in Ghana..

### **3.4 RESEARCH APPROACH**

There exist two basic research approaches indicated by Gabriel, (2013). These are inductive and deductive research approach. Actually, inductive research approach consists of the development of new theories derived from data. Gabriel (2013) stated that an inductive research approach basically consists the use of research questions which narrows the scope of the study. It can also be exploring old phenomenon from a new perspective. Burney (2008), describes inductive research approach as a migration from the specific to the general as it involves the movement from specific observations to broader generalizations and theories. The deductive research approach is adopted when the researcher aims at testing a theory and it fundamentally begins with a hypothesis. Gabriel (2013), stipulated that, deductive research emphasizes on causality. Thus, deductive research is purposely adopted for testing hypothesis in other to verify theories by using observations with the intention of validating the pattern. Burney (2008), describes deductive research approach as a migration from the general to the specific as it involves the movement from broader generalizations and theories to specific observations. Generally, quantitative research is suitable for deductive research approach even though qualitative research can be used (Gabriel, 2013).

The deductive research is suitable based on the nature of this study. This study aims exploring the cost planning strategies used by project managers in the Real Estate Sector in Ghana. Therefore, this study verifies the answers the questions related to cost planning. Thus, the deductive approach is deemed more suitable.

### **3.5 RESEARCH STRATEGY**

There exist numerous research strategies for researchers. These are the action research, ethnographic research, survey research, case study research and experimental research. This study adopted the survey research strategy. Isaac and Micheal (1997) postulated the usage of survey research is to describe what already exist, the quantity and in what context. It also responses to developed questions, finds solution to observed problems and assesses needs. Kraemer (1991) described three distinguishing features of survey research. Firstly, survey research talks about a particular section of a population. Secondly, the data needed for the study is retrieved from people which makes it personal. Lastly, survey research make use of a section of the population which enable the generalization of the outcome for the population.

### **3.6 RESEARCH METHOD**

According to Carrie (2007), there are three (3) basic research methods. These are namely qualitative research method, quantitative research method and integrated research method.

Qualitative research involves discovery (Carrie, 2007). Creswell (1994) indicated that, qualitative research method normally takes place in the natural setting which allows the researcher to undertake a thorough investigation from the perspective of the participants. In qualitative research method, the data collected are normally described and interpreted. Qualitative research method in other means is described as an effective ideal of researching that allows the researcher to generate details through their participation in the actual experiences (Creswell, 2003).

Quantitative research on the other hand is very straight forward in its surveying and experimentation which expands on prevailing theories (Leedy and Ormod, 2001). Quantitative research generally starts with a research problem which points hypothesis formation, collection of data and data analysis. The outcome of quantitative research can be predictive, explanatory and/or confirming.

Mixed method combines method of gathering and analyzing data from the quantitative and qualitative method in a particular study (Tashakkori and Teddlie, 2003). Mixed method is regarded as an addition and not a substitute for quantitative and qualitative research approaches (Johnson and Onwuegbuzie, 2004). Thus, the mixed method relies on the advantages of the two approaches and decreases in its flaws.

This study used the quantitative research method. The outcome of this study will be explanatory therefore, the quantitative research method is more suitable. Furthermore, the quantitative method utilize mathematical tools for the analysis and the questionnaire design is mostly structured to easily aid in converting responses to numerical data.

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

A research population is the universal within which a sample is selected (Bryman, 2004). The population for the research was project managers working in the Accra metropolis. Naoum (2003), described a sample as section of population selected to mirror the remaining of the population. In selecting a sample from a population, Sarantakos (2012), stipulated that, researchers must consider the views that has influence on the study. The population size of the project managers could not be ascertained therefore; the purposive sampling technique was used to reach the respondents. Bryman (2004), defines sampling technique as the process to select a unit or an entity from a sample frame or population

that its attribute will reflect. The purposive sampling technique was utilized because, only project, managers who have been involved in Real Estate projects before were contacted for the study.

Using the purposive non-probability sampling technique, seventy-five (75) questionnaires were distributed. However, only fifty-three (56) were retrieved for the analysis which represents 74.67% response rate.

### **3.8 QUESTIONNAIRE DEVELOPMENT**

In realizing the aim and objectives of the study, questionnaire was generated which were grounded on the established objectives of the study. Questionnaire survey is an effective tool in retrieving and analysing people's opinion (Spector, 2006). The questionnaire as presented in the appendix was made up of two (2) sections. The first section emphasized on the background of the respondents. With the background of the respondents, the participants were asked to indicate their profession, years of experience and level of education. The background of the respondents gives an indication of the reliability of the responses given by the participants.

