EXPLORING CRITICAL SUCCESS FACTORS FOR STAKEHOLDERS' MANAGEMENT IN ENGINEERING INSTALLATION PROJECTS IN GHANA.

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DECLARATION.

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material which to a substantial extent has been accepted for the award of any other degree or diploma at the Kwame University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgement is made in the thesis.

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ABSTRACT

Engineering project includes all components of manufacturing or processing plant design, whether fresh, modification or expansion works which involves planning, scheduling, implementation and controlling processes in each of the project phases. Proper management of

these will lead to the project being completed. But because of incorrect stakeholder management, significant projects are not accomplished within timeline. Many critical factors were identified by the researcher to have direct or indirect impact on the project success as a result of improper management of stakeholders and these factors must be examined. This paper therefore aimed to identify critical success factors and their level of impact for managing stakeholders in engineering project installations. The researcher used a methodological quantitative method based on deductive reasoning to sample views of engineers in project management fields. Thirty four (34) critical success factors were recognized through the literature review process. Hundred and thirty (130) questionnaires were sent to project managers/managers, Directors, supervisors and technicians in the industry with these thirty four (34) critical success factors part of the questions sent; one hundred and seventeen (117) responses were fully retrieved from the respondent and analyzed. The top three ranked stakeholder management factors were "Identification of stakeholders, managing stakeholders with social responsibility, and development of suitable policies for stakeholder management. Base on the opinion of respondents analyzed, the Relative Importance Index values obtained, falls between 0.5449 and 0.9275 which implies that all the factors identified were very important to project success but have distinct impact level. From the findings, the researcher recommends that Project managers should carry out a stakeholder profiling in order for an efficient stakeholder management strategies to be drafted to ensure proper coordination of projects.

Keywords: Stakeholder management, critical factors, engineering project installation.

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LIST OF ABBREVIATIONS

1D1F	One District One Factory
ABL	Accra Brewery Limited
APM	Association of Project Management
CPM	Critical Path Method
CSFs	Critical Success Factors
CSR	Corporate Social Responsibility
GDP	Gross Domestic Product
GPSCs	General Project Success criteria‟s
GPSFs	General Project Success Factors
HND	Higher National Diploma
PERT	Program Evaluation and Review Technique
PMBOK	Project Management Body of Knowledge
PMI	Project Management Institute
RII	Relative Importance Index
SNA	Strategic Need Analysis
SPSS	Statistical Package for Social Scientist
WBS	Work Breakdown Structure

WGHT	Weight

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This work is dedicated to God Almighty and my parent Mr. and Mrs. Awatsu Johannes for their immerse support; I have been able to reach this far in my education.

CHAPTER ONE

INTRODUCTION

1.1 Introduction/ Background of Study.

Engineering project involves all components of manufacturing or processing plant design, whether fresh or modification, and expansion. A "Project" comprises of a coordinated set of operations or assignments conducted in a single discipline or in one or more departments by engineers, technicians, designers, drafters and others.

The tasks of the project comprise calculations, specifications, bid preparation, evaluation or selection of equipment, and preparation of various lists such as equipment and material lists and drawings such as electric diagrams, pipelines and instrumentation diagrams, physical designs and other drawings used in design and manufacturing. A small project may be led by a project engineer.

The project manager or management team typically manages large projects. Some installations have in-house employees for small projects, and some significant firms have an internal engineering department. Generally, large projects are contracted to engineering firms. Employees in engineering firms vary by workload and working time, only until a person's duties are finished.

Engineering installation projects involves planning, scheduling, implementation and controlling processes in each of the project phases. Proper management of these will lead to the project being completed. But because of incorrect stakeholder management significant projects are not accomplished within the timeline. One of the factors for this is the incorrect management of stakeholders. The checklist of engineering installation participants are often big and will include; facility owners, customers, project managers, supervisors, designers, shareholders, legal officials, staff, fabricators, distributors and service providers. The existing

study indicates that project success includes not only the iron triangle variables; cost, time and quality, but also the efficient management of the stakeholders as noted by Jepsen and Eskerod,(2008). The idea of project management was described as "the method of adapting to the varying stakeholders ' scheme and planning apprehensions and suggestions" as mentioned in PMI, (2008) published journal. Therefore, project stakeholders can affect the projects either positively or negatively.

Assessing the stakeholder impact is also a significant work for the project team to decrease the probability of project failure (Cleland and Ireland, 2007), and project managers need to identify the key stakeholders, know their interests, and be wary of their future impact on the project achievement (Cleland and Ireland, 2002). This is crucial to enhance the beneficial influence of stakeholders while reducing the adverse effect on the project (Bourne and Walker 2005).

Most of these project activities are delicate in nature (Karlsen, 2002) and high requirements are placed on clients, the project team and other stakeholders during the project installation Karlsen, 2002; Karlsen, 1998). Several studies demonstrated that the management of stakeholders is essential for effective project management. Taking into account the significance of stakeholders‟ management; the 10th edition of the stakeholder management knowledge area has been added to the fifth edition of PMBOK. Although management of project stakeholders was acknowledged as a significant area, less study was done on project stakeholders and their level of impact on projects.

According to PMI, (2008) a project is a short-term work undertaken to create a new product or service and Project management is the use of knowledge, expertise, methods, and means applied to project activities to fulfill the requirements of the project. Project management is always critical to every industry.

The use of proper communication channels and working with stakeholders to satisfy their needs and address their future issues is key to manage their expectations (PMI, 2008). While different methods has been established to achieve projects success; planning, scheduling, costing and executing. In stakeholder management, the sole job is to handle and incorporate shareholder interactions and interests in a manner that ensures project success and also, efficient management of a relationship between stakeholders and the project is, therefore, crucial to the achievement of project success.

For a project manager, the stakeholder cannot be ignored or impose strict direction. To prevent problems occurring on the project, the project manager should maintain a healthy connection with the stakeholders while managing stakeholders, many issues and disputes arise during the projects execution stage because of difficulties in identifying the unseen and unidentified stakeholders and their ambivalent interests and goals.

These factors contribute to poor interactions and ineffective communication with stakeholders and project managers. The project team must have an understanding of stakeholder management to address such problems during projects. Understanding the comparative significance of each stakeholder role will enable effective management of stakeholders, this study, therefore, focuses on exploring critical success factors for managing engineering project.

The need to identify and evaluate these project variables for the effective delivery of engineering projects in developing countries, such as Ghana, cannot be overemphasized.

This initiative is intended to help governments achieve their 1 D1F improvement intentions. Government-supported projects range from small to mega-projects requires enhanced project management controls to avoid overrunning mega-costs and times.

For example, megaprojects involve different stakeholders of different occupational and professional backgrounds with distinct concentrations, projects of complex nature and consequently affecting project delivery. Despite the external and intricate pressures of the stakeholder environment, project team members typically meet for the first time in different geographical sites with a distinct cultural background.

Some government projects in developing countries have failed, or at least there is perception, and the primary causes are attributed to the role of stakeholders calling for further scrutiny. Several concerns have been raised about the lack of accomplishment and what is critical to project success, especially with the delivery of public sector projects. In developing countries, project implementation failures include; cost overruns, poor execution of scope of work and issues with stakeholders‟ management and these are considered to be mainly technical issues (Davis, 2014). Ahadzie (2010) claims that the main theme must be focused on the requirements of the project, customer or user for any project success criteria. This is verified by the fact that customer satisfaction is recognized as a key criterion for project success Adinyira et al, (2012). Although various stakeholders‟ have distinct perceptions of project success, there are many prevalent success factors for clients and end consumers, including stakeholder satisfaction, communication, price and time budgets (Davis, 2014). It is the duty of project executives as important stakeholders to guarantee project success; meet the requirements and fulfillment of stakeholders (PMI, 2008).

A project cannot be constructed and delivered efficiently Jepsen (2013), unless you closely consider and address projects stakeholders needs. This then calls for an assessment and understanding of the complexities of the participating stakeholders, which are essential for project accomplishment. In order to deliver effectively on the project, the various stakeholders' threats and opportunities must be managed under the established pricing, time and

performance targets; hence stakeholder management is therefore essential. Olander (2006) points out that various stakeholders are involved in the engineering projects, which often express requests and expectations that need to be effectively managed.

