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(MBA) Project Management

Dissertation

Supervisor: Paul Taaffe

“Incorporation of risk management as a framework for delay mitigation: A study from the Construction project in Nigeria”

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Declaration

I hereby declare that no portion of the work referred to in this dissertation has been submitted in support of an application for another degree or qualification or any other university or institution of learning. Furthermore, all the work in this dissertation is entirely my own, unless if referenced in the text as specific source and included in bibliography.

Signed: ___Arogundade Abayomi Anthony________
Date: ______12-08-2013________
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Abstract

Delay is one of the biggest problems construction project faces in Nigeria. Delay can lead to many negative effects such as project failure, disputes between stakeholders and also economic instability. Even though various studies have been considered in the causes and effects of delays in Nigeria, these studies seldom discuss how risk management could be integrated to lessen the delay in construction projects in Nigeria. Systematic risk management is expecting the unexpected; it is a tool which helps control risk in construction projects. The objective of study is to: (1) to determine the impact of delay in Nigeria (2) to understand the rate of delay in construction project in Nigeria (3) To find the root event that causes construction delay in Nigeria (4) Discover the level of effective systematic risk management that is involved in construction project in Nigeria.

In all the 150 structured questionnaires that were sent to three constructions firm, there was a response rate of 80%. Typical result shows both hypotheses (1) Delay has a great impact on the massive project failure and hypothesis (2) Systematic risk management approach could help to mitigate delay in construction project in Nigeria, was tested and accepted. The study recommended that risk management can help lessen delay in construction project if applied in a systematic approach.

It is hoped that these findings will guide efforts to enhance the effectiveness of construction project in Nigeria.
Chapter 1 Introduction:

1.1 Rationale for topic

The Nigerian construction industry is fast growing and it continues to occupy an important position in the Nation’s economy, even though it contributes less than the manufacturing or other service industries it is also yet to realize its full potentials despite Nigeria’s deficit in infrastructures.

According to Vetiva (2011) Nigeria’s Construction sector accounts for 1.4% of its GDP (Gross domestic profit) more important, is the fact that despite the growth seen in the contribution sector output, (7 year CAGR of 35%) its contribution to total GDP has remained at abysmally low levels. In 1981, the construction sector accounted for 58% of Nigeria’s GDP and in the last three decades, Nigeria’s total GDP has raised to approximately 495 times its size. On the contrary, Construction sector has only grown to 125 times its size in 1981. Notably, the drivers of Nigeria’s GDP over the last three decades have remained the same.

A major disparagement facing the Nigeria Construction industry is the growing rate of delay in project delivery, with the increasing trend of delay in construction project, the impact of delay has lead to the majorities of project failures. Construction delay means a time slippage either beyond the contract date or beyond the date that the parties have agreed upon for the delivery of the project. Haseeb et al. (2011) defined Construction delay as execution later than intended planned, or particular period, or later than specific time that all the concerned parties agreed for construction project.
Delay has an adverse effect impact on the project success in terms of time, cost, and quality. Many projects experience extensive delays and thereby exceed initial cost estimates. In addition to impacting the economic feasibility of projects capital baseline, extensive delays could cause a ground for disputes or lawsuits between owners and contractors, increased costs, loss of productivity and revenue, and contract termination.

It has been researched and confirmed by numerous researcher that Construction failure is on the increase in Nigeria based on delay. Delays represent an area of leakages in the Construction Project. In Nigeria the problem of delays is severe especially when one considers the present economic condition of the country. Danladi et al. (2012) state that Delay is one of the major problems in Nigeria construction industry.

According to Kasim et al. (2012) construction delay is a universal evident reality not only in Nigeria, however all countries are faced with this global fact. A delay occurs in every construction project and the significant of these delays varies considerably from project to project. Barry (2011) state that delay is a reality in the construction process in the United State and throughout the world. Surveys illustrates that construction projects suffer delay in Libya and the UK but there is more delay in Libya than in the UK. Studies found that a building project might be delayed by 41 to 46 days in Libya or 34 to 38 days in the UK, when considering the most critical delay factors (Shehob, 2012)
1.2 Risk Management in brief

Risk management is one of the nine knowledge areas propagated by the project management institute:

- Project Integrated Management
- Project Scope Management
- Project time Management
- Project cost Management
- Project Quality Management
- Project Human resource Management
- Project Communication Management
- Project risk Management
- Project Procurement Management
- Project Stakeholder Management

According to PMBOK (2013) Project Risk Management includes the processes of conducting risk management planning, identification, analysis, response planning, and controlling risk on a project. Risk is involved in every business, and the construction industry is no exception, due to the dynamic nature of construction project, it makes its prone to risk.

Risk is a multi facet concept. In the concept of construction industry, it could be the likelihood of the occurrence of a definite event/ factor or combination of events/ factors which occurs during the whole process of construction to the detriment of the project, a lack of predictability about structure outcome or consequence in a decision or planning.
situation, the uncertainty association with estimate of outcomes. In addition to the different definitions of risk, there are various ways of categorizing risk for different purposes too. Some categorize risks in construction projects broadly into external risks and internal risks while other classify risk in more detail categories of political risk, financial risk, market risk, intellectual property risk, social risk, safety risk.

Risk is inherent and difficult to deal with, and this requires a proper management framework both theoretical and practical meanings. Risk management is a formal and orderly process of systematically identifying, analyzing and responding to risks throughout the life cycle of a project to obtain the optimum degree of risk elimination, mitigation and/or control. Significant improvements to construction project management performances may be achieved from adopting the process of risk management.

Construction projects are of different sizes and of different nature, hence the risk associated with them also varies. Furthermore, risk management in the Construction project management context is a comprehensive and systematic way of identifying, analyzing and responding to risks to achieve the project objectives. Construction Projects can be extremely complex and fraught with uncertainties. Risk and uncertainty can potentially caused a delay for Construction Projects. Most of the project management issues that impact a project arises from associated uncertainty
1.3 NEED FOR THE PRESENT STUDY

This research is novel and relevant to the extent that though there are a plethora of literature and research on Delay in Construction, Risk management in Construction and entire failure in Construction, yet most of those pass works dwell squarely on the United State of America, Canada and countries of the European Union, Asian with little or no mention of Africa, especially western parts of Africa (e.g. Nigeria)

Despite the uniqueness of construction industry to the growth of national economy, Nigeria still witness a lot of construction project failure due to delay. Mohammed et al. (2012) stated that “Delay is one of the major problems in Nigeria construction industry”. Ayodele et al. (2011) also buttress the fact that “delay have knock on effect on the construction industry and in indeed in the whole economy”. According to kontangora (1993) as cited by Ayodele et al. (2011) there are about 4000 uncompleted or abandoned project belonging to the Federal Government of Nigeria with an estimated cost of above N300 billion which will take 30 years to complete at the present execution capacity of the Government, also this issues of delay has been left without adequate attention for too long which is now having a multiplier effect on the construction industry in particular and the national economy as a whole. Ibironke (2013) also stress that “delay are one of the biggest problems construction firms face. Seven out of ten projects surveyed in Nigeria suffered delays in their execution”.

However, with the rapid increasing failure in construction due to delay in Nigeria, this research becomes necessary so as to have a basis for weighing the causes and impact of delay in construction project, and importantly to examine how Risk management could
be use as a tool to lessen delay in Construction Projects. Very often, Contractors or Project Managers mistakes a risk assessment or Monte Carlo simulation for risk management. Risk analysis or risk assessment is just one component of a successful risk management program for the best returns, risk are not just analyzed at one point in time, but continually reviewed throughout the project life cycle.

1.4 Suitability of the Researcher and research objectives

The Researcher is an accountant by profession and has worked in an accounting department of two major construction firms in Nigeria, before proceeding to Dublin Business School where he is currently pursuing Masters in Project Management (MBA). The MBA is to enable the researcher acquire the necessary knowledge and relevant skills relating to Project Management as the researcher intends to continue his career in Construction Industry.

Having studied Accounting primarily and worked for four years as an accountant, the researcher has what it takes to engage in this research. This is coupled with the knowledge and research skills that have been gained from the MBA program as well as reliable industry contacts already made that will facilitate this study.

The aim of this research is to identify the causes and effects of delay in Construction projects in Nigeria. The importance of risk management in construction project, and how it could help lessen the ever increasing delay in construction project. This study will contribute to the existing store of knowledge. With this motive, research will be
conducted among three construction firms to find answers for the following research question.

“Can the integration of systemic risk management approach help to manage the causes of delay in Nigeria Construction Project?”

In order to answer the research question further, the researcher came out with the following research objectives:

1. To understand the rate of delay in construction project in Nigeria
2. To determine the impact of delay in a Construction Project
3. To find the root event that causes construction delay in Nigeria
4. To discover the level of effective systematic risk management that is involved in construction project in Nigeria.

Hence to facilitate the investigation justifying the research objectives and to answer the research question, certain assumptions have to be considered initially. So the hypotheses that need to be proved or disapproved are as follow:

1. Delay has a great impact on the massive project failure in Nigeria
2. Systematic risk management approach could help to mitigate delay in construction project in Nigeria

1.5 Approach to the dissertation

The objectives derived will be obtained systematically in the research. Firstly, secondary research is conducted using relevant sources to understand the research problem area in
depth. Primary research will be conducted using questionnaires administered to the respondents. The quantitative data thus obtained will be analyzed statistically using (SPSS). It will then be checked if the results proved or disapproved the hypotheses. Based on the findings appropriate conclusion and recommendation will be forward.

1.6 Recipient for This Research

The first recipient of this research is Dublin business school where this researcher is a full time student studying for his qualification. The awarding body Liverpool John Moores University, who provided the qualification this student, is studying. The academic community and practitioner who might be interested in this line of study, In addition the recipients of this research, the staff and management of construction industry, whom have given their permission to participate in the survey.

1.7 Scope Limitation

There are some limitations in this study. The main issue while conducting the primary research is to remain unbiased. The researcher has remained neutral to his best while conducting the questionnaires. Then the major limitation was Distance –The researcher would have loved to do face to face questionnaire survey as this will help to throw more light for the purpose of this research and to give explanations to questions the respondent might be skeptical about. This will help to complete the questions appropriately without error. But distance and present financial constraint would not allow such a means, the author decided to settle for online survey for this research. The study, being cross
sectional, is only relevant for the particular period of the present research. Any future change alters the results of the present research.

1.8 Organization of the dissertation

This research is divided into the following chapters:

Chapter 1: Introduction

This section gives overall view of the rationale for the topic and the need for the present study. The section is classified into six sections which highlight the aim of the research, its objectives, major contributions and subsequent limitation of the study. A brief overview of the approach undertaken towards the research is also discussed in this section

Chapter 2: Literature Review

This section involved an evaluation of the literature which provides the academic background to the area of study. Here the views of different authors and their attempts, relevant to the topic have been described. The first section describes Project management and it’s important in construction industry. The next section as a continuation describes the importance of risk management in Construction project. The next section talks on delay mitigation, the tactics and techniques that could be applied to lessen delay in construction project. The final section discusses about construction as a whole and country of case study Nigeria.

Chapter 3: Research Methodology and Methods
This section reflects the underlying assumptions about the research methodology employed and discusses the research methods used. The section address issues like, research philosophy, research approach, research strategy, research method choice, time horizon, data collection and sampling.

**Chapter 4: Data Analysis and Findings**

This section present and illustrates the findings of the research. This section is divided into two sections which addresses quantitative data analysis and data findings.

**Chapter 5: Conclusion and Recommendations**

This section aims at drawing general conclusions by interpreting and justifying the findings of the study to prove the hypotheses. This section attempts to integrate the theories and concepts previously discussed towards the original aim of the study.

**Chapter 6: Self Reflection on Own Learning and Performance**

This section reflects the researcher’s learning and performance over the course of study, and their application to his personal and professional life.

**Chapter 7: Bibliography.**

**Chapter 8: Appendices**
CHAPTER TWO: LITERATURE REVIEW

2.1 Project Management

Before exploring the definition and the growing need for Project Management, this study will like to bring to understanding the term Project. According to PMBOK (2013) a project is a temporary endeavour undertaken to create a unique product, service, or result. The temporary nature of projects indicates that a project has a definite beginning and end, the end is reached when the project’s objectives have been achieved or when the project is terminated because its objective will not or cannot be met, or when the need for the project no longer exists. While Verzuh (2008) argue that Projects are all the work we do one time, and the fundamental to understanding the importance of projects is realizing that each one produces something unique. And Burke (2008) define Project as implementing a change, event, solution, or a new venture which uses a range of special project management techniques to plan and control the scope of work in order to deliver a product to satisfy the client’s and stakeholders needs and expectations. From the above definitions from various authors, Project has some special features which can also be called a Project constrained. PMBOK (2013) managing a project typically includes balancing the competing project constraints which include Scope, Quality, Schedule, Budget, Resources and Risk.