The other sections were developed based on each objective of the study. With the objective one, the respondents were asked to indicate the significance of the cost planning practices in real estate projects. They were to rate their responses using the five-point Likert scale of 1 =Not significant, 2 = Slightly significant, 3 = Moderate and 4 = Significant 5 = Very significant. With the second objective, the respondents were asked to indicate the significance of the challenges in cost planning. They were to rate their responses using the five-point Likert scale of 1 =Not significant, 2 = Slightly significant, 3 = Moderate and 4 = Significant 5 = Very significant. With the objective



three, the respondents were asked to indicate the significant strategies for improving cost planning in the real estate industry. They were to rate their responses using the five-point Likert scale of 1 =Not significant, 2 = Slightly significant, 3 = Moderate and 4 = Significant 5 = Very significant.

### **3.8.1 Questionnaire distribution**

The questionnaire was distributed by hand. It was supplemented by delivery through e-mail. The distribution covered a period of two (2) weeks as ample time was given to the respondents to answer the questions. The questions were simple and concise thus, it took an average of 10minutes to complete one questionnaire. In all seventy-five (75) questionnaires were distributed. However, only fifty-six (56) were retrieved for the analysis which represents 74.67% response rate.

## **3.9 TOOLS FOR THE ANALYSIS**

The approaches used in analysing the data collected from the respondents is a very critical approach to research. Suitable analysis aids researchers in making better judgment on the outcome of a study. The details of the data analysis are shown in chapter four of the report. The data analysis was separated into four parts. The first part concentrated on the background of the respondents whiles the remaining three (3) parts focused on each objective of the study. Prior to the analysis of the data, the responses were coded and entered into SPSS to allow numerous forms of analysis to be conducted on it. With regards to the background of the respondents, the data was analysed using descriptive statistical tools in the form of frequencies and percentages. This allowed the researcher to ascertain the demographic nature of the respondents which gives an indication on the level of reliability of the responses given by the respondents. The

remaining three (3) sections of the analysis was done using the mean score ranking and standard deviations. These values were given by the SPSS software version 20.

According to Cheung and Chan (2011), mean scores are calculated with the formula  $M =$

$\frac{\sum s}{n}$ . Where;

- $M$ = mean score;
- $s$ =respondent's score based on the five-point Likert scale; and
- $n$ = the total number of respondent