Lock (2007) proposes the systematic identification, assessment, planning of actions, interaction and negotiation of the stakeholders. Olomolaiye (2010) initiates a process of identifying and classifying stakeholders for original and ensuing commitments by stakeholders; timely, time-limits and coordination. Eskerod and Jepsen (2013) claim that project success will be improved through an extension of the definition that includes all targeted project-related activities. The management of stakeholders, however, has its problems, including different processes arising from company practices (Oyegoke, 2008). Every project is unique, no project is ever identical, and therefore additional work is needed to build effective project teams, boost confidence level, both within the team, and within the limited time span between the project partners and stakeholders (Grabher, 2002; Yang 2011). This needs recognition of critical factors for the successful implementation of any stakeholder management process. In the management of stakeholders, critical success factors are considered as those activities and processes which must be addressed in order to balance stakeholder interests and further ensure advancement of the projects (Yang, 2011).

„Many critical success factors for project delivery have been recognized by researchers and were likened to stakeholder management" Davis, (2014). It should be noted that some of these recognized variables were linked to the management of stakeholders hence worth considering for stakeholder management for effective project management. One of the significant duties of project management is to manage project stakeholders as project success depends on all the stakeholders concerned. Karlsen (2008) recognized credible behavior; excellent communication; honesty; competency; integrity; dedication and benevolence in that

order from empirical research directed at exploring critical success factors for building confidence in project stakeholder partnership. After reviewing the stakeholder management literature, Yang (2009) recognized some vital areas;

- Managing stakeholders" social responsibility is key (legal, financial, environmental and ethical).
- Formulating a clear declaration of project tasks, identifying stakeholders correctly and understanding stakeholder interests.
- Discovering the requirements and limitations of stakeholders on projects, assessing the conduct of stakeholders, predicting stakeholder impact correctly, assessing stakeholder characteristics (power, urgency, and closeness), analyzing stakeholder conflicts and coalitions, efficiently compromising stakeholder disputes and maintaining and encouraging excellent relations.
- Evaluate appropriate strategies to manage stakeholders, anticipate the reactions of stakeholders to enforce strategies, analyze the change in the impact and relationships of stakeholders during the project process, communicate and engage stakeholders appropriately and frequently as fifteen critical success factors.

1.2 Problem Statement.

Ghana continues to conduct engineering projects as a development intervention to transform or process the many natural assets that we have as a nation to enhance people's well-being and socio-economic growth. The output of engineering projects performed is critical as it improves the economy and performance of the engineering sector and vice versa.

Particularly, the contribution of the engineering sector to GDP, socio-economic growth, and the outcome of the enormous investment made to the industries to create jobs for the people (Ofori, 2012).

Many efforts to consider the technical part of project management were made to achieve project success. Intriguingly, several studies have recognized critical success factors to address project delivery shortcomings without taking into account the view, role, and impact of many stakeholders engaged in the project delivery process (Davis, 2013). Despite several kinds of research conducted in attempts to find a solution to effective project delivery, there are records of countless project failures in developing nations that require a fresh strategy.

A number of factors such as cost and time overruns, poor execution of finished work, late change in scope, poor and late payment, relocation of projects, delays and poor planning of projects are few factors that can be attributed to the various project participants: project manager, owner, sponsor, contractors Agyakwa-Baah, (2010*).*

Othman (2013) link failure in delivering mega-projects to political interference, absence of human resources, technical and managerial difficulties. Furthermore, projects were regarded to be a failure when assessed against the fulfillment and needs of stakeholders (PMI, 2013). There are several companies, people and participants in engineering projects that influence or are influenced by the project result (Freeman, 1984; Yang, 2010). Engineering projects cannot be created and completed effectively without closely considering and coping with all concerned stakeholders (Eskerod and Jepsen, 2013).

1.3 Research Aim.

This study examined the critical success factors for stakeholder management in engineering project installation.

1.4 Research Objective.

This study examines the critical success factors for managing stakeholders in Ghana's engineering industry and the result reflect the views of practitioners in the industry. The following goals were set to achieve the purpose of this study;

1. To identify the critical success factors for stakeholder management in engineering installation project.
2. To identify the level of impact of these critical success factors on stakeholder management in engineering installation project.

1.5 Research questions.

1. What are the critical success factors for stakeholder management in engineering project installation?
2. What is the level of impact of these critical success factors on stakeholder management?

1.6 Scope of the Study.

This research work was undertaken in selected industries in Accra, Takoradi and Tarkwa. Companies in these geographical areas were chosen because they are involved in project management activities within their respective organization. The target groups of people in the industries were directors, project managers, plant/ maintenance managers, supervisors, design engineers, contractors, and technicians. Close ended questionnaires were used to collect relevant information from these groups of people for analyses. 130 questionnaires were distributed to professionals in the industry seek their opinion on the topic under study.

1.7 Significance of the study.

For projects involving complicated clients, big terms and many other stakeholders, there is a serious need for efficient monitoring and overall risk management, requiring effective customer management. The client's role is undertaken (Egan, 2002; Boyd and Chinio, 2006). Management of stakeholders enhances the capacity to deal with problems and decreases danger within them. The project manager must be able to manage the concerns of different stakeholders throughout the entire project management process to obtain a good project outcome (Sutterfield et al., 2006).

Additionally, findings from this study could be used as an evaluation tool to evaluate stakeholder management performance and thus help define areas for enhancement. Whiles this idea can be adopted within limits, engineering has its distinguishing features, hence this requirement to enhance the principles of stakeholder management in engineering project to address the shortfalls in project delivering. Improving project delivery needs developing nations to take stakeholder management into account, as achieved in developed countries; project executives must therefore accept the management of
stakeholders as a soft skill in project execution.

Stakeholder management doesn't just involve managing project workers and businesses, nor does it involve an operation. Rather, it includes a systemic approach to identifying and prioritizing all stakeholders, analyzing and following up all activities undertaken jointly with stakeholders for project success (Jepsen 2008). The result of an effective stakeholder management process is influenced by several variables. Moreover, different scholars and countries suggest equally different approaches (Yang, 2010). Therefore, it is appropriate to identify and consider the critical CSF success factors to enhance stakeholder management process.

1.8 Methodology of the study.

The researcher used a methodological quantitative method based on deductive reasoning and was completed in five phases. The first section (chapter one) saw setting of clear goal and objectives of the study, problem statement and significance of the study was elaborated in section one followed by review of appropriate literature on critical success factors in engineering installation projects in Ghana. Thirty four (34) critical success factors were identified and were part of the questions sent to survey participants. The third stage, a structured hundred and thirty (130) Google form questionnaires were administered to seek opinion of practitioners on these critical success factors and their level of impact to project delivering. However, only hundred and seventeen (117) responses were retrieved and analyzed using statistical package for social scientists (SPSS). In section four and five, results were tabulated using frequency and relative importance index to describe respondents view by ranking the critical success variables. Conclusions and recommendations were drawn from these ranked variables.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction.

The review of literature is not merely a description of what others have published but is a critical debate that shows understanding and consciousness of various arguments, theories, and methods. There are countless books, articles, „publications", and related records available on stakeholder management, but a crucial aspect of the literature review is reduced to the chosen fields (critical success factors for stakeholder management in engineering projects).

The view was fragmented into four primary headings: defined project and project management, stakeholder management, and engineering stakeholder management in Ghana. The basis for selecting and sequencing these groupings corresponds to the developmental phases of the research question. In the wide subject of project management, the researcher began with a general curiosity. After this, the researcher concentrated on a particular sector (i.e. engineering) and environment (i.e. Ghana) in the sub-discipline of project stakeholder management.

Installation projects are multidimensional manifestations that are limited by requirements of period, budget, resource and efficiency intended to satisfy customer requirements. Over the years, many professionals and researchers had produced several documents to identify the reasons why projects failure or achievement occurs, but these couldn't be materialized. As a result, the sector has bad stakeholder management records to curb project complication or uncertainty (Loosemor, 2006).