According to PMBOK (2013) “Project management is the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements”. This definition clearly identifies that the purpose of the project is to meet the stakeholders need and expectations. It is therefore, a fundamental requirement for the project team to
establish who the stakeholders are (beside the client) and analyse their needs and expectations to define, at the outset, the project’s scope of work and objectives.

Going by the above author PMBOK, it further states that for Project Management to be accomplished it has to pass through the appropriate application and integration of 47 logically grouped management processes, which are categorised in five process groups, which are Initiating, Planning, Executing, Monitoring and Controlling and Closing. While Larson et al. (2011) state that “another way of illustrating the unique nature of Project work is in terms of Project Life Cycle”. The life cycle recognises that projects have a limited lifespan and that there are predictable changes in level of effort and focus over the life of the project.

He further elaborated that Project Life Cycle typically passes sequentially through four stages: defining, planning, executing, delivery. Verzuh (2008) belief Project Management is a discipline – a set of methods, theories and techniques that have evolved to manage the complexities of work that is unique and temporary and as the discipline continues to evolve, it can claim a proven track record. While Kerzner (2009) argue that Project Management is the planning, organizing, directing, and controlling of company resources for a relatively short term objective that has been established to complete specific goals and objectives.

According Hedre (2009) construction projects management consists of planning, organizing, coordinating and monitoring of the project, from the beginning to the end, with the aim of achieving customer requirements on producing a viable project, financially and functionally, in compliance with quality standards, costs and
implementation deadlines agree upon. The construction project is an entity with limited time of action.

While Hendrickson (2008) stated that the function of Project Management in Construction project as: Specification of Project objectives and plan including delineation of scope, budgeting, scheduling, setting performance requirements and selecting project participants, maximum of efficiency resources utilization through procurement of Labour, materials and equipment according to schedule and plan Implementation of various operations through proper coordination and control of planning, design, estimating, contracting and construction in the entire process. Development of effective communication and mechanisms for resolving conflicts among the various participants.

Project management is an important, even vital to every project competency. A proper implementation of Project Management in a project will help the delivery of project according to client expectation. Wellman (2011) stated that The Economist Intelligence Unit, even a leading source of economic and business research says, 90 percent of global senior executives and Project management experts say good project management is a key to delivering successful results and gaining a competitive edge.

2.2 Risk Management

Risk Management is one of the nine Knowledge areas of Project Management propagated by the Project Management Institute.

- Project Integrated Management
- Project Scope Management
• Project time Management
• Project cost Management
• Project Quality Management
• Project Human resource Management
• Project Communication Management
• Project risk Management
• Project Procurement Management
• Project Stakeholder management

According Larson et al. (2011) “Risk Management is an attempt to recognise and manage potential and unforeseen trouble spots that may occur when project is implemented”. While Verzuh (2008) state that “Risk Management is the means by which uncertainty is systematically managed to increase the likelihood of meeting Project objectives”. The key word is uncertainty and systematic, every project has a level of uncertainty inherent in it and the more systematic disciplined the approach initiated, the more we are able to control and reduce the risks. Kerzner (2009) argue that Risk is a measure of the probability and consequence of not achieving a defined project goal. Kerzner was more explicit with examples that, most people agree that risk involves the notion of uncertainty. Can the specified aircraft range be achieved? Can the computer be produced within budget cost? Can the new product launch date be met? A probability measure can be used for such questions; for example, the probability of not meeting the new product introduction is 0.15. However when the risk is considered, the consequences or damages associated with the event occurring must also be considered. All project experience the
unexpected but the advantage of risk management is that fewer problems catch the project off guard.

Risk management must have been incorporated into a project at the planning stage all through the Project Life Cycle. Banaitiene et al. (2012) stated that Project Risk Management is an iterative process: the process is beneficial when is implemented in a systematic manner throughout the lifecycle of a construction project, from planning to completion. While Pinto (2007) state that Risk Management only has value if the project has an integrated baseline plan against which to assess risks and opportunity. PMBOK (2013) buttress that “Project Risk Management include the processes of conducting risk management planning, identification, analysis, response planning and controlling risk on a project”. The objectives of project risk management are to increase the likelihood and impact of positive events, and decrease the likelihood and impact of negatives events in the project.

Due to the complex nature of construction project, it can be unpredictable and prone to risk. Risk in construction projects can be recognized as a very important process in order to achieved project objectives. Abd Karim et al.(2012 ) Construction industry is usually more risky as compared to other business activity because of the complexity in coordinating various activities, furthermore, each project is unique and often incorporated with new techniques and procedures. Zeng et al. (2007) further enhance the fact that the increasing complexity and dynamics of construction projects have plague the construction industry with substantial hazards and loses. Project risk management, therefore, has been recognised critical for the construction industry to improve their
performance and secure the success of project. Cavignac (2009) as cited in Banaitience (2011) emphasized that “Risk Management helps the project participants-clients, contractor or developer, consultant, and supplier to meet their commitments and minimize negative impacts on construction project performance in relation to cost, time, and quality objective”.

Risk framework and systematic approach have been discussed by so many authors. Wang et al. (2004) stated that Risk management is a formal and orderly process of systematically identifying, analysing and responding to risks throughout the life cycle of a project to obtain optimum degree of risk elimination, mitigation and /or control. Burdük (2009) further buttress risk analysis as: typical risk management process includes the following key steps: risk identification, risk assessment, risk mitigation, risk monitoring. Maylor (2010) belief risk management activity can be divided into three main areas identification, quantification and response control or mitigation. While Zou et al. (2010) argue that Risk identification, risk analysis, and standardized risk management process should focused more specifically on risk events. The author further expanded his point that, it is the ability to properly and systematically address arising issue while taking into account possible risk factors, constraints and magnitude of risks. Wang et al. (2004) further state that the systematic approach to risk management in construction industry consists of three main stages: risk identification, risk analysis and evaluation and risk response.

According to Smith (2006) the importance of risk management in construction project are follows: In construction project each of the three primary targets of cost, time and quality
will be likely to be subject to risk and uncertainty. It is vital to recognise the root causes of risks, and not to consider risk as an event that occur almost at random. To achieve these aims it is suggested that a systematic approach is follow: To identify the risk sources, to quantify their effects (risk assessment and analysis), to develop management responses to risk and finally to provide for residual risk in the project estimate. Bryde (2009) Risk management in construction projects involves risk management planning, risk identification, risk assessment, risk analysis, risk response, risk monitoring and communication Abd Karim et al. (2012) argue that Risk management approach is systematic approach which involve nine steps to follow in order to manage the risk in construction project: making risk (management strategy), identify risk, assess risk, apply risk matrix, update risk assessment, negotiate the risk, allocate the risk, threat the risk and monitor and report.

2.3 Delay Mitigation

Delay mitigation has been researched by many authors, following various analyses on how risk management tools can be used in mitigating uncertainty in project, which could lead to delay in projects. Hamzah (2008) stated that delay mitigation consists of four main phases: Knowledge of identification, knowledge of sharing, creation and integration, knowledge exploitation, knowledge storage. Abdul Rahman et al. (2006) stated that an analysis is needed to identify the impact of delay on time and cost followed by taking appropriate action to mitigate delay and minimize the cost required.

According to PMBOK (2013) risk identification is the process of determining which risks may affect the project and documenting their characteristics. The key benefit of this
process is the documentation of existing risks and the knowledge and ability it provides to the project team to anticipate events. Wysocki et al. (2009) Risk identification is an important step in the risk management process, as it attempts to identify the source and type of risks. It included the recognition of potential risk event conditions in the construction project and the classification of risk responsibility. Lockyer et al. (2005) stated that the essential first step in risk management is the systematic identification of many of the possible risks of problems occurring in the life of the project and of areas of uncertainty which may develop risks. Lockyer further argues that the use of network based plan can help to identify critical areas, only when this has been done can the risks be ranked in order of seriousness and plan prepared to mitigate or eliminate them. Baloi et al. (2003) as cited in Bryde (2009) A key step in risk management process is risk identification, as the ability to assess, analyse, respond and communicate is influenced by how well the identification process as been undertaken.

According Schieg et al. (2006) risk identification must be carried out in a way that is both forward looking and in line with the progress of the project, since before the start of the project not all risks are completely recognisable and during the project implementation further risk may emerge. According Skorupka (2008) further stressed that Risk identification is crucial for accurate assessment of risks, because a risk is understood and defined in a variety of ways, which leads to problems when it comes to its interpretation. Correct risk identification ensures risk management effectiveness. According Larson et al. (2011) risk management process begins by trying to generate a list of all the possible risks that could affect the project. During planning phase the core team member and stakeholders are pulled together using brainstorming and other problem identifying
techniques to identify potential problems. An effective tool for identifying specific risk is the work breakdown structure (WBSs). The use of the Risk breakdown structure (RBSs) reduces the chances for a risk event to be missed. Larson further argued that one common mistakes that is made early in the risk identification process is to focus on objectives and not on the events that could produce consequences.

Rogachev (2008) identified risks are analysed in order to form a basis for determining how they should be managed. Risk are assessed both on an inherent and residual basis, with the assessment considering both risk likelihood and impact. Alidoosti (2012) stated that risk assessment can help decision maker to assign their riskiest component and make a proper decision in order to reduce or limit the existing risks. Carbone and Trippett (2004) as cited in Abdelgawad et al. (2010) introduce an application of FMEA (Failure mode and effective analysis) to the context project risk management by evaluating the risk score and to find the most critical risk events that requires immediate risk response believed that identification and mitigation of project risk are crucial steps in managing successful project.

Due to the limitation of traditional FMEA, Abdelgawad et al. (2010) Fuzzy logic and fuzzy analytical hierarchy process (AHP) are used to address the limitation of traditional FMEA. In essence, this method explores the concept of fuzzy expert system to map the relationship between impact (I) Probability of occurrence (P) and detective/control (D) and the level of criticality of risk event and Adam (2008) stressed that to further analyse the risk identified, there are generally two broad categories, namely qualitative and quantitative. While Ebrahimnejad (2010) as cited in banaitiene et al. (2010) introduced
new criteria based on developing risk concepts for more precise risk. Probability criterion, impact criterion, quickness of reaction towards risk criterion, event measure quantity criterion and event capability criterion.

Many approaches on risk classification have been suggested in the literature for effective construction project risk management. Tah (2000) as cited in Banaitiene et al. (2010) categorized risk into two groups in accordance with the nature of the risk, i.e. external and internal risks. Combining the fuzzy logic and a work breakdown structure, the author grouped risks into six subsets local, global, economic, physical, political and technological change.

There are four alternative strategies which are: risk avoidance, risk transfer, risk mitigation and risk acceptance, for treating risk in a construction project. As stated by Hillson (1999) risk mitigation and risk response development is often the weakest part of the risk management process. The proper management of risks requires that they be identified and allocated in a well defined manner. This can only be achieved if contracting parties comprehend their risk responsibility, risk event conditions and risk handling capabilities.

Risk transfer means the shift of risk responsibility to another party either by insurance or by contract. Wang et al. (2004) reported that contractors usually use three methods to transfer risk in construction projects namely:

(1) Through insurance to insurance company
(2) Through subcontracting to subcontractors and
(3) Through modifying the contract terms and conditions to client or other parties
Schieng (2007) offered another tool for risk analysis of construction projects, the post-mortem analysis as a method for company knowledge management. Through post-mortem analysis, the project manager may identify area (i.e. resource allocation, change management, risk and uncertainty) to be emphasized or more closely managed in future construction projects.

Adam (2008) construction project risk can be broadly classified as either objectives or subjective. Risk that are purportedly analysed by the actual observation or calculation of their occurrence and impact on a project are often describe as objective risks. Analyses of objective risk are quantitative in nature and are often structure in probabilities. They involve experimental evidence, long term experience, or complicated analytical calculations that describe actual or potential risks. Risk that are assessed based on belief about the risks rather than objectives recorded risk data are often referred to as subjective risks. Analyses of subjective risk are often quantitative and based on the analysts knowledge and experience of the risks and the process by which the analyst selects and organises such knowledge and experiences into meaniful patterns.

The majority of construction project risks are subjective; there are often insufficient historical data to enable their objective analysis. According to Adedokun (2013) the construction sector has not taken full advantage of QRAT (Qualitative Risk Analysis Techniques) in the analysis of risk inherent in construction projects, this has been responsible for cost and time overruns usually recorded. Analysing risk will help the stakeholders in assessing degrees of project complexity and better management of the
potential risks that might be introduced to different level of construction projects in Nigeria in order to achieve hitch free construction project delivery.