## **CHAPTER FOUR**

### **DATA ANALYSIS AND DISCUSSION**

#### **4.1 INTRODUCTION**

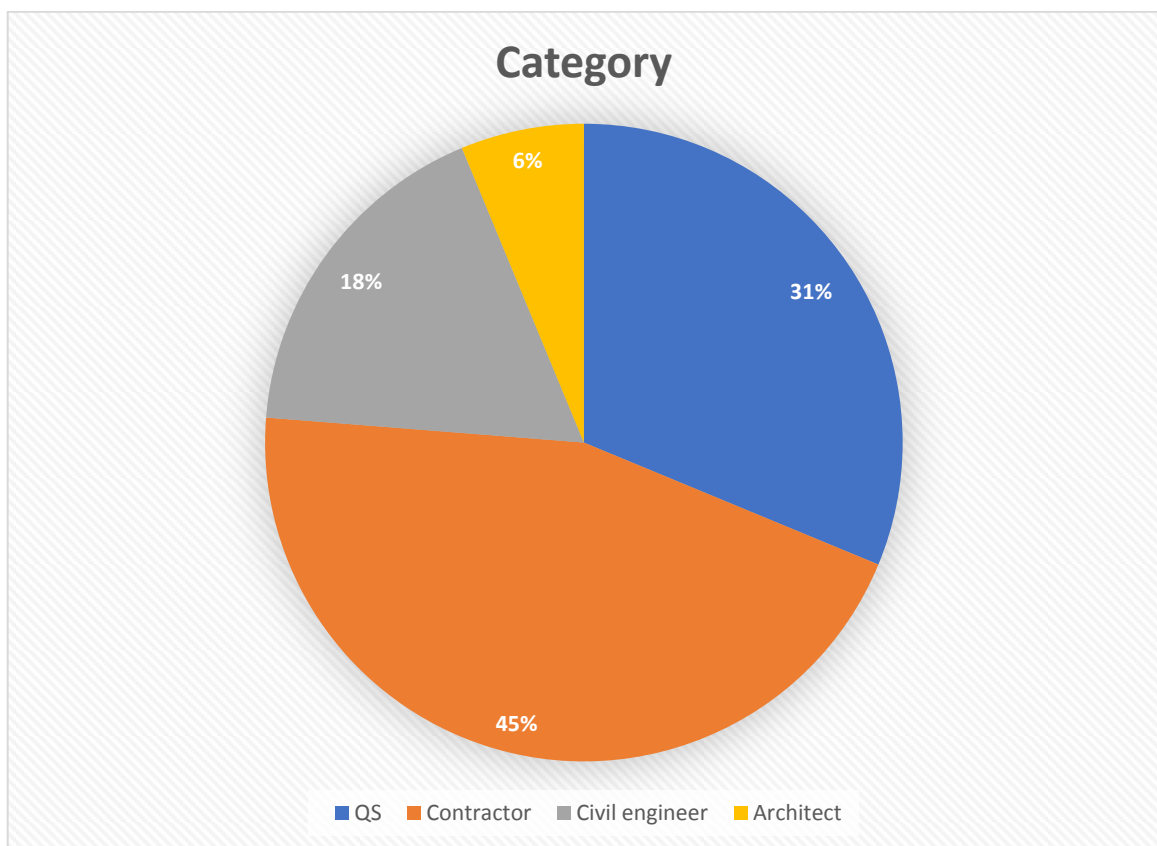
The purpose of this chapter is to analyse and discuss data collated from the respondents in the organization. For this study, fifty-six (56) questionnaires were used for the analysis. The analysis was grouped into two (2) sections. The initial section of the analysis focused on the respondents' background while the section two focused on analysing the data collected based on the objectives. The study had three objectives which were to determine the cost planning strategies used by project managers in real estate projects in Ghana, to ascertain the challenges faced by project managers in cost planning in real estate projects in Ghana and to identify the significant strategies that can be adopted by project managers to improve cost planning in real estate projects in Ghana. The first section of the analysis was done using frequencies and displayed using pie charts. The second section of the analysis was done utilizing mean score ranking and standard deviation. The data was presented using tables. This chapter was concluded by the provision of the summary of findings.

#### **4.2 BACKGROUND OF THE RESPONDENTS**

The demographic characteristics of the respondents is a very crucial aspect of every research study. For this research, the respondents were asked to indicate their profession, their level of experience and their highest level of education. The summary of their responses is shown in Figure, 4.1, 4.2 and 4.3.

#### 4.2.1 Respondent's profession

The respondents were asked to indicate their main profession in the construction industry. Difference in profession may lead to variation in the responses given by the respondents hence it was crucial to ascertain their profession. From the responses, shown in Figure 4.1, majority of the respondents were contractors forming 45% while the least were architects forming 6%. 18% were civil engineers and 31% were quantity surveyors.