The dynamics of key success factors for stakeholder management in the engineering projects were therefore examined in this chapter. It further revised pertinent literature on issues of the roles, and impact of project stakeholders in the engineering industry.

2.2 Definitions of a Stakeholder.

The previous literature has given a variety of conceptual stakeholder definitions from broad to narrow points of view. "The commonest and most broad definition of a stakeholder is that provided by Freeman (1984):' a stakeholder in an organization is any group or person who may

influence or be influenced by the organization's goals.' This broad approach is based upon recognition and empirical fact that nearly everybody can be vitally influenced by companies. Freeman's definition is broad in the sense that the stake or relationship stakeholders have with the firm is not specified. “The definition does not take a position on whether the stakeholders ' claims are valid or not”. “Goodpaster (1991), however, observed that the concept of Freeman effectively involves two kinds of stakeholders: strategic and moral”. An early definition of the stakeholder (Stanford 1963) takes an instrumental perspective and involves stakeholders in the survival of the Company as the "parties without which the Organization would cease to exist," cited by Freeman, (1984). This definition decreases stakeholders to the organizations that are essential to the company's financial interests. Brenner (1993) stresses the validity of stakeholder relationships in Clarkson's stakeholder concept and defines stakeholders by threat as he suggests that volunteers carry some sort of risk as a result of investing some kind of value, human or financial, in a business. As a consequence of the operations of a company, involuntary stakeholders are put at risk. But there is no stake without the element of risk.'

The observations of Clarkson (1994) on the involuntary players indicate implicitly that a connection with the company must not be real, but can also be potential, if one is to be the stakeholder. In other words, a player may be affected by an organization or maybe a potential influencer. "His connection with an organization is lawful, not trivial, such as trade, action, and moral duties" (quoted in Mitchelle et al. 1997). This definition underlines the nature of stakeholder-organization relations excluded from the definition of Freeman (1984).The relationships between shareholders and companies have also been more or less defined. These opinions take a strategic approach and emphasize that businesses only have restricted funds and time to deal with their stakeholders. The interest of management, therefore, lies in identifying and paying attention to stakeholders that are relevant to the economic interests of

the company. Stakeholders can also be described by their casual and moral interactions with the organization.

These opinions consider it the responsibility of the company to develop and maintain moral relations with stakeholders. Such opinions are therefore similar to corporate social responsibility concepts and cross literature on morality (Upchurch, 1998). Fewings (2005) believes that any person interested in a process or result of a project is a stakeholder. The participants define the characteristics of the proposed project, the main difficulties are the conditions placed on the project by the project stakeholders and the project environment.

The definition resulted in an obligation to include the types of stakeholders. The definition of a stakeholder has many distinct views. They acknowledge that the capacity to create a production link between people impacted by the end product is a relationship between project successes.

Again, Smith et al. (2001) add that stakeholders are direct and indirect representatives who may be concerned and who can contribute to the project scheduled. However, Winch (2002) suggested that stakeholders be explained more inclusively than players who will profit or lose directly as a consequence of a project. In his opinion, there are in the building sector two categories of stakeholders–internal and external.

2.3 Identifying Stakeholders.

Many distinct kinds of stakeholder categorizing systems were suggested in previous literature. Interested parties may be split into internal and external stakeholders (Freeman,

1984). Internal stakeholders include staff, project managers, consultants, contractors, subcontractors and project teams, design engineers, clients, and suppliers while community operators and media, advocacy groups, as well as other NGOs, are examples of external stakeholders. Savage et al. (1991) separate stakeholders into claimants and the ability of stakeholders to threaten or collaborate with the organization to influence. Clarkson (1995)

distinguishes stakeholders from primary and secondary. Secondary stakeholders are not directly related to the focus organization as there is no "formal contractual connection with the company" or "direct legal authority" over the company (Eesley and Lenox, 2006). Primary stakeholders, such as employees and customers, are directly related to the firm, always engaged with the company, or have direct legal authority. For instance, this is the case for governmental organizations. The company and its primary stakeholders are highly interdependent. Secondary actors, on the other hand, are not directly involved in financial activity, but can still impact an organization (Clarkson, 1995). Moral and lawful claims are often stressed with regard to the secondary actors, since "the company is substantially accountable or has a moral or legal claim over the company" (Langtry, 1994) or "individuals or organizations with legitimate interests in procedural and or substantive elements of business" (Donaldson and Preston, 1995).

Stakeholders were also divided into strategic and moral stakeholders. The company is regarded to be able to influence strategic actors. Moral actors are the ones impacted by the company (Frooman, 1999). Frooman (1999) considers stakeholders to be either resource suppliers or employees of the company. In turn, Fassin (2009) criticizes previous concepts and customs categories of stakeholders, suggesting that there should be a difference between stakeholders, stake watchers, and stake keepers. Stakeholders who have a practical and actual interest in a business in Fassin's (2009) category. Stake watchers themselves, however, do not have a stake, but they safeguard genuine stakeholders ' interests. The unions and Community pressure groups are examples of stake watchers. Finally, autonomous regulators are stake keepers who have no interest in the company but have impact and controls such as governments, regulatory authorities and certification bodies.

2.4 Types of Stakeholders.

Project management researchers have different categories of stakeholders. Categorizations based on project engagement by stakeholders and their connection with the project, the nature of claims and stance on the project by stakeholders and the extent to which stakeholders ' conduct can be expected are most prominent in the literature.

Internal stakeholders are "stakeholders who are officially members of the project coalition and therefore generally assist the project" (Winch, 2004). In modern project management literature, the notion of inner stakeholders is often used in line with the ideas of main stakeholders (Cleland, 1998). Such parties to the organization have formal and formal official or contractual relations (Winch, 2004) or are directly engaged in the decision-making procedures of an organization (Atkin and Skitmore, 2008).

Clients, sponsors, contractors, and suppliers are examples of internal stakeholders. External stakeholders are not official project coalition members; however, they can be influenced or influenced by the project. Often, non-enterprise stakeholders or secondary stakeholders are called such groups (Cova and Salle 2005). The private and public actors of external stakeholders could also be broken down (Winch, 2004). Private actors include local inhabitants, local landowners, environmentalists, and conservationists; government players are, for instance, regulators, local authorities and domestic governments. External stakeholders may, therefore, be directly responsible for the project. However, there is a conceptual division between internal and external stakeholders among project management academics. Olander and Landin, for instance (2005, 2007), view internal stakeholders as active participants in the execution of the project and external stakeholders as those that are affected only by the project. Therefore, the authorities include their definition of internal stakeholders. In turn, “Atkin and Skitmore (2008) define external stakeholders as significantly influenced by the operations of an organization”. These categorizations do not, therefore, include such groups as external

stakeholders that can impact the project in the sense that the project's managing obligation and authority, in general, are held by Ward and Chapman (2008). “Internal stakeholders are defined by the postulate that internal stakeholders are normally financially involved in the project or have a contractual connection with the owner”. All other players are external stakeholders who can affect the project through political lobbying, regulation, campaigning or direct intervention, according to Ward and Chapman (2008). As noted earlier, some project management researchers consider that internal stakeholders are equal to primary and secondary actors (Remenyi and SherwoodSmith, 1998; Winch, 2004). With this in mind, it becomes difficult to categorize those entities with legal power over the project, such as officials, government and competition officials as they are deemed, secondary stakeholders. This logic is not consistent with stakeholder studies which classify as main stakeholders who have those legal powers over the company (Clarkson, 1994).

2.5 Stakeholder Classification.

Hundreds or even thousands of stakeholders may be involved in large projects. Time and resources for projects have been restricted. The effort to manage and engage the stakeholders must therefore be prioritized. But what is the criteria basis for the classification of these stakeholders. How do project managers determine who the project has the greatest impact and the most important influence on the project. How do project executives focus on competing stakeholders. These are precisely the issues addressed by models of stakeholder classification. In order to communicate and handle their expectations effectively, priority should be given to the stakeholders. Stakeholder impact strategy idea is often used interchangeably with ideas such as tactical impact and activity.