Pengcheng et al. (2012) stated that from the perspective of information economics, asymmetric information give rise to opportunistic information and also gives rise to opportunistic behaviour, which is the primary cause of loss of faith and increased risk in construction market. Asymmetric information theory is helpful for solving problems arising in construction projects and for preventing construction project risk. According to Ekaterina et al. (2013) Joint risk management (JRM) is an approach that highlights the importance of collaboration between the project actors in managing risk that cannot be identified at the outset of the project. According to Eybpoosh et al. (2011) the development of risk path model offers a comprehensive look at the risk pattern that may emerge throughout the project, because it contains:

1) Vulnerabilities
2) Risk sources
3) Potential risk events/problems
4) The effects of problems on a projects cost performance.

As the model demonstrates the cross impacts and co-occurrences of distinct risk paths, it stimulates a project environment in a more realistic way.

According Imbeach et al. (2009) APRAM (Advanced Programmatic Risk Analysis and Management Model) provides a risk analysis techniques that can minimize the expected costs of project failure by integrating project risk of time, budget, and quality through the allocation of resources. APRAM offers a mechanism that can be used to optimally
allocate resources available for reducing the probabilities or consequences of the identified potential budget, schedule, and quality failures.

APRAM offers the potential to more fully integrate budget, schedule and quality risk into a coherent risk management framework for construction professionals. Ismail et al. (2008) provides a level severity probability approach to determine the critical risk source and factor. Fuzzy logic can be used for evaluation of the risk level, severity and probability. As stated by Nasirzadeh et al. (2008) application of fuzzy based system dynamic approach provides an effective tool to perform an integrated risk management process accounting for the complex, structure, dynamic behaviour and uncertain nature of construction risks.

2.4 Construction /Nigeria

The construction industry is volatile and dynamics in nature that requires tremendous capital outlays. The industry often acts as a catalyst to stimulate the growth of a nation’s economy. Saleh (2009) stated that “construction is considered unique in that it can stimulate the growth of other industrial sectors”. According to Lewis (2011) one of the most dynamic and responsive industrial sector is that of construction. It is an industry in which the output is normally highly visible, which gives it political appeal, as well as having strong backward and forward linkages with other industries, which makes it a powerful tool for economic manipulation. Hrushikesh et al. (2008) also stated that “construction (public and private) makes both direct and indirect contributions to the economic output of a country, as this sector has strong linkages to several other sectors of the economy”. The construction industry can be seen as a driver of economic growth
especially in developing counties. It helps in achievement of socio-economic development of providing shelter, infrastructure and employment.

Haseeb et al. (2011) elaborate on the importance of construction to the economy of a nation as: On a large level, there is no suspicion that the development of a country depends upon its achievement of its advanced plain with elevated construction contents. There is a French dictum “when the construction industry prospers everything prospers”. Escalation of construction industry is of imperative for all regions of national and international economy, as well as everyone involved in the industry like contractors, workers, financiers, architects, engineer’s etc.

According Ikechukwu et al. (2012) the Office of National Statistics notes that at the end of the third quarter of 2011, there were over 2 million people employed in the multiple roles in over 250,000 construction firms in UK, with about £75 billion construction to the UK economy. A similar impact is noticeable in Nigeria, where note that the industry has contributed substantially to the economic growth (5%-7% improvement in the GDP growth, and over 42% of the fixed capital growth) over the last four decades. BMI (2011) stress that historic data confirmed that Nigeria overall construction industry value experienced a deep construction in 2009 and 2010 which resulted in value rise in Nigeria construction industry. BMI further forecast Nigeria’s construction industry to reach US$3.6 billion in 2011 and US$ 8.7 billion by 2015. Nigeria Infrastructure Report (2013) also enhanced that Nigeria will continue to see growth within its construction sector and we anticipate an annual average real growth of 8.2% between 2013 and 2017.
Despite the uniqueness of construction industry to the growth of national economy, Nigeria is still witnessing a lot of construction project failure due to delay. Mohammed et al. (2012) stated that “Delay is one of the major problems in Nigeria construction industry”. Olusegun et al. (2011) also buttress the fact that “delay have knock on effect on the construction industry and in indeed in the whole economy. According to kontangora (1993) as cited by Olusegun et al. (2011) there are about 4000 uncompleted or abandoned project belonging to the Federal Government of Nigeria with an estimated cost of above N300 billion which will take 30 years to complete at the present execution capacity of Government, also this issue of delay has been left without adequate attention for too long which is now having a multiplier effect on the construction industry in particular and the national economy as a whole. Ibironke et al. (2013) also stressed that “delay are one of the biggest problems construction firms face. Seven out of ten projects surveyed in Nigeria suffered delays in their execution”.

Michael (2010) stated that bribery and corruption in Nigeria construction industry is endemic, between 5% to 15% and times up to 40% were illegally expended in bribery and corruption to high and management officials in Government offices during contract award, execution, and payment. The effects of bribery and corruption leads to building collapse, abandonment of Project, upward review of contract cost, extension of time and reduction in the life span of building. Aibinu (2006) investigated and assessed the causes of delays in building projects in Nigeria. The nine factor categories evaluated includes: client, contractor, quantity survey, architect, structural engineer, service engineer and supplier and subcontractor caused delays, and external factors (i.e. delays not caused by the project participants)
According to Oyewobi et al. (2011) pointed out that corruption has a bad effect of project delivery, and the consequences of corruption is that it dramatically increases the cost of construction by undermining corruption for instance, corruption on residential projects eliminates both middle and low income housing. The author further stated that Delay and cost are the consequences of corrupt practices when a contractors deliberately overstates the time and cost requirements and falsify time sheets in order to achieve a higher price from the kickbacks and also concealment of the quality of work whereby defective materials could be used or cheaper materials and inferior specification. Rodriguez et.al (2005) as cited in Oyewobi et al. (2011) highlights the devastating impact of corruption in construction such as wasted tender expenses, tendering uncertainty, increased project costs, delay, reputational risk among others. Corruption affects not only the cost or the time of projects but both the environment for business and policymaking.

According to Ogunlana et al. (1996) studied delay in building project in Thailand as an example of developing economies. They concluded that the problems of the construction in developing economies could be nested in three layers

1. Problem of shortages or inadequacies in industry infrastructure, mainly supply of resources

2. Problem caused by clients and consultants and

3. Problem caused by incompetency of contractors.

Moneke (2012) stated that there have been problems of inaccurate work schedules in many construction projects and these have resulted to scheduled uncertainty and time over run of the entire project. A field survey has indicated that many work schedules and
work plan have failed to produce successful results with respect to timing, resource utilization and reliability of the schedule. They also stated that work schedule lead to cost overrun, low quality standard and poor schedule performance index.

Odeyinka et al. (1997) studied the causes of delay in Nigeria housing projects. The main categories evaluated included client – consultant and contractor caused delays, and extraneous factors. Client-caused delays were found to arise from variation orders, slow decision making and cash flow problems while contractor caused delays were from financial difficulties, materials management problems, planning and scheduling problems, inadequate site inspection, equipment management problems and shortage of manpower. Mansfield et al. (1994) looks into the causes of delay and cost overruns in the public highway and building projects and found that there was a very good agreement between the professionals surveyed on those factors that could cause delays. The four most important items agreed on by the contractor, consultants, and public clients surveyed were the financing of and payment for completed works, poor contract management, change in site conditions, and shortage of materials.

Selecting a capable contractor is one of the most important tasks faced by contractor client who wishes to achieve successful project outcomes, as stated by Ogunsemi et al. (2006) contractor are one of the major players in the construction industry and the services they render are critical to the quality of the end product as well as meeting cost and time targets. A good contractor is expected to complete a project on time within budgeted cost and to the desired level of quality. Unfortunately, this is not always the case in Nigeria; construction projects are mostly characterized by delays, substandard
work, cost overrun, disputes, claims, and in extreme cases abandonment. On the other hand, it has been argued that the quality of a product to a large extent depends on the skills and experiences as well as the competence of the producing agents (contractors).

El-Razek et al. (2008) stated that seven semi structure expert interviews were conducted to identify the most appropriate causes of delay in Egyptian building project. And the most important causes identified by the survey, and based on an overall result were: financing by contractor during construction, delays in construction payment by owner, designer changes by owner or his agent during construction; partial payments during construction; and non utilization of professional construction/ contractual management.

Kumaraswamy et al. (1998) conducted a survey on the cause of construction delay in Hong Kong as seen by clients, contractors and consultant, and examined the factors that affecting productivity. The study revealed differences in perception of the relative significance of factors between the three groups, indicative of their experience, possible prejudices and lack of effective communication.

Al-kharash et al. (2009) conducted a survey on the delay in Saudi Arabian public sector construction project as shows there are five causes that have the greatest effect on delay:

(1) Lack of finance to complete the work by the client
(2) slow decision making by client
(3) Suspension of work by owner
(4) Difficulties in obtaining work permits
(5) Nonpayment of contractor claim.
Maura et al. (2007) as cited by Mohamed et al. (2012 p.787) stated that on the time and cost overrun in Portuguese, discovered that design errors, client liability, project specification and direct change order by the client are the major factors that causes the time and cost overrun.

Mezher et al. (1998) conducted a survey on the causes of delays in the construction industry in Lebanon from the perspective of clients, contractors and architectural/engineering firms. It was found that clients are more concerns with financial issues; contractors considered contractual relationships as the most important, and consultants considered project management as the most important causes of delay. Abdullah et al. (2002) evaluated the progress reports of 164 building and 28 highway projects constructed during the period of 1997 to 1999 in Jordan. The result indicates that delay is extensive: the average ratio of actual completion time to the planned contract duration is 160.5% for road projects and 120.3% for building project.

Al-momami et al. (2000) conducted a quantitative analysis of construction delays by examining the records of 130 public building projects constructed in Jordan during the period of 1990 to 1999. The researcher presented regression models of the relationship between actual and planned project duration for different types of building facilities. The analysis also included the reported frequencies of time extensions for the different causes of delays. The study concluded that the main causes of delay in construction project are designing user changes, late deliveries, weather, site conditions, economic conditions and increase in quantities. Assaf et al. (1995) studied the causes of delay in large building construction projects Saudi Arabia and outline the most important causes of construction
projects delays as: approval of shop drawing, delay in construction payments, cash flow problems during construction, design changes, conflicts in work schedule of subcontractors, slow decision making, executive bureaucracy in the owners organizations, design errors, labour shortage and inadequate labour skills.
3.0 CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

In this section, a review of the methodology and the methods employed for the research would be undertaken. Maylor and Blackmon (2005) described research as a process of finding out information and investigating the unknown to solve a problem, it involved identifying a problem and understanding what information is relevant to address that problem, getting the information and interpreting that information and its context. Saunders et al. (2007) completes this broadly definition describing Research as “something people undertake in order to find out things in a systematic way, thereby increasing their knowledge.

Hancock (2009) describes methodology as “all these matters regarding the structure and design of the research study. It deals with issues like:

- The type of information required
- The research design
- The method of collecting data
- The source of information- this known as the sample

Balnaves and Caputi (2001) refers to the term method as the actual techniques like questionnaire and procedures used to quantify and collect data. Research methodology is the theory of how research is undertaken including the theoretical and philosophical assumptions upon which research is based and the implications of these for the method adopted. It embraces the research purpose, philosophy, research approach, research
strategy, time horizons, data collection methods and data analysis that is used in the course of the research. Saunders et al. (2009) illustrates these research processes in form of the layers of an onion; the onion is a metaphor for describing the layers of the research process. It will provide the necessary degree of structure to the research, in other to provide suitable basis for testing the research hypothesis while achieving the research objectives.

The researcher intends to carry out the study in the Nigeria Construction Industry and particularly three construction firms (Firm A, Firm B and Firm C). In order to be able to get informed responses to the issues being raised by this research, the survey shall be
focusing on civil engineers, contractors, architects and project managers in the firm. This represents the population that have the firsthand feel of the delay in construction project handled by these firms and they are in the position to give an insight into the causes of these delay.

3.2 Research Design

According to Saunders et al. (2007), research design will be the general plan on how the research will go about answering the research questions that have been set. It will contain clear objectives, derived from the research questions, specify the sources from which researcher intend to collect data. The design of research strategy for this dissertation involves three elements:

- Survey using questionnaire method,
- Cross sectional studies as time horizon and
- Description as the study of research process.

3.2.1 Research Question

According to Saunders et al. (2009), the key criteria of research success will be whether a set of clear conclusions could be drawn from the data collected. The extent to which this could be done is determined by the clarity with which initial research questions are posted. The research question of this dissertation is defined as:
“Can the integration of systemic risk management approach help to manage the causes of delay in Nigeria Construction Project?”