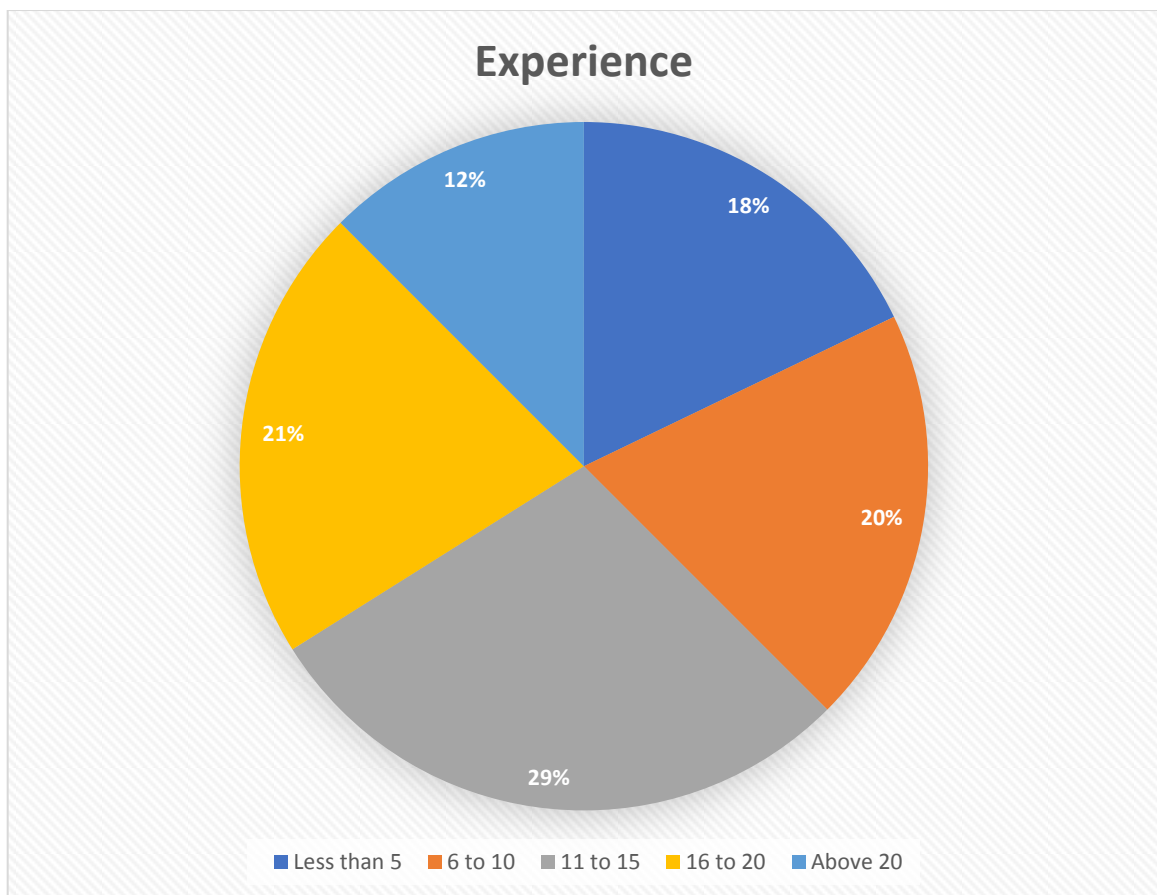


**Figure 4.1: Category of employment**

Source: Field survey, (2019)

#### 4.2.2 Level of experience

Furthermore, the respondents were questioned to denote their level of experience. The level of experience is directly related to the knowledge level of the respondent with regards to the profession. A summary of the responses is shown in figure 4.2. From the responses, 18% of the respondents had above 20 years of experience. However, majority of the respondents had between 11-15 years of experience. Generally, a percentage of 70 respondents had above 5 years of experience. This was deemed satisfactory for the study. Furthermore, it can be seen that, there is an even distribution of percentages with regards to the various experience levels.