Success variables are project elements to be implemented to guarantee that the project is completed. Simply put, they create an atmosphere that will first allow the project to exist. Here

we are examining the metrics at the end of their lives to measure the success of the project. In 1979, John F. Rockart described critical success factors as' important fields where adequate outcomes would provide an organization with effective competitive performance.' He also described CSFs as significant regions where the businesses must thrive properly.

When a project meets or exceeds the expectations of the stakeholders, the project succeeds. However, who are the parties involved? Stakeholders are people who care about the project or have an interest in it. They are the individuals who actively participate in the project work or have something to gain or lose from the project. Nevertheless, during the project installation process or after the project has been completed, the project either improve the lives of the people or have negative implications on the stakeholders.

The project sponsor, who is usually an organization director with responsibility for allocating funds and implementing choices on the project, is a stakeholder. The customers, subcontractors, vendors and, in certain cases, even public authorities are parties involved. The project manager, project staff and executives are also stakeholders from other departments. All stakeholders on the project must be identified beforehand. It could be a project murderer to abandon major stakeholders on project.

There are both internally and externally involved in a project. Top management, project team members, managing directors, stakeholders and domestic clients may be internal stakeholders. External parties may include internal clients, government agencies, contractors, subcontractors and providers.

Internal stakeholders, like staff or managers, are included in the organization, while external stakeholders groups such as providers or clients are usually not deemed a member of the organization. Although this classification is okay, in a contemporary organization the

distinction of the two kinds becomes ever harder, where staff could be subcontractors and providers another organization could be in the same group.

Project stakeholders can be split into promoters and opponents of the project (Winch, 2004). McElroy and Mills (2003) are suggesting a more detailed model of five distinct stakeholder positions: active opposition, passive opposition, noncommittal, passive support and active support. Also, the project management literature categorizes stakeholders by functional position in the project; these include customer, contractors, clients, sponsors, local community members, non-governmental organizations, media, lobbying and public agencies (Cova et al. 2002). Tikkanen and Lindblom (1998) for example divided project actors into corporate actors (i.e.) including providers, buyers and consultants (i.e. NGOs) and government stakeholders including (i.e. ministries, universities, and research units). Building on Walker et al. (2008), Rowlinson and Cheung (2008) fragmented stakeholders into groups of upstream stakeholders (paying clients and end consumers), downstream stakeholders (providers and subcontractors), internal stakeholders (general community and autonomous stakeholders), unseen stakeholders who participate with the project team to deliver the ultimate value of the project. In the context of the innovation initiative, Vos and Achterkamp (2006) also raised the viewpoint, denoting that stakeholders can be categorized based on the roles they are playing. Moodley al. (2008) recently adopted a contract-based approach and categorized stakeholders to the extent that their project behavior can be expected. They divide stakeholders by explicitly identified stakeholders (such as financiers, partners, owners, sponsors and equity holders, etc.) (such as regulators, first-class providers, employees and customers) (such as community providers of second-class sectors, governments, local authorities, appropriate NGOs, unions) and unidentified stakeholders (such as interest groups, third-class providers).

2.6 Stakeholder Behavior.

Frooman (1999) describes methods of impact as means use by stakeholders to get what they want and suggests that the nature of the resource relationship between the stakeholder and the company will determine what sort of approach of impact each stakeholder will use. Frooman (1999) defines four kinds of stakeholder influencing approaches all based on the nature of resource interactions between stakeholders and the focal corporation in his theoretical assessment. These are the following strategies:

a) Direct withholding; withholding policies are described as those where the stakeholder ceases to provide a company with a resource intended to alter the company's conduct. Workers, for instance, can stop supplying their workforce for a project with a strike.
b) Direct use; use strategies are, in turn, strategies in which the stakeholder continues to provide a resource, but with limitations attached to it.
c) Indirect withholding; stakeholders can use direct tactics such as manipulating the company's resource flow.
d) Indirect use; indirect strategies, such as working through an ally manipulating the company's resource flow.

Hendry (2005) has empirically evaluated Frooman(1999) proposals by giving an account of four non-governmental organizations ' distinct stakeholder impact policies. With the four influential approaches identified by (Frooman, 1999), (Hendry, 2005) identify communication as a significant way of affecting the behavior of a company.

2.7 Engineering projects Stakeholder Management.

Knowledge on how to handle stakeholders has been rising steadily since (Cleland, 1998) introduced the stakeholder concept into the field of project management. Today, project stakeholder management can be regarded as an established and acknowledged region in both

modern project management standard papers (PMI, 2008) and a study field, although there is only a small amount of studies concentrating mainly on project stakeholders and their governance (Achterkamp, M.C, 2008). Prior study on stakeholder management operations of a focal project can be approximately split into two discourses that take on the behaviors of a project from a rather static view.

First, the focus of ongoing studies was to demonstrate and articulate the organizational significance of stakeholder management and to examine the function and value of stakeholder leadership (Cleland, 1987; Cleland, 1999; Cleland, 1998; Bourne, 2006).

The current normal project management papers constitute an implementation of the stakeholder management methods created and procedures relevant to the framework of project management (PMI, 2008). For example, in project management stakeholder management is defined in the Project Management Body of Knowledge (PMI, 2008) as "systematic identification, analysis, and planning of actions to communicate, negotiate and influence stakeholders." The communication perspective on stakeholder management is particularly highlighted in PMI's standard since, management of stakeholders in accordance with the standard, is specifically concerned with managerial communications with project partners that fulfill the requirements and solve problems. McElroy and Mills (2003) in turn conceptualize project stakeholder leadership as "the continuous development of partnerships in order to achieve a good project result. The concept of stakeholder engagement as a framework for eight project lifecycle operations is used as the umbrella term: identification and evaluation of stakeholders, disclosure of information, stakeholder consultation, negotiation and partnerships, grief management, stakeholders ' involvement in project supervision, stakeholder participation reporting, and management functions. Although the organization's management practices and methods have been critical, there are only few studies which have effectively outlined the

operations and behaviors of a focal project on stakeholders. Management reactions to stakeholder impacts, for instance, have merited scant study attention. Also, various contextual factors present in projects that can guide the activities of a project to the impacts of stakeholders have gained little attention. For example, although much of the current literature shares the significance of mastering the stakeholder management process throughout the continually changing project lifecycle (Cleland, 1995; IFC, 2007), most stakeholder management process guidelines tend to concentrate on the use of stakeholder management methods only during stakeholder management processes. A broader and more holistic perspective of the active stakeholder management process should, therefore, be taken throughout the lifecycle of the project.

2.8 Managing Stakeholders' Needs and Expectations.

To incorporate stakeholder needs into a project's formative stage, it is important to allow stakeholders to express their wants and needs, opinions and expectations in a suitable environment. Smith et al. (2001) propose a model called Strategic Need Analysis (SNA) about this strategy to assist customers, participants and their design teams determine their strategic requirements for a specified project. The SNA technique focuses on involving multiple key stakeholders. The group is made up of clients, managers, facility managers, project managers, staff, end-users, advisors and other members of the design team. The SNA process structure is based on stakeholder participation at three stages consisting of briefing, seminars, and workshops. Level 1 is the briefing phase, where briefing in the form of seminars and workshops is performed. At level 2, members are engaged in the development in alternative approaches to achieve corporate activities, while at level 3, participants are creating a thorough submission brief for the execution of the project. The outcome of SNA is to create extensive brief on results to guide project team members to advance the project within acceptable parameters.

According to Freeman et al. (2007), exploring the requirements and expectations of stakeholders in projects is to list the interest of stakeholders and put together comprehensive stakeholder problems. During the development of the project, the needs of all stakeholders should be evaluated to address a suitable and practical solution to the problem. Kocak (2003) describes that the needs of stakeholders can indicate stakeholder communities despite the project's challenges faced by the project team and stakeholder needs.

2.9 Impact of Stakeholders on Projects.

Other prospective issues connected with unproductive management are bad scope description, issues arising from assigned resources to the project, supervisory modifications affecting the project. All these issues combined with the absence of stakeholder involvement in the project have an impact on the project plan and schedules. Stakeholder management is strongly connected with Corporate Social Responsibility (CSR), which in company operations and relationships with stakeholders could also be understood as a voluntary social environmental issue (Enquist, 2006). The organizations believe they have a social obligation that extends far beyond their shareholders ' obligations (Dohy Guay, 2006). Olander (2007) also produces an impact/probability matrix where project stakeholders are categorized according to their level of impact and likelihood of effect on the project in Figure 1.0 below. This was used to analyze the following questions:

a) How keen is each group of stakeholders (likelihood of effect) to express their interest, expectations or contributions to the project?
b) Do they have enough influence (impact level) to do that?