### 3.2.2 Research Objective

According to Saunders et.al (2009), objectives are more generally acceptable to the research community as evidence of a researcher’s clear sense of purpose and direction. The researcher’s objectives are likely to lead to greater specificity than research or investigative questions. With these ideas in, the researcher defines the following objectives:

1. To understand the rate of delay in construction project in Nigeria
2. To determine the impact of delay in a Construction Project
3. To find the root event that causes construction delay in Nigeria
4. To discover the level of effective systematic risk management that is involved in construction project in Nigeria.

### 3.2.3 Research Hypothesis

Kumar (2005) explains that hypothesis brings clarity, specificity and focus to a research problem. They tell a researcher what specific information to collect and thereby provide greater focus. On the other hand, Branmck et al. (1997) explained that hypothesis is designed to develop, extend or refute an already established body of knowledge.

The hypotheses presented by this researcher are:

1. Delay has a great impact on the massive Project failure in Nigeria.
Systematic risk management approach could help to mitigate delay in construction project in Nigeria

3.3 Structure of Research Method

This study is empirical to the extent that it is based on observation and data analysis as against just theory. The purpose of this study is to identify the rate of delay in construction project in Nigeria and how risk management could be incorporate to mitigate such delay.

3.4 Research Philosophy

According to Saunders et al. (2009) “Research philosophy is the critical analysis of the fundamental assumptions or beliefs held by an individual, such as you. The research philosophy you adopt contains important assumptions about the way in which you view the world around you. These assumptions will underpin your research strategy and the data collection methods you choose as part of strategy.

Maylor and Blackmon (2005) expressed that research philosophy describes a “theory” of research in a particular field and explains the nature of reality and how we can know reality. The three main types of philosophies which are: positivism, interpretivism and realism. There is no one research philosophy that is better than another. The research questions that the research seeks to answer will determine the research philosophy that is appropriate.

This research will employ both positivism and interpretivism philosophies. Bryman (2011) expressed that Positivism is an epistemological position that advocates the
application of the methods of the natural sciences to the study of reality and beyond. Saunders et al. (2007) describes positivism as an epistemological position that advocates working with observable social entity. Positivism generally seeks to test theory, in an attempt to increase the predictive understanding of phenomena. Remenyi et al. (1998) expresses that positivism is the assumption that the researcher is independent of and neither affects nor is affected by the subject of the research, and the end product of positivism research can be the derivation of laws or law lie generalizations similar to those produces by physical and natural scientists.

Bryman (2011) described interpretivism as a view that the subject matter of the social sciences people and their institutions is fundamentally different from that of natural sciences. Sunders et al. (2009) describe interpretivism as the epistemological position that advocate the necessity to understand differences between humans in their role as social actors.

The researcher will use the existing theory to develop hypothesis which will be tested and confirmed within the framework of Incorporation of risk management for delay mitigation in Nigeria construction Project. Saunders et al. (2009) stated that in generating a research strategy and the collection of this data you are likely to use existing theory to develop hypothesis. Hypotheses were developed form the assessment of the literature review created from the research gathered from secondary sources like books, reports and academic journals. The researcher would conduct an empirical examination to test the validation of the developed hypotheses
3.5 Research Approach

Research approaches are about applying deductive or inductive approach. The deductive approach is developed by first building a theory and hypothesis (or hypotheses) and then designing a research strategy to test the hypothesis. Bryman and Bell (2005) stated that deductive theory represents the most common view of the nature of the relationship between theory and research. The researcher, on the basis of what is known about a particular domain and of theoretical considerations in relation to that domain, deduces a hypothesis (or hypotheses) that must be subjected to empirical scrutiny. Deductive approach matches more with scientific research on the sense that facts have to be measured quantitatively. Furthermore, the researcher has to be independent from what is being observed. Deductive owes much to what we would think of as scientific research. It involves the development of a theory that is subjected to a rigorous test. Saunders et al. (2009).

According to Saunders et al. (2007) the inductive approach refers to get a feel of what is going on, so as to understand better the nature of the problem, which means that formulation of a theory will follow data rather than in deductive approach. Plus, the context in which such events are taking place is a fundamental concern. Moreover, this approach permits to discover alternatives explanations.

In the case of this researcher, based on the theoretical research carried out, came up with two hypotheses that will be subjected to empirical scrutiny. To test the hypothesis, quantitative data will be collected. Data analysis will be done based on data collection through survey method using questionnaire.
3.6 Research Strategy

According to Saunders et al. (2012) characterize research strategy as a strategy which will permit the researcher to answer a particular research question(s) and meet your research objectives. The author further emphasize that your research strategy will be guided by your research question(s) and objectives as well as the extent of your existing knowledge, the amount of time and other resources you have available, as well as your own philosophical leanings. The author grouped Research Strategy into:

- Experiment,
- Survey,
- Case study,
- Action research,
- Grounded theory,
- Ethnography,
- Archival research.

This author will be using survey for the research strategy According to Saunders et al. (2009) Survey strategy is usually associated with deductive approach. Survey strategy is popular and common strategy in business and management research and is most frequently used to answer who, what, where, how much and how many question. The author of this research will adopt survey as the research tool for this study since the questionnaire for this study is more of what, how and can. The survey will be conducted online via survey monkey; it will be Email to selected set of population related to this
research in the three selected construction firms in Nigeria. A Nominal, ordinal and ratio scale will be use in measurement in this research for better precision.

3.7 Research methods Choice

The research methods choice refers to quantitative and qualitative data. According to Saunders et al. (2009) Quantitative is predominantly used as a synonym for any data collection techniques (such as questionnaire) or data analysis procedure (such as graphs or statistics) that generates or uses numerical data. In contrast, qualitative is used predominantly as a symbol for any data collection techniques (such as an interview) or data analysis procedure (such as categorizing data) that generates or uses non-numerical data. Qualitative therefore can refer to data other than words, such as pictures and video clips. Quantitative and qualitative is a combined procedures to form a research choice. Tashakkori and Teddlie (2003) use the more generic term research design when referring to multiple methods. Individual quantitative and qualitative techniques and procedure do not exist in isolation. In choosing your research methods you will therefore either use a single data collection technique and corresponding analysis procedures (mono method) or use more than one data collection technique and analysis procedures to answer your research question (multiple methods)

This author research will adopt Mono Method for his choice .Saunders et al. (2009) Mono method uses a single data collection techniques and corresponding analyzing procedure. This research only adopts quantitative data collection (questionnaires) as well as statistics analysis to test hypothesis if it does answers the research questions.
3.8 Time Horizon

There are two methods to lead a study concerning time horizons; cross – sectional study and Longitudinal study. Saunders et al. (2007) distinguished them by speaking of “snapshot” for cross- sectional study and “diary” for longitudinal study. According to Saunders et al. (2012) stressed that a cross sectional research design is the process of collecting data from participants at only one period in time in what is often termed a “snapshot” The data are typically collected from multiple groups or types of people in cross sectional research. Whereas longitudinal study or research design has the capacity to study change and development overtime. This may conjure up images of annual visits to managers to tract their progress as part of a coaching programme.

The researcher will adopt a cross sectional survey strategy. According to Saunders et al. (2009) a cross sectional research is a study of particular phenomenon at a particular time. Most research projects are undertaken for academic courses which are time constrained and the researchers follow the cross sectional study method. Cross sectional often employ survey strategy. This research is done for academic purpose and the research carried out is cross sectional approach. Also According to Allan (2007) a cross sectional design entails the collection of data on more than one case and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables, which are then examined to detect patterns of association. This authors research survey were directed to architect, civil engineers, contractors and project managers who have different years of experience in construction from three different construction firms with a different views and opinion on delay in construction.
3.9 Sampling

According to Saunders et al. (2009) sampling techniques can be divided into two types:

- Probability or representative sampling
- Non-probability or judgmental sampling

Probability sampling (or representative sampling) is most commonly associated with survey-based research strategies where you need to make inferences from your sample about a population to answer questions or to meet your objectives. The process of probability sampling can be divided into four stages:

- Identify a suitable sampling frame based on your research questions or objectives.
- Decide on a suitable sample size.
- Select the most appropriate sampling techniques and select the sample
- Check that the sample is representative of the population

Saunders further stated that there are five main techniques that can be used to select probability sample namely:

- Simple random
- Systematic
- Stratified random
- Cluster
- Multi stage
While non-probability sampling provides a range of alternative techniques to select samples based on your subjective judgment. Having decided the likely suitable sample size, you need to select the most appropriate sampling techniques to enable you to answer your research questions from various range of non-probability sampling techniques:

- Quota Sampling
- Snowball Sampling
- Purposive Sampling
- Self Selection Sampling
- Convenience Sampling

According to Bryman et al. (2011) Quota sampling is used intensively in commercial research, such as market research and political opinion polling. The aim of quota sampling is to produce a sample that reflects a population in terms of the relative proportions of people in different categories, such as gender, ethnicity, age groups, socioeconomic groups, and region of residence. Saunders et al. (2009) stated that Quota sampling is entirely non-random and is normally used for interview surveys. It is based on the premises that your sample will represent the population as the variability in your sample for various quota variables is the same as that in the population.

According to Neuman et al. (2005) as cited in Saunders et al. (2009) Purposive or Judgmental sampling enables you to use your judgment to select cases that will best enable you to answer your research questions and to meet your objectives. This form of sample is often used when working with very small samples such as in a case study research and when you wish to select cases that are particular informative. Saunders
(2009) also stressed that Purposive sampling may also be used by researchers adopting the grounded theory strategy. For such research, findings from data collected from your initial sample inform the way you extend your sample into subsequent cases.

Snowball Sampling - Saunders (2009) stated that snowball is commonly used when it is difficult to identify members of the desired population, for people who are working while claiming unemployment benefit. The researcher need therefore to

- Make contact with one or two cases in the population
- Ask these cases to identify further cases
- Ask these new cases to identify further new cases
- Stop when either no new cases are given or the sample is as large as is manageable

Self- Selection Sampling- Saunders (2009) Self Selection Sampling occurs when you allow each case, usually individuals, to identify their desire to take part in the research. You therefore

- Publicize your need for the cases, either by advertising through appropriate media or by asking them to take part.
- Collect data from those who respond.

Convenience Sampling- involves selecting haphazardly those cases that easiest to obtain for your sample, such as the person interviewed at random in a shopping centre for a television programme or the book about entrepreneurship. (Saunders 2009)
This researcher will adopt non-probability sampling which will enable this researcher to choose population based on the objectives study. Saunders (2009) Non probability provides a range of alternative techniques to select samples based on your subjective judgment. In view of this purposive sample techniques deem appropriate in this research, has it enables to chose the right population the likes of Civil engineer, project manager, architect that are directly responsible for construction. The selection will enable to know the level of impact of delay in construction project in Nigeria and how it could be mitigated through incorporation of risk management. The target population would be 100. Saunders (2009) stated that purposive sampling enables you to select cases that will best enable you to answer your research question(s) and to meet your objectives.

3.10 Data Collection

Prior to the administration of questionnaire to the three shortlisted construction firms in Nigeria, senior management permission to administer the questionnaire was internally given. The researcher would make use of survey monkey, an online tool for creating and publishing survey to send questionnaires to mailboxes of respondents. Saunders et al. (2006) refers to the mixed method strategy as a research method that uses both qualitative and quantitative data collection techniques and analysis procedures. Mixed method research uses quantitative and qualitative data collection techniques and analysis procedures either at the same time (parallel) or one after the other (sequential). Tashakkori and Teddlie (2003) as cited by Saunders et al. (2006) argued that this method is useful if it provides better opportunity for the research questions to be answered. The qualitative method will be used to analyse data sources from academic and professional journals, textbooks, newspaper, questionnaire and interviews.
The researcher objective is to investigate and (1) To understand the rate of delay in construction project in Nigeria (2) To determine the impact of delay in a construction project (3) To find the root event that causes construction delay in Nigeria (4) To discover the level effective systematic risk management that is involved in construction project in Nigeria.

The researcher will adopt the questionnaire survey for the aim of this research. 150 questionnaire survey which will be distributed via online through survey monkey to it purposive population (Project Manager, Civil Engineer, Architect ,Contractors ) in three different construction firms in Nigeria.

Each respondent will be asked the same set of questions in the same order of online survey questionnaire. A response rate of 80-100 will be expected for the validity of this study. Saunders et al. (2012) stated that questionnaires are good method for collecting data about the same things form large numbers of respondents.

3.11 Data Analysis

The author of this research will adopt both categorical and numerical for the purpose of this research. Nominal, Ordinal and ratio will be use in the course of this research. According to Saunders (2009) Quantitative data analysis techniques such as graphs, charts and statistics allow us to do this; helping us to explore, present, describe and examine relationship and trends within our data. The questionnaire designed for use in the survey comprises of demography information about respondents, and 11 main delay
causes which are grouped into two categories and 6 main effect of risk management which are group into two. Data will be analyzed using statistical package for social sciences (SPSS) mean, median and mode will be adopted to express numeric data, comparison between groups and to indicate frequency of delay causes, major difference between respondents opinion on risk management.