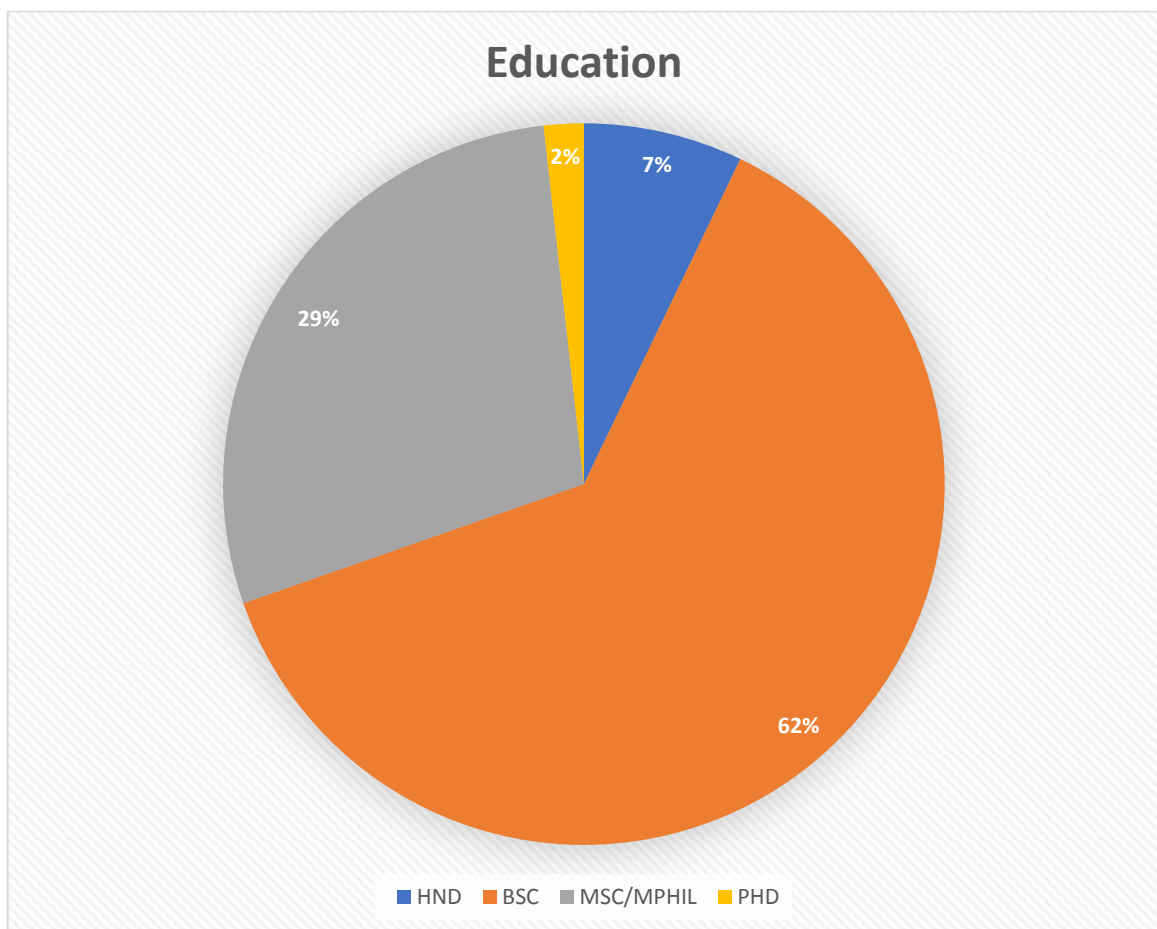


**Figure 4.2: Level of employment**

Source: Field survey, (2019)

### 4.2.3 Level of education

Finally, the respondents were asked to indicate their highest level of education. Similar to level of experience, the level of education correlates positively to level of knowledge. Thus, high educational levels depict high knowledgeable ability. A summary of the response is shown in Figure 4.3. From the analysis, most of the respondents had BSc qualification followed by MSC/MPHIL qualification. However, 7% of the respondents had HND and only one (1) respondent had a PHD qualification.



**Figure 4.3: Highest level of education**

Source: Field survey, (2019)

### **4.3 MEAN SCORE RANKING ANALYSIS**

The three (3) objectives of the study were analysed with the mean score ranking and standard deviation. The SPSS software was used to generate all the means and standard deviation for the variables. The higher the mean, the more significant the variable is. The standard deviation values depicted the level of variability of the responses. Standard deviation values above 1 depicts high variability while standard deviation values below 1 depicts low variability. A summary of the analysis is shown in tables 4.1, 4.2 and 4.3.

#### **4.3.1 Cost planning strategies**

During the design phase of a construction project, budgets need to be set for the project to assist the client make economic preparations and generate avenues for cost control and cost performance measurement. Cost planning is an important method that helps the advisor of the client prepare appropriate budgets to define the economic obligations of the client for the project. From the literature review, a total of nine (9) cost planning strategies were identified. The respondents were asked to indicate the level of significant of the variables. using a five-point Likert scale. The data was analyzed with mean score ranking and standard deviations.

The most significant cost planning strategy was elemental cost planning. The process of elemental cost planning became very popular during the years after the Second World War, when the art of accurate single price estimating became very difficult due to the unsettled economic conditions and the use of a non-traditional design (Kirkham, 2007). According to Kirkham (2007), an element can be described as a major part of a building, which always performs the same function irrespective of its location or specification. A combination of elements is used to perform cost analysis, which is a major feature of elemental cost planning. Ashworth (2004), cost analysis is the systematic breakdown of cost data on the basis of agreed elemental structure.

The second ranked significant cost planning strategy was comparative cost planning. In cost planning the comparative cost planning method is a very common type. Using collected project cost data, comparative cost planning can be used to predict the project cost (Ashworth, 2004). It is therefore an experienced cost estimator that compares expenses connected with present projects with costs connected with earlier finished projects. This type of cost planning relies strongly on archives of cost information. However, modifications are allowed for variation in any type of materials and construction techniques.

The third ranked cost planning strategy was the cubic method. . The cost of a new project could then be determined by calculating its volume and selecting an appropriate rate from the book. Ashworth (1994), indicated that, the superficial area method correlates better with the cost of a building compared to the cube rates. Furthermore, with the cube method, there is no allowance for the number of storey or plan.

It can also be realized from Table 4.1 that; all the standard deviation values were below one (1) which depicts a low variability between the responses given by the respondents.