The matrix shows the kinds of connection that project management in the various quadrants could generally create with stakeholders.

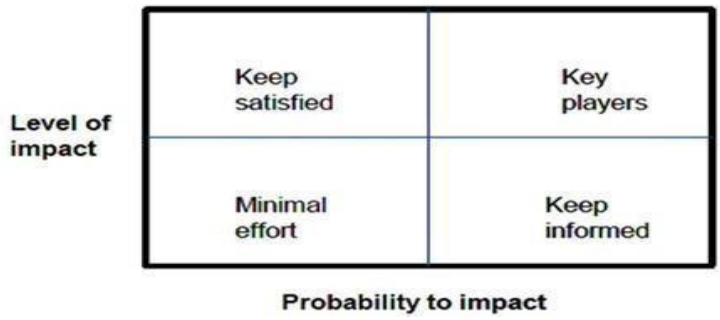

Figure 2.1: The stakeholder impact/probability matrix (Olander, 2007).

2.9.1 Keep Satisfied.

Stakeholders are often domestic governments, regulators or other comparable organizations with demands and even the power to discontinue the project, but generally, do not have a specific stake in it.

2.9.2 Key Players.

They are usually individuals with responsibility for the project.

2.9.3 Minimal Effort.

They are not considered prominent or important by project management, but this does not mean ignoring stakeholders. However, if they have some project demands, these stakeholders can attempt to advance salience through other stakeholders.

2.9.4 Keep Informed.

Stakeholders include various interest groups with little impacts, such as local citizens, nongovernmental organizations.

2.10 Stakeholder Salience and Position.

The degree to which managers place importance on challenging stakeholder privileges in stakeholder salience. The model acknowledges, in other words, the stakeholders to whom managers have to pay attention. It is divided into three characteristics: power, legitimacy, and

urgency. Salience relies primarily on the number of attributes a stakeholder possesses. During a project, salience may vary, meaning that some stakeholders may attempt to form their salience characteristics to make their voices heard.

2.10.1 Stakeholders' Power.

Power is the likelihood that, despite resistance, one stakeholder in a social relationship will be able to execute his / her own will. In other words, some stakeholders can get another stakeholder to do something they wouldn't have done otherwise. Stakeholders‟ strength may emerge from their ability to organize social and political forces, or from the project to draw resources. Power is the capacity of stakeholders to impact the project and stakeholders, financially, legally or through some other type of stress (Olomolaiye and Chiniyo, 2010). Although they usually do not initiate action, there is a unique official power of government agencies and courts. The power level depends on a stakeholder's understanding and expertise regarding project elements, the legal/contractual authority spent on a stakeholder, and the ownership status of a stakeholder. Stakeholders ' power could be high or low based on their project involvement and what they are expected to contribute.

2.10.2 Stakeholders' Legitimacy.

Legitimacy is a view or concept that an entity's activities within a socially built scheme of norms, values, beliefs, and descriptions are desirable, appropriate or appropriate. Project managers tend to be more prepared to pay attention to stakeholders whose rights they consider legitimate. Individuals, organizations, and society as a whole can hold legitimacy. It should be observed, however, that although a stakeholder has a lawful claim, it will not be applicable in the project manager's eyes if he/she does not have the authority to implement it. For example, contractual relationships with the project enhance the stakeholder's power; therefore, external stakeholders who have no contractual relationship may be ignored.

2.10.3 Stakeholders' Urgency.

The level at which a stakeholder entitlement calls for a close account is the urgency of stakeholders. Time awareness and criticality are created in two structures. The degree to which management leadership react or response to issues on the project is unacceptable to most the stakeholder and this is very sensitive to project survival. Criticality also means the stakeholder's claim's significance. Urgency can be seen as a stakeholder concern. The probability of undesirable project goal outcomes and execution in the engineering sector increases the claim's urgency. While urgency is not as convincing as authority and legitimacy, it does not diminish its magnitude. It finds out both stakeholder salience dynamics and stakeholder relationships. Therefore, according to the characteristics of authority, legitimacy, and urgency, stakeholders are divided into eight groups.

1. If the stakeholder has none of the three attributes, they cannot be counted as a stakeholder in the project.

2. There is an urgent claim to demanding stakeholders, but they have no authority or lawful connection. They may be irritating but not harmful, so they may be disregarded by management.

3. Discretionary stakeholders have legitimacy quality but they have no authority or urgent rights. Although managers are not pressured to participate in an active partnership with such stakeholders, they can decide to do that.

4. Dormant stakeholders have the authority to impose their will, but they have no lawful connection or pressing claim, and therefore their authority stays unused.

6. Powerful and legitimate are the dominant stakeholders. Their impact is ensured, and it is evident that any dominant stakeholders ' expectations are going to matter.

7. Threatening stakeholders are not legitimate, but they have power and urgency. They may be coercive and potentially violent, so they may be dangerous.'

8. Definitive stakeholders have all the characteristics. They are already going to be members of the dominant coalition of an organization. Managers have a clear and immediate mandate to consider and prioritize their claim when their requests are urgent.

2.11 Evaluating Stakeholders' Satisfaction.

Project success criteria are the golden triangle (time, cost and quality) and key project stakeholder satisfaction and integration into the project. Some studies have widened requirements for project success into special aspects such as stakeholder involvement and satisfaction, customer benefit and future organizational prospects (Shenhar et al., 2001). The main point is that both of these aspects of achievement must satisfy stakeholders when there is a connection between their concern and those factors (Baccarini, 1999). More importantly, if project managers are not satisfied with the quality of continuing project management or project results, the project team will be needed to adjust scope, time and price to satisfy stakeholder expectations on quality problems.

2.11.1 Ensuring Effective Stakeholders' Communications.

Communication plays a key role in guiding individuals, incorporating them, and making choices to make a project a success. A specific project vision must be established in which the project manager defines the interests of all-important stakeholders and guarantees that the project is buy-in (Yang, Shen, and Ho, 2009:166). According to Zwikael (2009), there must be constantly updating as the project progresses once the project goals are set and the scope clarified. To achieve overall goals, progress on activities assigned to individuals or groups

needs to be monitored. The appropriate parties must be informed of these updates. Newton (2005) thinks that the efficient dissemination of data requires a precise communication plan. Frequent project meetings are needed for this purpose.

2.12 Critical Success Factors (CSFs) of Engineering Projects.

Critical success factors are a set of project attributes or factors that are heavily associated with project success and whose maximization or minimization will lead to project achievement based on whether they are positive or unfavorable. Rockart (1981) first used the term Critical Success Factors in project management and is defined as those factors that predict project success. According to him, critical success factors are the restricted amount of fields where adequate findings for the person, department or organization will guarantee good competitive performance. They are the few main areas where the company needs to thrive properly. If findings in these fields are not sufficient, there will be less than a required effort by organizations for the period. Frese and Sauter (2003) conclude that the main areas of effective projects are excellent planning, clear responsibility and accountability, and scheduling control as well as project management governance and communications. This implies that a clear project plan, a plan for risk management and the commitment and support from stakeholders are the critical success factors for engineering project management.

Kerzner (1987) also describes critical success factors as the tools needed to create an atmosphere in which projects are managed continuously with excellence. Customer satisfaction is usually recognized as the primary factor in the achievement of the project. Engineering projects are often affected by success factors that in Ghana can assist project stakeholders to achieve their desired objectives more efficiently. Many critical success factors such as performance factors linked to project managers, organizational factors, project-related factors, and external environment variables affect the achievement of the project. Project success can

then be described as fulfilling stakeholders ' expectations and attaining their desired objective. This can be achieved by knowing what would be the end outcome and then stating the project's outcomes. Some variables are more critical to a successful project than others. These factors are referred to as critical success factors for the project. Different achievement factors in varying projects around the globe have been recognized by separate researchers. Community participation, project objectives, technical innovation, uncertainty, policy, timely schedule, economic contracts, and execution processes have been identified as the key success factor in the project.