3.12 Plan

Practical Effort

- The author read a lot of academics books which helped to shape the thoughts of researcher and helped in understanding and gaining a deeper appreciation of the concepts under question (PMBOK 2013 and broader subject under risk management).
- This author also accessed journals to know past and present knowledge in area of research.
- Research on firms that will be suitable for the research,
- Emailed the management of the firms stating the intention of the researcher.
- Awaited response from the management for go ahead
- Survey was developed which will be send to the respondent via mail.
- Consistence follow up on survey
- Imputing of data into SPSS
- Analyzing the data
- Writing of first draft
- Revision of draft
• Printing and binding

3.13 Limitation

There are some limitations in this study. The main issue while conducting the primary research is to remain unbiased. The researcher has remained neutral to his best while conducting the questionnaires. Then the major limitation was Distance – The researcher would have love to do face to face questionnaire survey as this will help to throw more light for the purpose of this research and to give explanation to question the respondent might be skeptical about. This will help to complete the question appropriately without error. But distance and present financial constraint would not allow such a means, the author decided to settle for online survey for this research. The study, being cross sectional, is only relevant for the particular period of the present research. Any future changes alter the results of present research.

3.13 Personal Bias

The researcher, on the basis of the experience and the skill of the researcher in the area of project management and what is known about in the particular domain and of theoretical consideration in relation to that domain, deduced an hypothesis that must be subjected to empirical scrutiny, this researcher view of this domain might have a biased influence on the hypothesis.

The researcher adopted purposive sampling techniques to select population that will enable to answer the research question, might be bias to rest of the staff in the construction firms and also some stakeholder that has a stake in construction project.
Saunders (2009) Purposive enables you to use your judgment to select cases that will best enable you to answer your research question(s) and to meet your objectives.

3.15 Ethical Implication

Ethical concerns in research arise when the researcher seeks to access information from organizations and individuals on the subject of research. It refers to the appropriateness of the researcher’s behavior in relation to the rights of those who become subject of the research, or affected by it. Also ethical conducts should also be reflected in the participants who provide the data. Sekaran (2003) as cited in Saunders et al. (2007) the appropriateness of the researcher’s behavior in relation to the right of those who become the subject of a research project, or who are affected by it. According to Saunders et al. (2012) Before the conduct of the questionnaire a formal form will be E-mailed directly to the respondent informing them of ethics that will conducted and the purpose for this research. Considering the high sensitivity in construction firms in Nigeria, this researcher will keep high confidentiality of the name of the individual respondents and firms that participate in this research and it will not by any means appear in the research. All the information supplied will be stored in separate hard drive that will be secured with password and it will be destroy after research. Saunders et al. (2012) stated “it is often more important to guarantee confidentiality to individual respondents”. The question that will be ask in this research will not by any means harmful to the respondent nor the firms but help to see how incorporation of risk management could help their firm to mitigate delay. It will also be make clear to the respondent that they have the right to refuse to answer any question.
3.16 Time Allocation:

Saunders (2009) most research projects are undertaken for academic courses and are time constrained and the researchers follow the cross sectional study method. This research is done for academic purpose and is constrained within the time limit of 12 weeks.

3.17 How much may it cost to conduct your primary research? - €5,000.00

3.18 Time period Allocate

<table>
<thead>
<tr>
<th>Activity</th>
<th>Start Date -</th>
<th>Finish Date -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Searching for secondary data</td>
<td>13th May 2013</td>
<td>23rd May 2013</td>
</tr>
<tr>
<td>Reading secondary data</td>
<td>23rd May 2013</td>
<td>31st May 2013</td>
</tr>
<tr>
<td>Creating data collection instruments</td>
<td>31st May 2013</td>
<td>10th June 2013</td>
</tr>
<tr>
<td>Administrating data collection instruments</td>
<td>10th June 2013</td>
<td>30th June 2013</td>
</tr>
<tr>
<td>Analyzing primary data</td>
<td>1st July 2013</td>
<td>5th July 2013</td>
</tr>
<tr>
<td>Writing the early drafts</td>
<td>6th July 2013</td>
<td>20th July 2013</td>
</tr>
<tr>
<td>Analyzing comments on drafts by supervisor</td>
<td>21th July 2013</td>
<td>25th July 2013</td>
</tr>
<tr>
<td>Revisions of drafts</td>
<td>26th July 2013</td>
<td>2nd August 2013</td>
</tr>
<tr>
<td>Printing and binding</td>
<td>3rd August 2013</td>
<td>10th August 2013</td>
</tr>
</tbody>
</table>
4.0 CHAPTER FOUR: DATA ANALYSIS

4.1 Introduction

This subsequent section deals with the analysis of the collected data through primary and secondary research. In the following section the gathered data is interpreted, cross tabulation and analysed in order to meet research objectives. The suggested theory i.e. hypothesis is also tested in the next chapter for the validity in the present research.

4.2 Structure of data Analysis

According to Saunders et al. (2007) before quantitative data is processed and analysed, it convened very little meaning to most people. The data therefore need to be processed, and turned to information to make them useful. The quantitative data analysis techniques such as graphs, charts and statistics allow exploring, presenting, describing and examining relationships and trends within data.

All the twenty three questions and the respective data obtained have equal importance and are analysed and some of them are cross tabulated for retrieving the necessary information, in order to achieve the objectives and to test the hypothesis. Hence the researcher is discussing and analysing the findings.

The findings are based on the research objectives and research questions discussed in the research methodology chapter. In this section the primary data obtained from the questionnaire and secondary information from the literature reviews are linked, both for understanding and determining the research objectives and research questions.
The aim of this chapter is to illustrate the findings on the quantitative research carried out according to the research methodologies outlined in chapter three.

The questionnaire administered to the respondents was designed to find out how to manage the cause of delay in Nigeria Construction Project, integrating Risk Management. The questionnaire was divided into three sections viz, the demographic; the two other sections are the main body of the questionnaire. Each question contains different number of items to measure the causes of Construction delay in Nigeria and how risk management could be integrated to mitigate against the delay.

As stated in the methodology, a total number of 150 questionnaires were distributed via online to three major Construction firms, targeting the Project Manager, Civil Engineer, Architect, Contractors. Data obtained from the survey were analysed using statistical tool SPSS. Frequency tables and chart were used to illustrate the quantitative data findings.

4.3 Age and Demographic Section

The items in this section attempts to reveal the Gender, Age, Nationality, Job description, Years of experience, Management skills of the respondents.

Question 1. Gender of the Respondents

Frequency Table

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>78</td>
<td>77.2</td>
<td>78.0</td>
<td>78.0</td>
</tr>
<tr>
<td>Female</td>
<td>22</td>
<td>21.8</td>
<td>22.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
According to the survey result, out of the 100 sample selected from the three Construction firm in Nigeria there are more men in the Construction firm, 78% of the respondents were male and the remaining 22% were females. This reveals that Construction Industry in Nigeria attracts more men than females.

**Question 2. The age range of Respondents**

<table>
<thead>
<tr>
<th>Respondents age</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid 25-34</td>
<td>26</td>
<td>25.7</td>
<td>26.0</td>
<td>26.0</td>
</tr>
</tbody>
</table>

*Figure 2: Gender*
According to the survey results, out of the 100 respondents, 54% of the population were between the age group of 35-44 years. 26% were between the age group of 25-34. 20% were between the age group of 45-54. None of the respondent falls in-between the age group of 18-24 and 55 +

**Question 3: Nationality of respondents**
According to the survey result, it is clear that a good number of respondents were Nigerians with the highest percentage of 71% followed by China with the percentage of 12% and Pakistan with the percentage of 11%. The survey also reveals 6% of the respondent fell under others, which indicated their nationality was not stated among the country of Nationality provided.
Question 4 Job description of Respondents

Frequency Table

<table>
<thead>
<tr>
<th>Job Description</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Management</td>
<td>14</td>
<td>13.9</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td>Civil Engineer</td>
<td>41</td>
<td>40.6</td>
<td>41.0</td>
<td>55.0</td>
</tr>
<tr>
<td>Architect</td>
<td>23</td>
<td>22.8</td>
<td>23.0</td>
<td>78.0</td>
</tr>
<tr>
<td>Contractor</td>
<td>22</td>
<td>21.8</td>
<td>22.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart for Job description of respondents

Figure 5: Job description
According to the survey result, out of the 100 sample selected from the population, the result revealed 41% of the respondents were Civil Engineers, followed by Architects with a percentage of 23% and Contractors with a percentage of 22%. There were fewer respondents on Project Manager with the lowest percentage of 14%, which is an indication that Project Management is still not well accepted and practiced within the Construction industry in Nigeria

**Question 5. Years of experience in Construction Industry**

Frequency Table

<table>
<thead>
<tr>
<th>Years of Experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>30</td>
<td>29.7</td>
<td>30.0</td>
<td>30.0</td>
</tr>
<tr>
<td>10-19</td>
<td>68</td>
<td>67.3</td>
<td>68.0</td>
<td>98.0</td>
</tr>
<tr>
<td>20-29</td>
<td>2</td>
<td>2.0</td>
<td>2.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Chart for respondents years of experience
According to the survey results, out of the 100 respondents, 68% of the population were between the groups of 10-19 years, followed by 30% which falls between the groups of 0-9 years, there were fewer respondents in the group of 20-29 years. In this survey it could be noted that none of the 100 respondents are in the group of 30-39 and 40 +.

**Question 6: Have you manage a construction project before**

Frequency table

<table>
<thead>
<tr>
<th>Have you manage a Construction Project before?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>88</td>
<td>87.1</td>
<td>88.0</td>
<td>88.0</td>
</tr>
<tr>
<td>No</td>
<td>12</td>
<td>11.9</td>
<td>12.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The result reveals that good number of the respondents has managed a construction project before, with a staggering percentage of 88% followed by 12%. This result revealed that the larger percentage of the respondents are well experienced, which is an advantage to the findings of this research.

4.4 Findings.

4.4.1 To understand the rate of delay in Construction Project in Nigeria.

The above objective was created to find out the rate of delay in Construction project in Nigeria. Therefore three variables have to be analysed in order to get a result in the context of delay impact.
Q7. What is the level of delay frequency in every 20 construction project in Nigeria?

<table>
<thead>
<tr>
<th>Level of delay frequency in every 20 construction proj</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>10</td>
<td>9.9</td>
<td>10.0</td>
<td>10.0</td>
</tr>
<tr>
<td>Often</td>
<td>66</td>
<td>65.3</td>
<td>66.0</td>
<td>76.0</td>
</tr>
<tr>
<td>Always</td>
<td>24</td>
<td>23.8</td>
<td>24.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The above figure indicates that overall 66% of every 20 construction project executed in Nigeria is often delayed while 24% are always delayed and 10% are sometimes delayed.
This equally means that 90% of every 20 construction Project executed in Nigeria undergo a delay challenges while 10% are under probability. Anyhow from the above results from respondents in the three Construction firms selected, it is evident that the rate of delay in Nigeria is very alarming.

More variables are needed to be analysed in order to clarify more on the population opinion and perspective towards delay in Construction project in Nigeria.

**Question 8: What is the level of delay frequency on project execution in Nigeria**

<table>
<thead>
<tr>
<th>Level of delay frequency on execution</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>12</td>
<td>11.9</td>
<td>12.0</td>
<td>12.0</td>
</tr>
<tr>
<td>Often</td>
<td>67</td>
<td>66.3</td>
<td>67.0</td>
<td>79.0</td>
</tr>
<tr>
<td>Always</td>
<td>21</td>
<td>20.8</td>
<td>21.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Chart**
This figure supports the findings from the previous ones; it is evident from the survey response that 67% of the total numbers of respondent often believe there is delay at the execution phase of construction project in Nigeria, while 21% of the respondent stated that there is always a delay at Project execution stage. And the fewer respondents of 12% believe sometime there is a delay at execution phase of a project.

**Question 9: What is the level of delay frequency on Project closure in Nigeria?**

**Frequency Table**

<table>
<thead>
<tr>
<th>Level of delay frequency on closing</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sometimes</td>
<td>4</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Often</td>
<td>36</td>
<td>35.6</td>
<td>36.0</td>
<td>40.0</td>
</tr>
<tr>
<td>Always</td>
<td>60</td>
<td>59.4</td>
<td>60.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
The figure supports the previous ones, 60% of construction project at closure in Nigeria are always delayed while 36% are often delayed and 4% are sometimes delayed. This equally means that 96% of construction Project at closure in Nigeria is delayed while a meagre 10% are under probability.

4.4.2 To determine the impact of delay in construction Project

The idea behind this objective is to find out the impact of delay in Construction project, stakeholders and the financial implication. Three variables will be analysed in order to get a result in the context of delay impact.
Question 10. Delays have a great impact in the massive project failure in Nigeria?