**Table 4.1: Cost planning strategies**

<b>DESCRIPTION</b>	<b>MEAN</b>	<b>SD</b>	<b>RANK</b>
Elemental cost planning	4.34	0.581	1 <sup>ST</sup>
Comparative cost planning	4.16	0.458	2 <sup>ND</sup>
Cubic method	4.05	0.401	3 <sup>RD</sup>
Superficial area method	4.04	0.425	4 <sup>TH</sup>
Unit cost method	4.02	0.646	5 <sup>TH</sup>
Functional method	3.88	0.916	6 <sup>TH</sup>
Life cycle cost	3.57	0.828	7 <sup>TH</sup>

Source: Field survey, (2019)



### 4.3.2 Challenges associated with cost planning

A number of studies were conducted from different counties to show the factors affecting the accuracy of a cost plan. From the review of literature, eleven (11) variables were identified. The respondents were asked to indicate the significance of challenges in cost planning using a five-point Likert scale. The responses were analysed with mean score ranking and standard deviation.

**Table 4.2: Challenges to cost planning**

<b>DESCRIPTION</b>	<b>MEAN</b>	<b>SD</b>	<b>RANK</b>
Inexperienced project manager	4.23	0.687	1 <sup>ST</sup>
Unscientific cost planning process	4.18	0.386	2 <sup>ND</sup>
High interest rates on funds from financial institutions	4.11	0.454	3 <sup>RD</sup>
Frequent changes in prices	4.05	0.616	4 <sup>TH</sup>
Numerous change orders	4.00	0.809	5 <sup>TH</sup>
Unsuitable procurement system	3.98	0.674	6 <sup>TH</sup>
Poor reliability of project budget	3.91	0.745	7 <sup>TH</sup>
Unrealistic estimate	3.86	0.773	8 <sup>TH</sup>
Unpractical working drawing budget	3.82	0.897	9 <sup>TH</sup>
Poor management of subcontractors and other external workers	3.84	0.708	10 <sup>TH</sup>
Complex contractual terms	3.73	1.104	11 <sup>TH</sup>

Source: Field survey, (2019)

The most significant challenges were inexperienced project manager. This was followed by unscientific cost planning process and high interest rates on funds from financial institutions. Oladokun et al. (2011), for example, performed a survey in Nigeria and recognized the project size and project sector as having the greatest effect on a cost plan's precision. Studies undertaken by Odusami and Onukwube (2008) also addressed the

factors affecting a pre-tender cost plan and identified six variables including consultant knowledge, data quality, project team experience on building type, tender duration, market circumstances and design and construction complexity. Similarly, Azman et al. (2013) recognized the project size, number of bidders, place and project types, contract duration, scope of design, price and place information, and key variables affecting the precision of a cost plan. In another research undertaken by Alumbugu et al. (2014), they found that the estimator's experience and skill level are the most influential variables affecting the precision of the pre-tender cost estimate.

#### **4.3.4 Strategies to improve cost planning**

With the challenges associated with cost planning in the real estate industry, it is crucial to ascertain strategic plans that can be adopted to ensure that the processes of cost planning are improved. From the literature review, nine (9) strategies were identified. The respondents were asked to indicate the significance of the identified variables using a five-point Likert scale. The responses were analysed using mean score ranking in conjunction with standard deviation.

The most significant strategy to improve cost planning was the decrease the dependency on financial institutions for funds. Investors must decrease their financial institution dependency for funds. Gao (2009), said investors need to expand their channels of funding further. High interest rates from various financial institutions can distort the cost plan of a project. Hence, it is crucial that, adequate measures are put in place to access alternative sources of finances.

The second ranked significant strategy was adoption of suitable procurement system for specific contracts. The suitability of the procurement scheme mainly relies on the

project's nature. If an appropriate procurement scheme is chosen for a specific project, the overall cost planning processes taken will be affected. Therefore, adopting the most appropriate procurement technique for a specific project is essential for project executives.

The third most significant strategy was a clear definition of the scope of a project. All characteristics and functions to be included in a product or service may be described as the scope of a project (PMI, 2000). Defining clearly the scope of the project eliminates any uncertainty concerning the project's nature. This in turn clarifies any assumptions taken during a real estate project's assessment.