Besides, Lim and Mohamed (1999) indicate that engineering project achievement can be linked to stakeholders by macro-assessing the social acceptance and efficiency; building professional stakeholders by micro-assessing functional, physical or economic goals. Both kinds of stakeholders assess achievement, articulated as success factors, in reaction to project fulfillment of accepted requirements. The ultimate goal of any business activity was a success. Thus, with the development of fresh business methods and techniques, the engineering sector is constantly evolving. To make a project efficient, it is vital to understand the project requirements from the very outset and to carry out project planning, offering project managers and teams the correct direction and properly carrying out the project. A good project is produced on time and managed within the budget, with time, cost and quality being reorganized as threefold limitation or as important parts of project achievement.

2.13 Project Success Classifications.

With so many activities taking place concurrently over a project's life cycle, the key success factors for project management can be quite hard to identify. Although certain tasks will certainly help other people to accomplish while other tasks are also necessary for a whole project's execution, a focus on the key outcome areas (KRAs) of the project can be enormous.

The critical success factors for project management may also be referred to as the KRAs.To throw some more light on this; I would be closely examining two concepts, success criteria and then critical success factors.

The Project Subsection Criteria (PSCs) and Success Factors (PSFs) are two success factor groups. It is important to distinguish between the two groups. Success criteria are used for assessing success while success factors promote success.

2.14 General Project Success Criteria (PSCs) and General Project Success Factors (GPSFs).

The following criteria and variables are generic and can influence most types of engineering projects:

2.14.1 Project Management Success against Product Success.

Criteria for Project Success include project success and product success. The successful project management involves the achievement of goals in terms of time, price and quality. On the other hand, Product Success deals with a project's ability to achieve the strategic organizational objectives of product owners, and with customer demands and stakeholder requirements.

2.14.2 Project Success and Project Management Success.

The success of the project will be assessed against the overall projects while the success of the project management will be measured mostly against cost, time and quality. It is necessarily more to deliver project success than to deliver project management success because it requires control of the second order.

2.15 Project Success Criteria.

Success Criteria frequently change from project to project based on stakeholders, service range, and project size, owner complexity linked to facilities design, technological consequences and a range of other factors. On the other side, prevalent success-related patterns often evolve not only with an individual project but throughout the sector as we relate success to the owner,

designer or contractor's perceptions and expectations. According to owners, developers, and contractors, these achievement criteria are the following.

2.15.1 Owner's Criteria.

The criteria used by the owners in the evaluation of performance are: schedule, budget, scheduled function (satisfied customers and customers), anticipated result, quality (man powerfulness, products), pleasing aesthetically, return on investment (advertising response), marketing design (image and economy), and minimizing the increase cost in engineering.

2.15.2 Designer's Criteria.

Designer criteria for assessing success are satisfied customer need (acquiring or developing the ability to acquire repeat work), quality project product, meeting design requirement and objectives, professional personnel fulfillment, meeting project budget and timeline, marketable product, minimal engineering challenges.

2.15.3 Contractor's Criteria.

Contractor criteria are: meeting schedules (pre-engineering, and design), profit, budget (savings from owners / contractors), quality and specified specifications met or exceeded, no claims (owners, subcontractors), security, customer satisfaction (private relations), excellent buy-out from underwriter, excellent direct communication (the expectations of all sides are obvious).

2.16 Project Success Factors.

Factors of project success are the aspects of a project that can be affected to boost the probability of achievement; they are the dependent variable that makes it more likely to succeed. The achievement of the project is defined by stakeholder opinions as to how far the objectives they are seeking have been achieved (Cooke-Davies, 2007; Liu and Walker, 1998). Success factors are those inputs that contribute directly or indirectly to project or company

success in the management scheme. Because distinct projects and distinct individuals prioritize distinct sets of success factors, project variables are not universal for all projects. According to Turner and Zolin (2012), project success is measured not only by completing the scope of the project on time, price and quality but also by performing the production, results, and effects of the project and thus achieving the required company goals as evaluated by distinct stakeholders over distinct time scales. Baker, Murphy, and Fisher (1983) note that whether project stakeholders are fully satisfied with their results is important. Good schedules and budgets used correctly will not matter if the outcome of the project does not meet the expectations and objectives.

2.16.1 Courses of project failure

I. Projects fail in the absence of top-level management support or commitment to provide project team supervision functions.

II. Projects will also fail to identify risk and manage risk. In an earlier post on risk assessments for project management, the need for an adequate risk assessment was identified as a precondition to reduce the chances of negative events and minimize the extent to which they occur. Uncertainties mark each step of the project management process and a good risk plan help to mitigate the consequences of a negative outcome.

III. Absent of a statement of work and a poorly defined project scope. The scope is a technical description of the work to be performed that addresses major issues such as development, quality assurance, and maintenance. Failure to create a properly defined scope could result in project output inconsistencies.

IV. Lack of engagement and ownership by project team members; a need for collaborative project management atmosphere. The systematical planning, coordination, and monitoring of complex projects are emphasized through

collaborative project management in order to stimulate synergy and collaboration among the team. Where tasks are not owned, the project manager practices a project management "directive" style, rather than a facilitator.

V. Non-practical and budget-friendly planning; Project managers are sometimes compelled to operate in the absence of economic reports from comparable projects finished in the past with an unrealistic budget and schedule.

2.17 Time.

Time or timeline is one of the most significant criteria for any project to be successful. Time was considered as a criterion for evaluating the degree of achievement of a project. It was also quoted as a factor that can assist in meeting other factors or criteria.

2.17.1 Cost.

Every project depends on its premium or budget. The cost was observed as a very significant criterion of achievement, wherein some research intellectual budget plan and an appropriate cost estimate were cited as prominent success factors.

2.17.2 Quality.

Quality was regarded as both a criterion and a factor for the achievement of the project. Some researchers referred to it as quality performance and regarded it to be a significant criterion for project success. Furthermore, under the title of product quality, some other studies discussed quality as a criterion. Some scholars, on the other side, regarded the quality management process as a factor of project success that promotes the achievement of other criteria and factors.

2.18 Success Factors in Engineering Project.

Increasing uncertainties are creating a dynamic engineering sector in technology, budgets and growth procedures. Engineering projects are now much more complicated and complicated,

and unprecedented changes are being faced by the engineering project team. Studying project success/failure and critical success factors (CSFs) is a means of understanding and thus enhancing engineering projects ' efficiency. The following are several success factors in the engineering phase:

2.19 Factors Affecting Project Success.

Following a comprehensive review of the literature, many factors affecting the accomplishment of project execution were recognized. Thorough research of previous literature indicates that it is possible to group CSFs into seven major classifications. These include:

a) Project Management Factors

b) Procurement-Related Factors

c) Client-Related Factors

d) Design Team-Related Factors

e) Contractor-Related factors

f) Project Manager-Related Factors

g) Business and Work Environment-Related Factors.

2.19.1 Project Management Factors.

Following the CSFs definition, Rockhart also suggested that "continuous and cautious attention should be paid to the identified areas of operation which were essential to the achievement of the project." It is generally best to find the important regions for a project team to guarantee maximum attention. These key variables generally differ between projects. For instance, qualified staff could be a critical factor in the growth of computer software, and communication

and collaborative tools could be a key element of a project that has numerous geo-dispersed team members. For example, a critical factor for a computer software development could be skilled personnel while a critical factor for a project that has a large number of geographically dispersed team members could be communication and the use of collaborative tools.

Action in project management is essential to the achievement of the project (Hubbard 1990). Jaselskis and Ashley (1991) propose that project managers can plan and implement their engineering projects using the management techniques to maximize the likelihood of achievement of the projects. Then, project management variables include suitable communication, processes of monitoring, feedback, troubleshoots, coordination efficiencies, decision-making effectiveness, monitoring, organizational structure of projects, follow-up schedules and associated knowledge of previous management (Belout, 1998 ; Chua and al., 1999 ; Walker & Vines, 2000). This factor is affected by several characteristics, including communication scheme, control mechanism, feedback capacities, scheduling effort, organizational structure, security and quality assurance program, subcontractor work control, and lastly general management behavior.