Frequency table

<table>
<thead>
<tr>
<th>delay impact on project failure</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>78</td>
<td>77.2</td>
<td>78.0</td>
<td>78.0</td>
</tr>
<tr>
<td>No</td>
<td>22</td>
<td>21.8</td>
<td>22.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart

Figure 11.
According to the survey result, 78% out of the 100 respondents attest that delay has an impact in the massive project failure in Nigeria, while the fewer number of the respondents, 22% don’t believe delay has an impact in the massive project failure in Nigeria. Going by the result of the survey, it is an indication that one of the major impacts of delay is Construction failure that is so endemics in Nigeria.

**Question 11: Delay is believed to lead to many negative effects such as disputes between clients and contractors?**

**Frequency Table**

<table>
<thead>
<tr>
<th>Delay leads to disputes between clients and contractors</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>57</td>
<td>56.4</td>
<td>57.0</td>
<td>57.0</td>
</tr>
<tr>
<td>Agree</td>
<td>33</td>
<td>32.7</td>
<td>33.0</td>
<td>90.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>10</td>
<td>9.9</td>
<td>10.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to the survey results, it reveals that 57% of the respondents strongly agree that delay leads to dispute between clients and contractors, followed by 33% that also agree that delay leads to disputes between clients and contractors. This equally means that 90% out of the 100 respondents attest to the fact while the remaining 10% disagree. This is a strong indication that one of the major impacts of delay in construction is the disputes it causes between the clients and contractors.

**Question 12: Delay is believed to cause increase in costs, loss of productivity and revenue.**

**Frequency table**

<table>
<thead>
<tr>
<th>Delay leads to increase in cost, loss of productivity and revenue</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid Strongly agree</td>
<td>46</td>
<td>45.5</td>
<td>46.0</td>
<td>46.0</td>
</tr>
</tbody>
</table>

Figure 12
<table>
<thead>
<tr>
<th>Agree</th>
<th>46</th>
<th>45.5</th>
<th>46.0</th>
<th>92.0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neither</td>
<td>8</td>
<td>7.9</td>
<td>8.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The figure supports the previous survey result, 46% of the respondents strongly agree that delay leads to increase in cost, loss of productivity and revenue follows, also another 46% agree to the same fact, while the fewer 8% neither agree or disagree to the fact. This equally can be noted that 92% of the respondents believe that delay leads to increase in cost, loss of productivity and revenue. This is also an indication that, one of the impacts of delay in Construction is cost overrun and loss of productivity and revenue.
4.4.3 To find the root event that causes construction delay in Nigeria

The idea behind this objective is to investigate the root event that causes delay in construction in Nigeria. One common mistake that could be made is to focus on the effects of delay in Construction project and not on the root events that could produce delay. To get to the root events, seven variables will be analysed to get an appropriate results.

**Question 14: Communication barrier is one of the major factors in the cause of Nigeria Construction delay?**

Frequency table

<table>
<thead>
<tr>
<th>Communication barrier</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>59</td>
<td>58.4</td>
<td>59.0</td>
<td>59.0</td>
</tr>
<tr>
<td>Agree</td>
<td>26</td>
<td>25.7</td>
<td>26.0</td>
<td>85.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>15</td>
<td>14.9</td>
<td>15.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart
Figure 15.

Going by the survey results, 59% of the respondents strongly agree that communication barrier is one of the major factors in the cause of Nigeria construction delay, followed by 26% that also agrees to the same fact, a fewer 15% of the respondents disagree to the fact. Going by the survey result, it’s an indication that communication is one of the root causes of construction delay in Nigeria. According to PMBOK (2013) Effective communication create a bridge between diverse stakeholders who may have different cultural and organizational backgrounds, different level of expertise, and different perspectives and interests, which impacts or have an influence upon the project execution or outcome.

**Question 15: High level of corruption within the Government and construction industry can be considered to have a great impact in Construction Project delay in Nigeria**

Frequency Table
<table>
<thead>
<tr>
<th>Level of corruption</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strongly Agree</td>
<td>59</td>
<td>58.4</td>
<td>59.0</td>
<td>59.0</td>
</tr>
<tr>
<td>Agree</td>
<td>15</td>
<td>14.9</td>
<td>15.0</td>
<td>74.0</td>
</tr>
<tr>
<td>Disagree</td>
<td>26</td>
<td>25.7</td>
<td>26.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart

Level of corruption within the Government and Construction Industry

![Chart showing level of corruption](chart.png)

Figure 16

The survey result shows that 74% of the total respondents agree that the high level of corruption within the Government and Construction industry in Nigeria can be considered to have a great impact in Nigeria construction project delay, while a fewer percentage of 26% disagree to the fact. From the result it’s revealed that corruption is very endemic within the Government and Construction industry. This can be categorise
as one of the root causes of construction delay in Nigeria which answer the above objectives, because when the Government is corrupt it will reflect in the selection of contractors for selfish interest, it can also leads to inflation of cost of raw materials, which are all bedrock to construction delay.

**Question 16: How would you rate the competency of Contractors in Nigeria**

Frequency table

<table>
<thead>
<tr>
<th>Competency of contractors</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>29</td>
<td>28.7</td>
<td>29.0</td>
<td>29.0</td>
</tr>
<tr>
<td>Fair</td>
<td>48</td>
<td>47.5</td>
<td>48.0</td>
<td>77.0</td>
</tr>
<tr>
<td>Good</td>
<td>23</td>
<td>22.8</td>
<td>23.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

| Missing System            | 1         | 1.0     |               |                    |
| Total                     | 101       | 100.0   |               |                    |
According to the survey results, 48% of the total respondents believe the competency of the contractors is fair, while 29% believe it is totally poor and 23% believe it’s good. From the result it could be drown that the competency of the Contractors is not that fantastic, and there’s need for them to enhance their skills to meet with the challenges in the construction project.

**Question 17: What is the level of Nigeria Contractors experience compared to Construction Project assigned to them?**

**Frequency Table**

<table>
<thead>
<tr>
<th>Contractors experience</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>63</td>
<td>62.4</td>
<td>63.0</td>
<td>63.0</td>
</tr>
<tr>
<td>Fair</td>
<td>25</td>
<td>24.8</td>
<td>25.0</td>
<td>88.0</td>
</tr>
<tr>
<td>Good</td>
<td>12</td>
<td>11.9</td>
<td>12.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>Total</td>
<td>99.0</td>
<td>100.0</td>
</tr>
<tr>
<td>-----------</td>
<td>--------</td>
<td>-------</td>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>1</td>
<td>1.0</td>
<td>101</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This analyses support the previous survey result on level of corruption within the Government and construction industry, going by the survey result, it’s revealed that 63% of the respondents from the three construction firms selected attest that the level of Nigeria contractors experience compared to Construction Project assigned to them is poor, followed by 25% that believe its fair and a fewer percentage of 12% believe its good. According to the result and the previous one, it could be linked together that most of the contractors in Nigeria are chosen out of corrupt practices within the Government and Construction Industry. It should be noted that a contractors with little or no experience could harm a project delivery.
Question 18: What level of Influence does Stakeholders has on Nigeria Construction delay

Frequency Table

<table>
<thead>
<tr>
<th>Stakeholders influence</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Somewhat influential</td>
<td>13</td>
<td>12.9</td>
<td>13.0</td>
<td>13.0</td>
</tr>
<tr>
<td>Very influential</td>
<td>16</td>
<td>15.8</td>
<td>16.0</td>
<td>29.0</td>
</tr>
<tr>
<td>Extremely influential</td>
<td>71</td>
<td>70.3</td>
<td>71.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

This survey result supports the previous fact on communication barrier. Out of the total population, 71% of the respondents believe stakeholders are extremely influential in
Nigeria Construction delay, followed by 16% that believe is very influential and the fewer percentage of 13% believes is somewhat influential. Stakeholder could cause a delay in a project, when there is no proper communication plan between the stakeholder and contractor or project manager. According to Larson et al. (2011) the purpose of a project communication plan is to express what, who, how and when information will be transmitted to project stakeholders so schedules, issues, and action items can be track.

**Question 19: What level of influence does a Project Scope creep have on Nigeria construction delay?**

**Frequency Table**

<table>
<thead>
<tr>
<th>Scope creep influence</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somewhat influential</td>
<td>15</td>
<td>14.9</td>
<td>15.0</td>
<td>15.0</td>
</tr>
<tr>
<td>Very influential</td>
<td>24</td>
<td>23.8</td>
<td>24.0</td>
<td>39.0</td>
</tr>
<tr>
<td>Extremely influential</td>
<td>61</td>
<td>60.4</td>
<td>61.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to the survey result, 61% of the respondents believe that scope creep is extremely influential, followed by 24% that believe scope creep is very influential while 15% somewhat believe is influential. Most projects suffer from scope creep, which is the tendency for the project scope to expand over time- usually by changing requirements, specifications and priorities. Larson (2011 p.105) Scope creep can have a positive or negative effect on the project, but in most cases scope creep means added costs and possible project delay.

4.4.4 To discover the level of effective systematic risk management that is involved in Construction Project in Nigeria.

The idea behind this objective is to know the level of how contractors identify project risks and systematically to analyse and manage the form initiation, all through the life
cycle to the closing of the project. Construction projects, by their nature of complexity, value and size, clearly create risk to assets and the people working on the project, and those who are affected by it like stakeholders.

**Question 20: What is the level of Project Management awareness in Nigeria Construction Industry?**

Frequency table

<table>
<thead>
<tr>
<th>Project management awareness</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all aware</td>
<td>50</td>
<td>49.5</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Slightly aware</td>
<td>33</td>
<td>32.7</td>
<td>33.0</td>
<td>83.0</td>
</tr>
<tr>
<td>Somewhat aware</td>
<td>17</td>
<td>16.8</td>
<td>17.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Missing</td>
<td>System</td>
<td>1</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
According to the survey result, out of the total population that participated, 50% of the respondents stated that there is no awareness of Project Management in Nigeria Construction Industry, followed by 33% that stated is slightly aware, while 17% stated is somewhat aware. This is an indication that project management awareness is very low within the construction industry, which can hamper meeting with project requirement.

According to PMBOK (2013) Project management is the application of knowledge, still and techniques to project activities to meet the project requirement.

**Question 21: what level of knowledge competency has the Nigeria traditional contractors on project management?**
The above results give a clear knowledge incompetency of Nigeria contractors on Project Management. Out of the total respondents 67% agreed that the level of knowledge of Nigeria traditional contractors is poor, while fewer percentage of 33% believed it was
fair. But interestingly, above all the study supports the previous study. Project management need an aggressive awareness within the construction industry and should be made a mandatory tool for all contractors.

**Question 22: What level of risk management is practise in construction Project in Nigeria**

Frequency Table

<table>
<thead>
<tr>
<th>Level of risk management</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>28</td>
<td>27.7</td>
<td>28.0</td>
<td>28.0</td>
</tr>
<tr>
<td>Fair</td>
<td>53</td>
<td>52.5</td>
<td>53.0</td>
<td>81.0</td>
</tr>
<tr>
<td>Good</td>
<td>19</td>
<td>18.8</td>
<td>19.0</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>99.0</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing System</td>
<td>1</td>
<td>1.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>101</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chart
From the above result, it is evident that 55% of respondents’ stated that the level of risk management practised in Construction project in Nigeria are very poor. Followed by 28% that stated it was fair while a minute percentage of 17% stated it’s good. This result also support the previous ones, once there is a low awareness on project management, it will have an impact on risk management, which is part of project management body of Knowledge.

**Question 23:** Risk management can lessen delay if it’s implemented in a systematic manner throughout Construction project life cycle
The above survey result proved that systematic risk management can lessen delay if implemented throughout project life cycle. Out of the total respondents, 64% strongly agree to the above question, followed by 36% that also agree to the same fact. According to the result it’s an indication that the above research objective was a success.
4.5 Conclusion

The research objectives were analysed and it was found out that delays is a serious problem that needs to be tackle in construction project in Nigeria. Although it may be a unique aspect of the different projects, sites, contract terms and custom and practices.

It was also revealed that there is a lack of knowledge in relation to Project management in construction project in Nigeria. Damilola (2010) stressed that the traditional construction managers(architect ,civil engineers) should recognise this changing role for construction project managers and argue that they must supplement their traditional functions with non-engineering knowledge and skill of Project Management to meet today’s professional demands. The researcher concluded that the integration of systematic risk management approach in construction project initiation phase all through the project life cycle will help to lessen project delay in Nigeria.
Chapter 5: CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussion

The aim of this research was to identify the causes and effect of delay in construction project in Nigeria. The primary motives of this research was to understand the relevant of systematic risk management approach in terms of sustaining delay enrooted in Construction project in Nigeria. The research was formulated on the basis of the research question given below.