**Table 4.3: Factors to improve cost planning**

<b>DESCRIPTION</b>	<b>MEAN</b>	<b>SD</b>	<b>RANK</b>
Decrease the dependency on financial institutions for funds	4.16	0.565	1 <sup>ST</sup>
Adoption of suitable procurement system for specific contracts	4.14	0.724	2 <sup>ND</sup>
Clear definition of project scope	4.14	0.749	3 <sup>RD</sup>
Usage of appropriate cost management tool	4.11	0.623	4 <sup>TH</sup>
Attain accurate cost information	4.11	0.731	5 <sup>TH</sup>
Adopt the use of scientific cost management tools	4.11	0.755	6 <sup>TH</sup>
Usage of qualified and experienced project team	3.95	0.796	7 <sup>TH</sup>
Regularize the process of design change orders	3.84	0.654	8 <sup>TH</sup>
Cost management practices added as contractual requirement	3.80	0.980	9 <sup>TH</sup>

Source: Field survey, (2019)

#### **4.4 SUMMARY OF FINDINGS**

This chapter analyzed data collected from the respondents. In the analysis, fifty-six (56) questionnaires were used which was coded into SPSS version 20. The analysis was

separated into two major sections which included the background of the respondents which was done using frequencies displayed with pie charts and the three (3) objectives of the study analysed using mean score ranking in conjunction with standard deviation.

With the first objective, it was realized that, the most significant cost planning strategy was elemental cost planning. The second ranked significant cost planning strategy was comparative cost planning. The third ranked cost planning strategy was the cubic method. All the standard deviation values were below one (1) which depicts a low variability between the responses given by the respondents.

With the second objective, it was realized that, the most significant challenges were inexperienced project manager. This was followed by unscientific cost planning process and high interest rates on funds from financial institutions.

With the third objective, it was realized that, the most significant strategy to improve cost planning was the decrease the dependency on financial institutions for funds. The second ranked significant strategy was adoption of suitable procurement system for specific contract. The third most significant strategy was a clear definition of the scope of a project.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 INTRODUCTION**

This chapter provides a summary of how the aim and objectives of the study were achieved.

The amount of investments and participation of stakeholders in Real Estate building projects is high, hence cost planning process is more complex and has various stages. Therefore, in Real Estate projects there are countless problems of cost overruns. The cost of building a house, however, is directly related to final selling rates. Eventually, the price level of real estate houses becomes very costly and the level of project execution is affected by low patronage. Hence effective cost planning is key in Real Estate construction projects. Therefore, the study aimed at exploring the cost planning strategies used by project managers in the Real Estate Sector in Ghana.

The study had three (3) objectives which were to determine the cost planning strategies used by project managers in real estate projects in Ghana, to ascertain the challenges faced by project managers in cost planning in real estate projects in Ghana and to identify the significant strategies that can be adopted by project managers to improve cost planning in real estate projects in Ghana. The study adopted a quantitative research method and thus, a structured questionnaire was developed and distributed to seventy-five (75) respondents and fifty-six (56) were retrieved for the analysis. The collected data was coded and entered into the Statistical Package of Social Scientist (SPSS) version 20. The data were analyzed using mean score ranking. The summary of findings is discussed in the subsequent section.

## **5.2 SUMMARY OF FINDINGS**

This section focuses on the summary of findings by discussion how the objectives were achieved to realize the aim of the study.

The three (3) objectives of the study were achieved through extensive review of literature and a questionnaire survey. The literature review was conducted on all the three (3) objectives of the study where cost planning practices, challenges and strategies were reviewed.

With the objective one, the literature review identified nine (9) cost planning strategies. Also, with the objective two (2) the study identified eleven (11) variables whiles nine (9) variables were identified for objective three.

Based on the review, a questionnaire was developed and administered to the designated respondents to aid in the collection of data.

The analysis was in two folds. The first fold centered on the respondents' background which was analysed using frequencies and displayed using pie charts. The second fold of the analysis was done using mean score ranking in conjunction with standard deviation. The data was presented using tables. With the first objective, it was realized that, the most significant cost planning strategy was elemental cost planning. The second ranked significant cost planning strategy was comparative cost planning. The third ranked cost planning strategy was the cubic method. All the standard deviation values were below one (1) which depicts a low variability between the responses given by the respondents.

With the second objective, it was realized that, the most significant challenges were inexperienced project manager. This was followed by unscientific cost planning process and high interest rates on funds from financial institutions.

With the third objective, it was realized that, the most significant strategy to improve cost planning was the decrease the dependency on financial institutions for funds. The second ranked significant strategy was adoption of suitable procurement system for specific contract. The third most significant strategy was a clear definition of the scope of a project.

### **5.3 STUDY LIMITATIONS AND FUTURE STUDIES**

This section discusses the limitations to this study. The study was limited to only project managers in the Accra metropolis, hence further studies can expand on the scope of the study by including other regions. Also, further studies can do a comparative study on cost planning practices among various regions.