2.19.2 Procurement-Related Factors.

The significance of procurement factors has indeed been recognized by several researchers (Pocock et al., 1997a, 1997b; Walker, 1997; Kumaraswamy and Chan, 1999; Walker and Vines, 2000). The procurement scope is defined by Dissanayaka and Kumaraswamy (1999) as the framework within which engineering product is produced, acquired or obtained. Therefore, two characteristics are used to assess this factor; they are the method of acquisition (selection of the organization for project design and engineering works) and method of tendering (processes taken for project team selection and in specific the primary contractor).

2.19.3 Client-Related Factors.

Chua et al. (1999) define project stakeholders as main players, including project managers, customers, contractors, advisors, subcontractors, suppliers, and producers. Walker (1995) considers the customer and customer representative's influence as an important factor in the performance of the engineering task. Customer associated factors include customer traits, customer type and experience, understanding of project organization, engineering project financing, customer confidence in the engineering team, complexity of engineering managers, well-defined scope, risk aversion of owners, customer project management (Chan and Kumaraswamy 1997; Songer and Molenaar 1997)

2.19.4 Design Team-Related Factors.

Designers play a vital role, as their job is essential to the project from beginning to end. Chan and Kumaraswamy (1997) point out that the design team experience, complexity of project design, and mistakes or delays in the design documents are related design variables.

2.19.5 Contractor-Related Factors.

When the project enters the construction phase, the primary contractor and subcontractors begin their primary responsibilities. These include contracting experience, site management, subcontracting oversight and participation, cash flow to contractors, price control system efficiency, and information flow (Chan and Kumaraswamy 1997; Dissanayaka and Kumaraswamy 1999).

2.19.6 Project Manager-Related Factors.

Another main player in the engineering project is the project manager, and his expertise is a critical factor influencing project planning, scheduling, and interaction (Belassi and Tukel 1996). Under this factor, variables consist of project managers‟ abilities and features, engagement, expertise, experience, and power (Chua et al., 1999). Engineering project requires team spirit. Team building is therefore essential among the various group. A team

effort by all groups to a contract owner, designers, engineering manager, contractor, and subcontractor-is a key component for effective project completion (Hassan 1995).

2.20 Literature Summary.

Literature review saw significant gaps in critical success factors, engineering project stakeholder management, stakeholder management processes, and stakeholder relationship management. The shortcomings are:

1. There is yet to be an extensive list of factors influencing stakeholder management.

2. A systematic stakeholder management structure requires to be developed further.

3. There is yet to be incorporated some practical methods that can be used for stakeholder management.

4. Most studies concentrate solely on problems of promoting relationships, but few concentrates on evaluating the effect of these stakeholder relationship connections on the project.

Engineering projects involve a varied number of stakeholders and the project's success depends heavily on meeting their requirements and expectations. Therefore, it is essential to acknowledge project stakeholders and create a meticulous stakeholder management process. These skills include clear and efficient problem-solving approaches, knowledge of the partner's requirements and sensitivity. Communication management processes also need to be dynamic enough to accommodate environmental factors, stakeholders ' needs organizational goals, and personal expectations and aspirations.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction.

This chapter elaborates on the research methods used to achieve the main objectives of the study by detailing the research approach, sampling technique, questionnaire design, data

analysis, target population, research ethics and how questionnaires were administered to respondent.

3.2 Research approach.

Saunders et al. (2009) define research approach as the method employed by the researcher whether to use a single data gathering method or the analytical procedure or to use more than one data collection techniques. There are a number of data collection method and data analysis tool available to researchers; these are typically categorized as quantitative or qualitative methods. The collection and analysis of numerical data that reflects the characteristics of the phenomenon being measured are concerned with quantitative techniques (Hair et al., 2003). In contrast, non-numerical data are generated and analyzed using qualitative methods.

Typically, qualitative data is connected with words but can show data in other non-numeric forms such as images and video clips (Saunders et al., 2009). Teddlie (2003) contend that various techniques can help the researcher measure the extent to which they can trust their results and make inferences from them. However, based on a study of more than 200 social science papers reporting research using various techniques, Bryman (2006) discovered that only five percent of the papers offered clear proof that the various techniques of research were intended to address particular and distinct research questions.

Saunders et al. (2009) conclude that designing and using techniques that allow the researcher to accomplish the research goal is critical. Therefore, the research goal of this study is to identify critical success factors and their level of impact on the management of project stakeholders in the engineering sectors following the literature review. The findings produced must be impartial and widely applicable to the target population to attain this goal. These objectives can be achieved by quantitative methods alongside a survey and statistical analysis of the survey. It would probably be helpful to use qualitative techniques to aid clarify the

reasons for the survey's responses. The research choice is, therefore, quantitative data collection techniques and data analyzing methods are used.

3.3 Target Population.

Target population is the total number of units occupying a given territory at a particular period of time. The target population, according to Hair et al. (2003), should include the entire group of people that have necessary information needed for the research. Besides, Hair et al. (2003) mentioned that "the research objective and scope are critical in establishing the target population". The main focus of this research is to explore critical success factors for stakeholder management on installation projects in Ghanaian industry.

The criteria used for selecting the target population are:

I. Individuals engaged in engineering project management activities;

II. Individuals hired by companies that carry out project installations.

III. Individual with academic education in project management.

To obtain the target population, visits were made to several companies listed below to access their human resource data base. There were different types of data presented to me e.g people with computer experience, marketing, human resource, carpenters, security officers, project management officers, safety officers, just to mention a few. And having set the criteria of people whose opinion is vital to the study, I narrow my selection criteria to project officers and table 3.1 gives detail of project officers obtained from companies

visited.

Therefore, the total target population includes 420 project officers who are engineers and works in semi-projectile organization in Ghana i.e. Accra Brewery Limited, Nestle Ghana

Ltd, Cycle Farm Ghana Ltd, AngloGold Ashanti Mines, Ghana Gas Ltd, Uniliver Ghana, Voltic Ghana Ltd; Members of Ghana Institute of Engineers and consulting firms that deals with

project management related activity. Engineers who were engaged in project activities in these organizations were contacted. Table 3.1 presents the list of targeted professionals from each organization.

Table 3.1 Source of Target Population.

Organizations	**Target population**
Accra Brewery Limited	**37**
Nestle Ghana Ltd	**48**
Cycle Farm Ghana Ltd	**34**
AngloGoldAshanti Mines	**45**
Ghana Gas Ltd	**36**
Uniliver Ghana Ltd	**20**
Voltic Ghana Ltd	**30**
Members of Ghana Institute of Engineers	**70**
Consulting firms	**135**
TOTAL	**420**

Source; Field survey, 2019

3.4 Sample size and Sampling technique.

A sample is a specimen or part of a whole (population) which is chosen to denote whatever remains of the population. Thus, sample describes the segments of the population that investigation is to be carried out. Samples are constantly drawn out of a population in help of an examination and the reasonableness of each relies upon the current circumstance (McMillan & Weyers, 2007; Naoum, 2007). In determining a sample size for an activity, several approaches can be used including a census, a sample size of similar studies, published tables, formulas, etc. In this study, the techniques used for the determination of the sample size were

purposive and snowball sampling. Snowball sampling involved asking one respondent for other contacts, and subsequently those respondents are asked to provide other respondents, and so forth. Purpose sampling on the other hand is a type of sampling based on the judgment of the researcher on the units to be studied (Naoum, 2007). To determine the sample size, the researcher used his network with people in the project department of each organization and friends of the researcher also helped with their network to increase the sample size to 130 to give a good representation of the total population by engaging other project professional. Snowball was used together with purposive because the sample size obtained using purposive were very less and cannot represent the entire population. Therefore, purposive sampling was used to select respondents who had the relevant knowledge and experience on the subject under investigation. The researcher sampled 130 project officers who are engineers out of a total of 420 targeted from the industry. Snowball technique was also used to attract more respondent to participate in this survey by asking initial respondent to forward questionnaires to people within or outside their organization that has project management knowledge and expertise.