“Can the integration of systematic risk management approach help to manage the causes of delay in Nigeria Construction Project?”

In order to answer the question, the researcher set four objectives while conducting the research. All the four objectives have been analysed in the data analysis and finings chapter. For a quick glance, those objectives are given below.

1. To understand the rate of delay in Construction Project in Nigeria
2. To determine the impact of delay in Construction Project
3. To find root event that causes Construction delay in Nigeria
4. To discover the level of effective systematic risk management that is involved in Construction project in Nigeria.

The researcher had some assumptions about the research problem at the beginning of the research. Those hypotheses are given below. These hypothesis need to be validated before answering the research question.
5.1.1 Delay has a great impact on the massive Project failure in Nigeria.

Considering the findings from the first, second and third objectives, it is clear that delay has a great impact on the massive project failure in Nigeria. Considering the third objectives, which are to investigate the root event that causes delay in construction project in Nigeria, it was found out that Communication barrier is one of the major event with alarming percentage of 85%. The research revealed that communication in Nigeria construction project is bushwa, as construction project are complex and risky, requiring the active participation of all stakeholders. Co-operation and co-ordination of activities through interpersonal and group communication are essential in ensuring the project is completed successfully without delay.

Poor communication and inability to determine project stakeholders needs for information, unable to determine communication channels in Projects, insufficient interaction between project manager and team members or between main contractor and sub-contractors or within team members, inappropriate communication media could lead to a delay in construction delay in Project. Also Project scope and stakeholders influence are also considered to be part of the major event to project delay in Nigeria with percentage of 87% and 85% respectively.

These two events can be narrowed down to be a subset of communication barrier. Once communication channel and media is not properly planned and the needed information is not properly disseminated to the stakeholders it can result to project failure. According to Larson et al. (2011) Scope creep is define as when there is expansion on the Project
Scope over time—usually by changing requirements, specifications, and priorities. At stage when there is a scope creep on the initial project scope. This requires that information has to be circulated out to all stakeholders involved. In a case when the right information is not disseminated, it could lead to project delay.

This research also revealed that the level of corruption within the government and construction industry is 76%. This shows that Corruption within Nigeria Government and construction industry is endemic, and this has a bad effect on project delivery. The consequence of corruption is that it dramatically increases the cost of construction. Delay and corruption are the consequences of corrupt practices when contractors deliberately overstate the time and cost requirements and falsify time sheet in order to achieve a higher price from the kickback. This is accountable to building collapse, abandonment of Project in Nigeria.

From the research, it’s clear that the rate of delay in construction Project in Nigeria is also very high, as 90% of every 20 Construction project carried out suffered delay. And 88% of every construction project in Nigeria suffered delay at execution. While 96% suffered delay at project closure. This analysis is answerable to the numerous numbers of Projects failure littered all around the country. Olusegun et al (2011) there are about 4000 uncompleted or abandoned project belonging to the Federal Government of Nigeria with an estimated cost of above N300 billion which will take 30 years to complete at the present execution capacity of Government, also this issue of delay has been left without adequate attention for too long which is now having a multiplier effect on the construction industry in particular and the national economy as a whole.
The researcher also realized that the impact of delay in construction project is immersed. It’s revealed that 90% of every project delay leads to disputes between clients and contractors. And 92% of delay leads to increase in cost, loss of productivity and revenue. In conclusion it’s also discovered that 78% of delay in Nigeria has a great impact on the massive project failure in Nigeria.

Considering these factors the first hypothesis, “Delay has a great impact on the massive Project failure in Nigeria” is proved

**5.1.2 H2-Systematic risk management approach could help to mitigate delay in construction project in Nigeria.**

From the literature review referring to section (2.3) it was discovered, there is a lack of knowledge in relation to systematic risk management approach in construction project in Nigeria.

In the primary research it was also discovered that risk management is beneficial in moderating of delay when it’s implemented in a systematic manner throughout the lifecycle of a construction project from planning to completion. But in the case of Nigeria it’s apparent that little or no research has been done on this field of study following the survey result generated.

From the research objectives it’s clear that risk management, which is among the body of knowledge, is not well practise in construction project in Nigeria. Considering the level of project management awareness in Nigeria construction industry, which is 83%, this
signifies that when project management is not well aware of, how would risk management be put to practise as to assure basic baseline plan is integrated into construction project executed in other to asses risk.

It’s apparent that the level of knowledge competency of Nigeria traditional contractors on Project management is very low. Following the response, 67% believe its poor while 33% believe it’s fair. Traditional contractors need to be versatile in the area of skills development, especially on Project management. Project Management knowledge can be very beneficial, particularly in large and complicated projects like construction, since experts in various specialties can provide valuable services. However, it is advantageous to understand how the different parts of the process fit together. Delays can result from lack of risk management as proved in the objective. This is quite answerable to thousands of delay faced in construction project in Nigeria. Vanguard news (2012) “There are many uncompleted projects where trillion of naira has already been spent, and abandoned, prominent example of which is the 30 year old multi-billion dollar Ajaokuta Steel Company project. As at now $4.5 billion which have been spent lie wasted.

By adopting or focus attention on the complete process of project management for constructed facilities rather than the historical roles of various specialists such as planners, architects, engineering designers, constructors, fabricators, material suppliers, financial analysts and others. To be sure, each specialty has made important advances in developing new techniques and tools for efficient implementation of construction projects. However, it is through the understanding of the entire process of project management that these specialists can respond more effectively to balancing the
competing project constraints and managing stakeholders towards meeting project requirements.

Going by the low level of contractors’ knowledge on Project management, the researcher also realised that the level of risk management practise in Construction Project in Nigeria is not encouraging. Out of the total respondents 55% believes it’s poor, while 28% believes it’s fair. Though construction projects can be unpredictable, managing risk in construction project has been recognised as a very important process in order to achieve project objective in terms of time, cost, and quality.

The management of risk is a central issue in Nigeria construction industry. The construction industry in Nigeria is suffering from misunderstanding of risk management including risk identification, analysis and assessment. The proper application of Risk management can helps the key project participants- clients, contractors or developer to meet their commitments and minimize negative impacts on construction project performance in relation to delay. This is actually proven as 90% of the respondents agree that risk management can lessen delay if it’s implemented in a systematic manner throughout construction project life cycle.

Considering these factors, the second hypothesis “Systematic risk management approach could help to mitigate delay in construction project in Nigeria” is proven.
5.2 General conclusion and answer for research question

Construction delay is a grave factor in construction projects. This study reveals that delay has eaten up into Nigeria construction industry, causing a huge conflict between contractors, sponsor and other stakeholders concerned. It has also caused an enormous damage to the economy of the nation (Nigeria) where thousands of Projects are undergoing delay. The breakdown reports revealed by Vanguard News (2012) show that there are 3,157 worth of 3.1 trillion undergoing delay. South-South zone had 1,755 projects amounted to 2.1 trillion follow by North Zone with 620 billion with 1,844 projects. The last in ranking is North East Zone with 466 projects amounting to 98 billion. Construction Industry is meant to be bedrock fuelling the growth of the economy, standing as catalyst for the growth of other sector.

The study also revealed the causes of delay in construction industry in Nigeria as Communication barrier, Corruption within the Government and construction industry, lack of competent contractors, lack of experience stakeholder influence, project scope creep.

The causes of delay in Nigeria construction project emanated from Project management unawareness, Lack of contractors competency in Project management, poor risk management in practice. In order to prevent delay in Nigeria construction industry, there is need for risk management to be acknowledged from initiation, all through project life cycle to closing. Though risk management will not remove all risk from a project, its principal aim is to ensure that risks are managed in the most efficient manner. Risk must be analyzed in an organized and systematic approach. In Construction project in Nigeria,
Risk management should be viewed as a positive process, and should be one the most creative task of contractors/ project manager in a project. This will help to generate realistic expectation and increase control on delay in construction project in Nigeria.

### 5.3 Recommendations

In this section the researcher is putting forward some recommendations which construction industry in Nigeria may adopt to manage project delay rocking the industry.

From the data analyzed and findings it is clear that the construction projects in Nigeria lacks risk management which leads to delay of most projects executed in Nigeria. As stated earlier risk cannot be totally eradicated in construction project, it can only be minimized if applied in a systematic process. The benefits of the risk management process include indentifying and analyzing risks and improvement of construction project management process and effective use of resources.

In order to manage delay in construction project in Nigeria, the researcher makes some recommendation to be adhering to within the construction industry in Nigeria.

- Project Management should be made mandatory skills within the construction industry in Nigeria.
- Consistence training and seminar should be introduced within the construction industry to be abreast of latest tools and its application.
- A baseline risk management plan should be integrated into every construction project executed in Nigeria to access risk.
• Risk management should involve the entire project team and stakeholders.

• The risk management should be ongoing and iterative process all through the construction project lifespan.

• A contingency plan should be incorporated into every construction project executed in Nigeria.

• A change control management plan should be considered in every construction project executed in Nigeria to control all inevitable changes that might emanated from stakeholders or Scope creep.

• Risk management should be made capable of continual improvement and enhancement in every construction project executed in Nigeria.

• All risk clearly identified during course of any construction project executed in Nigeria should be documented in project management achieve.
CHAPTER 6: SELF REFLECTION ON OWN LEARNING AND PERFORMANCE

Learning is a continuous process throughout the lifetime and it’s indefinite. This part of the research explains the impact of MBA program and the dissertation in acquiring some personal development skills and how these skills have benefited the researcher for his/her performance in career enhancement.

Mainly there are four sections in this analysis. The first section reflection is on process, second section reflection is on sources, third section reflection is on dissertation formulation and finally reflection on your own learning.

6.1 Reflection on Process

This section will discuss how this dissertation was crafted, the selection search tools, developed search techniques and the academic resources that were explored.

Research skill analysis is a very vital tool in MBA program; it helps to develop research skill ability and the room to think outside the box. The systemic arrangement of the assignment entails in this module is good prep towards my dissertation. In the first semester, we were to develop PDP (Personal Development portfolio) which entails our objective, vision, and goals. This exercise requires researching on your own area of interest. At the end of the assignment the researcher have a clue of the idea of what might be written on for dissertation. Shortly after that, we were thought in one of the research classes on formulation, clarification and generating of research idea. Given the length of the dissertation and time constrained, the researcher understood the research topic has to
be clear enough and there should be enough material in the area of this research topic. This compelled the researcher to do a thorough secondary research accessing textbooks and journals and past project. This exercise took two months to generate enough idea and refined my research topic. Though the generating of ideas and refinement of research topic could be time consuming but it helped to shed light on appropriate strategy that will be suitable for my dissertation and generating of research question. This researcher ensures its research question is not too difficult or too open to be answered.

The selection of this research topic was underpinned to my area of strength, interest that I am capable of accessing materials and I will be able to finish within the time allotted for all academic research. During the course of generating my ideas, I discovered that delay in construction project is becoming a norm in Nigeria, though there is loads of literature in this area of study but little or none has been done on how to manage the delay integrating risk management in Nigeria which I see as a fresh insight to researched on for further study. This gives me a right notion that without a proper clarification of research topic, it will be very difficult in planning on how to go about the research.

### 6.1.1 INFORMATION GATHERING STRATEGY

In order to certify the relevancy and the importance of the gap covered in this dissertation, most of the journal, article and textbook accessed during the course of this dissertation are accredited referenced text and the year of publications are recent that they fall are in between 2006 and 2012. In the course of my research the researcher discovered there are some article and expert that are relevant in my area of research.
which are cited across most article and journals used in this research, I ensured I searched for the original article and expert through the use of search engines like Google schooler and DBS library database.

### 6.1.2 SPECIFIC ACADEMIC RESOURCES

All through this dissertation Google Schooler was widely used based on its richness in diverse of relevant academic journals and seasoned expert in my area of research. Its direct linkage to journal of interest eased me of stress and time management. DBS library database is also an indispensable service with collection of prestigious e journals and e textbook, throughout this research EBOSCO host Business source was widely accessed due to his high coverage of article in my area of research project management and construction. Other search tools were also used in the course of this dissertation like Emerald, Science direct, springler.

### 6.2 REFLECTION ON SOURCES

In this research i used Google Scholar, DBS Library and Internet online article to access literature sources beneficial to this dissertation. In one of the research classes we were thought that there are three types of literature sources. Primary, Secondary and Tertiary
The research materials used for this dissertation was both on electronic in form of e-journal through DBS Library Database and written format in form of hard cover textbook relevant to this study. In order to get familiar with the research study, the first two months into writing of my proposal was used in reviewing various literature related to my research. This provided me the essential basic skills and was significant event for the researcher to proceed towards completing the dissertation. The researcher used the credible reference material of respected expert with a high number of citations in other literatures.