Furthermore, the study was limited to only numerical data which has some setbacks in its usage. Hence the textural data can be used to supplement the numerical data to create a better understanding of the results.

### **5.4 CONCLUSION**

The Ghanaian real estate sector is making a significant contribution to the growth of the Ghanaian economy in terms of housing supply. However, it is challenged with excessive cases of cost overruns. With the achievement of the aim of the study, it was realized that, the most significant cost planning strategy was elemental cost planning followed by comparative cost planning. These are effective cost planning strategies that can be adopted to aid in the execution of cost planning. However, the study also realized that, the most significant challenges were inexperienced project manager and unscientific cost planning process. Inexperienced project managers may opt for cost planning tools that

are not suitable for the nature of work and information provided. Hence, the total accuracy of the cost planning process is hindered. Finally, the study indicated that, the most significant strategy to improve cost planning was the decrease the dependency on financial institutions for funds and the adoption of suitable procurement system for specific contract. High interest rates from various financial institutions can distort the cost plan of a project. Hence, it is crucial that, adequate measures are put in place to access alternative sources of finances. The investments that have been created in the real estate sector are very costly and long-term. Hence, effective cost planning is a significant pre-requisite for the Real Estate Industry.

## **5.5 RECOMMEDATIONS**

Based on the findings of the study, the following recommendations were made;

1. Project managers must select adequately skilled cost planning personnel to aid in the cost planning process.
2. Project managers must try to keep accurate data on cost in other to enhance their cost planning.
3. Project managers must be clear on the scope of the project as scope definition is very significant in determine the accuracy of a cost plan.
4. Project managers must explore various options with regards to the tools used for cost management so as to adopt the most suitable approach for every specific project.



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**APPENDIX**  
**RESEARCH QUESTIONNAIRE**

**SECTION A**  
**RESPONDENT'S PROFILE**

Q1. Q1. Please indicate your profession.

Quantity surveyor ; Contractor ; Civil Engineer ; Architect

Q2. Please indicate your years of practical experience in the construction industry.

1-5yrs;      6-10yrs;      11-15yrs;      16-20yrs;      Over  
20yrs

Q3. Please indicate your academic qualifications.

HND ;      BSc ;      MSc/Mphil ;      PhD ;      Others



**SECTION B**

**OBJECTIVE ONE: COST PLANNING PRACTICES IN REAL ESTATE PROJECTS**

5. Please indicate the most frequently used cost planning practice by you (r ) firm

Please use the response scale below:

**1 = Not significant    2 = Slightly significant    3 = Moderate    4 = Significant    5 = Very significant**

<b>No.</b>	<b>Cost planning practices</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
1	Elemental					
2	Comparative					
3	Functional					
4	Life cycle cost					
5	Superficial area					
6	Unit cost					
7	Cubic					
	<i>If other, please specify</i>					

OBJECTIVE TWO: CHALLENGES ASSOCIATED WITH COST PLANNING IN REAL ESTATE PROJECTS

5. Please indicate the significance of the following challenges of cost planning practice

Please use the response scale below:

**1 = Not significant    2 = Slightly significant    3 = Moderate    4 = Significant    5 = Very significant**

No.	Challenges	1	2	3	4	5
1	High interest rates on funds from financial institutions					
2	Unscientific cost planning process					
3	Inexperienced project manager					
4	Frequent changes in prices					
5	Unsuitable procurement system					
6	Poor reliability of project budget					
7	Unpractical working drawing budget					
8	Complex contractual terms					
9	Poor management of subcontractors and other external workers					
10	Numerous change orders					
11	Unrealistic estimate					
	<i>If other, please specify</i>					

OBJECTIVE THREE: STRATEGIES TO IMPROVE THE EFFECTIVENESS OF COST  
PLANNING PRACTICES FOR REAL ESTATE PROJECTS

9. Please indicate the applicability of the following strategies in the improvement of cost planning when executing real estate projects.

Please use the response scale below:

**1 = Not applicable    2 = Slightly applicable    3 = Moderate    4 = Applicable    5 = Very applicable**

No.	Strategies	1	2	3	4	5
1	Usage of qualified and experienced project team					
2	Clear definition of project scope					
3	Cost management practices added as contractual requirement					
4	Adopt the use of scientific cost management tools					
5	Regularize the process of design change orders					
6	Adoption of suitable procurement system for specific contracts					
7	Usage of appropriate cost management tool					
8	Decrease the dependency on financial institutions for funds					
9	Attain accurate cost information					
	<i>If other, please specify</i>					