Prior to my MBA I am only familiar with the American Psychological Association (APA) format. It was the only accepted academic writing format in the Nigeria University. So using the Harvard style of referencing was new and very advanced. But after various seminar organized by the school library coupled with research class on referencing, I kept practicing, though initially it was not that easy, as there are lot of
mistakes made. This effort really pays off as all authors cited in this dissertation are well referenced using Harvard referencing style.

### 6.2.1 ASSUMPTION

At the start of this dissertation, my assumption was that I will be able to access enough article written on construction delay in Nigeria or how it could be mitigated, but little has been done compared to other well developed country like America, Europe and Asian. Though delay in construction is global problem rocking the construction industry. The researcher had no choice than to make use of the journal written on other country to create a gap for this research in my country Nigeria.

### 6.2.2 SELECTION OF RESOURCES

In the process of this research, there are some article and journals that seems valuable and well researched, but the researcher subjected the selection of resources for this dissertation to the following:

- **Year of publication**- The author looked at how recent the resources, any resources that falls below 2006, the researcher is always sceptical in using them.

- **Citation**- The researcher looks at how often the resources are cited in other resources and the traffic on the resources.

- **Consistence**- the researcher considered the consistency of the authors in writing academic reference journals and professionalism of the author.
6.2.3 LESSON LEARNTED IN FINDING

The research skills gained as really helped me to create new knowledge and understanding through critical thinking, problem solving, analysis and dissemination of facts. During the source of the findings I realised that research skills are wider than finding out a fact and more focused than reading widely around a subject but helped me to find the best resources for my research, it also helped me to manage my time and doing more research more efficiently and with more confidence. Above all it made me more organized, I was able to keep track of each research I did and record all sources used. This helps me to create my foot notes in text citations and bibliography as I work.

6.3 REFLECTION ON DISSERTATION FORMULATION

This section talk on how sources available to the research were used in support of researcher dissertation and the original ideas stemmed from the synthesis of this research.

The researcher accessed almost 80-90 sources to provide support from the proposal stage to the writing of the thesis. The research proposal provided the essential basic skills and was significant event for the researcher to proceed towards completing the dissertation. While reviewing the literature, more of compared and contrast was done on various authors’ articles to underpin their points of argument and further gap that needed to be cover. The researcher’s area of selection was critical because of how complicated the industry is at moment, based on the massive construction failure in Nigeria. For the researcher making the link between construction delay in Nigeria and integration of risk management is a new knowledge area that could obtain bigger learning outcome.
The research questions and objectives serve as a guide to source relevant resources for this dissertation, it helps to balance the evidence that was found, though the research questions is not an easy task, but it’s the first task that has to be done, in order to keep resources consistent with the standards expected of this research. The researcher’s tutors helped break up the research questions to come up with a clear research question, which was used as baseline to define this researcher objective. These two factors helped me stay inline all through my dissertation. The researcher came up with four objectives which were proved statistically using SPSS. The hypothesis was later tested and proved.

What really surprises the researcher in the course of his finding is the level project management awareness in Nigeria; it was revealed that the level of contractors Knowledge in project management is abysmally low in Nigeria. While Project Management is the key hold of construction project and every contractor has to be aware of the major constrained to every project like scope, risk, schedule, budget, resources and quality. It also appeared that contractors in Nigeria see risk management as a waste of time and resources; they believed that incorporating of contingency budget, is an avenue for bad project.

The findings in this research is quite different from past literature, this study is a fresh knowledge to the construction industry in Nigeria, nothing has been done in the area of this study, though little article as been written on causes of delay in Nigeria and the impact by various authors who are Civil engineer, Architect by profession. But this study was researched under the auspices of Project Management. This research looks into how risk management could be integrated in construction project to mitigate delay.
6.4 REFLECTION ON YOUR LEARNINGS

According to Honey and Mumford (2000) stated that an ability of progressive showing an evidence of knowing something which might not have occurred in someone’s life or doing something that a person couldn’t do at forehand reflect how learning happens. And “understanding your learning process is one way to improve your ability to learn” (Zikmund 2003) thought, it might not be easy but will come much more easily.

6.4.1 LEARNING STYLE

According to Kolb (1984) the cycle experimental learning consists of four adaptive modes-concentrate experiences, reflective observation, reflective conceptualization, and active experimentation. The experimental learning cycle model are given below:
Kolb (1984) identified different kind of learners which are associated with different stages as indicated:

- Converges or Abstract conceptualisation, has the ability to do and think, has the potential to solve problems and will use their learning to find solution to practical issue. The learner will be practical and emotional, dealing with things rather than people.
- Assimilator or Reflective observation, has the ability to watch and think, is more attracted to logically sound theories than approaches based on practical values. These style of learning prefers observation rather than acting.
• Diverges or Concrete experience, has the ability to feel and watch are imaginative, emotional and interested in others, looking at things from different perspectives but also prefer observing rather than acting

• Accommodators or Active experimentation, which has the ability to feel and do, relies on intuition rather than logic. This type of learner prefer using other analysis and taking a practical, experiences and tend to be intuitive at solving problems.

Through the Honey and Mumford’s test it was found out that the learning style of the researcher is that of a reflector. The reflector stands back and observe, is cautious and tends to take a back seat, collect and analyse data about experience and events and is slow to reach conclusions; uses information from the past, present and immediate observations to maintain a big picture perspective. Although, likely to procrastinate, the reflector is careful, thoughtful, thorough and methodical.

Using the kolb learning style assessment, it was discovered that the researcher has a learning style of a diversers. Diversers perceive information (apprehend) concrete and process (comprehend) through reflective observation. The researcher has shown that diversers enjoys idea generating activities such as brainstorming, reflective activities and rhetorical questions and some evidence that diversers are “social learners” who regard feedback highly and hence tends to feel detached when working online. These learning styles were manifested in the way the researcher synthesized information (reflection and brainstorming) especially in the dissertation stage. This learning style has also proved useful in undertaking my assignment and group academic activities. But in the case of
this research converger was also made used of, it allowed the researcher to used the approach of deduction that is, the research question, objectives and hypotheses were framed and then have been evidently proven through primary research to come out with conclusions and recommendations.

6.5 DEVELOPMENT SKILL

Cameron (1991) stated that learning is a purposeful activity aimed at acquiring skills, knowledge and acquiring ways of thinking that improve effectiveness in future situations. In today’s world, an individual needs to develop lots of skills set because they shape his/her future career.

6.5.1 INFORMATION AND COMMUNICATION TECHNOLOGY SKILLS

The researcher has an ability to deliver speech by using PowerPoint slides with multimedia when he was doing his BSC. However, he did not have the sound theoretical knowledge which is required for professional presentation. The MBA classes especially research skills class’s developed clear ideas and tactics of professional presentation such as voice control, forward and backward movement, eye contact with audience. Now, he is full of confidence and has the ability to deliver presentation which is vital for professional career.

6.5.2 PERSONAL MANAGEMENT SKILL

Prior to MBA the researcher skills in research plan and organization, due to this skill most assignment engaged in by this researcher in the first semester suffered proper
planning and organization. But by the beginning of the second semester, the researcher had been equipped with project management skill which ensuring project is delivered with schedule, cost and quality.

This skill reflected all through this researcher dissertation plan by setting milestones and assigning target dates to tasks, the project is broken up into more manageable sections applying Gantt chart. Though there was still some overlap on task but help to be more focused.

High flexibility was also maintained while approaching this dissertation. There are times when certain tasks are not possible to achieve within the predicted timeframe. Rather than coming to standstill, the researcher overlap to other task.

6.5.3 Cognitive Skills

Upon the finish of MBA programme, the researcher is able to:

- Think critically and creatively, manage creative processes in myself and others, organise my idea and analyse them, identify hidden value, and define terms and generalise appropriately.
- Embark on situation by establishing criteria, formulating potential courses of action, implementing and controlling selected courses of action, evaluating results and reviewing procedure

6.5.4 Interpersonal Skills

Prior to MBA, the researcher was always a part of a team in the entire job he was involved in Nigeria. This atmosphere of working in a team had helped researcher to
develop his communication skills. The MBA programme has given more opportunities to interact and communicate with an international community with diverse cultural background and ethics.

In conclusion MBA program had helped the researcher in the improvement of many skills. Researcher believes that the development of cognitive, interpersonal skill, personal management skill, information and communication skill and the proficient use of SPSS software has contributed immensely in his personal development. Since learning is a continuous process, I believe my skills will continue to improve time after time.
7.0 Bibliography

7.1 BOOKS:


Hancock Beverly, Elizabeth Ockleford, Kate Windridge (2009) *An introduction to qualitative research*. 1st Publication. National Institution for health research


Kerzner Harold (2009) *A systems Approach to planning, schedule, and controlling*, John Willey & Son


Maylor Harvey and Blackmom Kate (2005) “*Research Business and Management*”. 1st Publication. Palgrave Macmillan


7.2 JOURNALS:


7.3 WEB SITES:


Dear Respondent,

INCORPORATION OF RISK MANAGEMENT AS A FRAMEWORK FOR DELAY MITIGATION: A STUDY FROM THE CONSTRUCTION PROJECT IN NIGERIA

Researcher: Arogundade Abayomi Anthony (Abayomi.Arogundade@gmail.com)

Supervisor: Paul Taaffe (paul.taaffe@mydbs.ie)

I am an MBA student in Project Management. As part of partial fulfillment requirement for MBA, I am conducting a small piece of research on Incorporation of risk management as a framework for delay mitigation: A study from the Construction Project in Nigeria.

I would like to invite you to take part in this research. Taking part will involve completing the consent form below and the attached questionnaire, which will take no more than 15 minutes of your time.

The answer you provide will be kept confidential; only aggregate data will be presented in the written report and therefore, your anonymity is guaranteed, individual questionnaires will be kept only until the research work has been moderated and seen by an external examiner and will then be destroyed.

If you have any questions not answered in this introduction to the research, please contact me using the details above. If you have read this information and are willing to participate in this research, please indicate your informed consent using the form below.

PARTICIPANT CONSENT

1. I confirm that I have read and understood the information about the above study. I have had the opportunity to consider the Information, ask questions and had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw at any time without legal right being affected.

3. I agree to take part in the study.
QUESTIONNAIRE

SECTION A

1 Gender:

○ Male
○ Female
○ Prefer not to say

2. Your age range

○ 18-24
○ 25-34
○ 35-34
○ 45-54
○ 55 +

3. Nationality: _____________________

4. Job Description

○ Project Manager
○ Civil Engineer
○ Architect
○ Contractor
○ Others

5. Years of experience in construction industry?

○ 0-9
○ 10-19
○ 20-29
○ 30-39
○ 40 +

6. Have you manage a construction project before?

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Section B

How to manage the causes of delay in Nigeria Construction Project, integrating Risk Management?

Below is the list of questions. Please circle the most suitable option as it applies to you.

1. What is the level of delay frequency in every 20 construction projects executed in Nigeria?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always

2. What is the level of delay frequency on Project execution in Nigeria?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always

3. What is the level of delay frequency on Project closing time in Nigeria?
   - Never
   - Rarely
   - Sometimes
   - Often
   - Always

4. Do delay have a great impact in the massive project failure in Nigeria?
   - Yes
   - No
5. Delay is believed to lead to many negative effects such as disputes between client and contractors?

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly disagree

6. Delay is believed to cause increase in costs, loss of productivity and revenue

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly disagree

7. Communication barrier is one of the major factors in the cause of Nigeria construction delay?

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly disagree

8. High level of corruption within the Government and construction industry in Nigeria can be considered to have a great impact in Nigeria construction project delay?

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly disagree

9. How would you rate the competency of contractors in Nigeria?

- Poor
- Fair
10. What is the level of Nigeria contractors experience compared to Construction Project assigned to them?

- Poor
- Fair
- Good
- Very good
- Excellent

11. What level of influence does Stakeholders has on Nigeria Construction delay?

- Not at all influential
- Slightly influential
- Somewhat Influential
- Very influential
- Extremely Influential

12. What level of influence does Project Scope creeps has on Nigeria construction delay?

- Not at all influential
- Slightly influential
- Somewhat Influential
- Very influential
- Extremely Influential

Section C
Systematic risk management approach could help to mitigate delay in construction project in Nigeria

13. What is the level of Project Management awareness in Nigeria construction industry?

- Not at all aware
- Slightly aware
14. What level of knowledge competency has the Nigeria traditional contractor’s on Project Management?

- Somewhat aware
- Moderately aware
- Extremely aware

15. What level of risk management is practiced in construction Project in Nigeria?

- Poor
- Fair
- Good
- Very good
- Excellent

16. Risk management can lessen delay if it’s implemented in a systematic manner throughout construction project life cycle in Nigeria

- Strongly Agree
- Agree
- Neither
- Disagree
- Strongly disagree