3.5 Design of questionnaire.

Questionnaire is an instrument used to collect data for a statistical survey. The design of this questionnaire seeks to post questions that will answer main research questions raised in chapter one as well provide solutions to the objective of this study. This is geared towards obtaining sufficient information to accomplish the research goals. Hair et al. (2003) indicated, the reliability and validation of a well-constructed questionnaire is very important in conducting a good research. Hair et al. (2003) propose the following systematic process for achieving a properly constructed questionnaire. Initial considerations, concept clarification, the technique of sampling, sample size determination, and implementing the sampling plan.

Table 3.2 Design of Questionnaire.

Section ID	Description of question	Question range.	Scale used.
A	Questions relating to respondent background.	Q1-Q7	NA
B	Questions relating to critical success factors on installation projects within engineering sector.	Q8	1= not important, 2=fairly important, 3= important, 4= more important, 5= highly important
C	Questions relating to factors that negatively impact project delivering process.	Q9	1= fully disagree, 2=Disagree, 3= Neutral, 4= Agree, 5= fully agree
D	Questions relating to factors that positively impact project delivering process.	Q10	1= fully disagree, 2=Disagree, 3= Neutral, 4= Agree, 5= fully agree.

Source: field study, 2019.

3.6 Pre-testing and administering of questionnaires.

Prior to administering of questions to respondent, the researcher selected five plant managers from five different companies; Nestles Ghana, Cycle Farm Ghana, ABL, Voltic Ghana and Coca cola Bottling company of Ghana and sent copy of piloted questionnaires to them. These individuals have diverse background that can represent the target population. The main focus

of this pilot was to achieve clarity and validate content that are not clear to respondent. Feedbacks from these personalities were effected and questionnaires were administered to the targeted population.

3.7 Data collection instrument.

Questionnaire is a set of printed or written questions with a choice of answers devised for the purpose of statistical surveys or it‟s a research instrument consisting of a series of question for the purpose of gathering information from respondent. It can be classify as open ended or close ended question. For close ended question, the researcher provides a list of answers to the question asked but for open ended question, the research ask the question and the respondents provide their answers. This type of questioning takes much of the respondent‟s time and delays the researcher‟s time in analyzing the data collected.

For this study, the research employs questionnaire as a data collection method to seek the opinion of plant managers, maintenance managers and supervisors in Mining, Manufacturing and Oil and Gas industries within the territory of Ghana to identify the critical success factors and their impact level in managing stakeholders on installation project.

The questionnaire is grouped in four sections; the first section “A” which seeks demographic information from respondent. Section ”B” seeks to answer the first objective of this study “to identify the critical success factors for managing stakeholders on installation projects”; section “C”, sort to identify the negative impact level of the critical factors and section “D” seeks to uncover the positive impact levels.

Due to time constraint, the researcher adopts close ended questionnaire technique and administered 130 questions to participants with project management experience within their organization through Google form.

3.8 Data processing and data analysis.

Data analysis is a process of systematically applying statistical or logical techniques to describe, evaluate and illustrate data in tabular or graphical form for easy interpretation. Hatch (2002) summarized data analysis as a logical pursuit for implication and an approach to process facts so what has been realized can be imparted to others. The researcher then used a windows based program, Statistical Package for Social Scientists (SPSS), to enter the data and created frequency tables. The software was also used to enter the scores allotted to each factor, benefit or challenge by the respondents and subsequently subjected to measurable examination for more understanding. The level of influence and effect of each of the factors, benefits and challenges to collaborative partnership was analyzed and the positioning of the qualities regarding their criticality as in the perspective of the respondents was prepared by utilization of Relative Importance Index (RII) which was computed using the equation below:

Relative Importance Index (RII).

$$RII = \sum \frac{W}{AN} x100$$

$$= \frac{5n_5 + 4n_4 + 3n_3 + 2n_2 + 1n_1}{5 \quad x \quad N}$$

$(0 \leq RII \leq 1)$

Source: Akaderi (2011).

Where:

W: is the weight given to each items by the respondents, ranges from 1 to 5 such that 1 is the least implying (fully disagree) and 5 the highest implying (fully agree).

A: is the highest weight (5 in 5-point likert scale).

N: is the total number of respondents.

Respondents were asked to indicate the level of importance of the identified factors on a scale of 1= Not important, 2= fairly important, 3= Important, 4= More Important, 5= highly important. For each of the factors, the relative importance index was calculated by summing

up the data obtained from respondent. The table 3.2 below summarized the Relative importance Index (RII), and the range rankings. High (H) = 0.80 ≤ RII ≤ 1, High-Medium (H-M) =0.60 ≤ RII ≤ 0.80, Medium (M) =0.40 ≤ RII ≤ 0.6, Medium-Low (M-L) = 0.20 ≤ RII ≤ 0.4 and Low (L) = 0 ≤ RII ≤ 0.20.

Table 3.3 Ranking of Importance Level.

RII values	**Importance level**		
0.80 ≤ RII ≤ 1	High	H	Fully agree
0.60 ≤ RII ≤ 0.80	High –Medium	H-M	Agree
0.4 ≤ RII ≤ 0.60	Medium	M	Neutral
0.2 ≤ RII ≤ 0.40	Medium-Low	M-L	Disagree
0 ≤ RII ≤ 0.20	Low	L	Fully disagree

Source: Akaderi (2011), importance level

3.9 Research ethics.

Research ethic is an area of concern to the institution where the research is being carry out. Most institution or organizations finds it difficult to release vital information to those undertaken the research because of thrust and moral character of persons seeking the information. Kwame Nkrumah University of Science and Technology has establish code of ethics for all researchers to follow and on account that a researcher flaws these code, such a person will be deal with by the institution. Many ethical issues were identified with regards to data collection and objectivity and therefore recommendation were made that "a researcher must write and made it clear to respondents that their information given is only for research purpose" and this is to ensure the researcher does not transgress the behavioral norms established by their institution. Any changes to information submitted or provided by respondent are unethical on the part of the researcher and again, respondents are free to alt out.

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSION OF RESULTS

4.1 Introduction.

Very little meaning can be deduce from quantitative data until it is process and analyze, this chapter therefore present analysis of data collected through primary research and a discussion of the analyzed data. The data collected were analyzed using the relative importance index and frequency distribution. In all, 130 questionnaires were administered to respondents, 117 questionnaires were retrieved from respondents which constitute 90 percent response rate. High response rate was achieved in retrieving questionnaires from respondents because, of the network that exist between the researcher and the survey participant.

4.2 Demographic analysis.

Demographics is the collection and analysis of a broad characteristics about group of people and population .This helps us to know the expertise level of respondent and therefore create confident level in the data collected.

4.3 Gender distribution of respondents.

According to the survey result, out of 117 respondents, 14.5% respondents were female and 85.5% were male. Though the female were in minority to the response rate, it does not mean the outcome was influence by majority. The target groups were those with project management experience but not gender based.

4.4 Age distribution of respondents.

According to the responses gathered in relation to age limits of participants, 71.8% of total participants are aged between 30 to 39 years, 14.5% aged below 29 years, 10.3% between 40 to 49 years and 3.4% aged between 50 to 59 years. It is clear that participants have gained knowledge and expertise from the industry and their opinions are very important.

4.5 Academic qualification distribution of respondents.

Base on the 117 questionnaires that had been retrieved, 61.5% of total respondents were First degree holders, 21.4% were Master‟s degree holders and HND holders constitute the least represented 17.1%.

4.6 Work experience distribution of respondents.

In view of the table 4.1, 30.8% of total population of respondents falls between 8 to 12 years of experience, 27.4% of respondents have between 5 to 8 years, 23.9% of respondent also had experience ranging from 12 years and above, 11.1% falls between 2 to 5 years and those with less than 2 years obtained 6.8% of total population.

4.7 Place of Work Distribution of Respondents.

It is clearly shown that majority of respondents are working in the Manufacturing industry which constitute 48.7% of the total sample size, Mining and Construction industry obtained 17.1%, whiles 13.7% of respondents works in the Banking or Financial sector. This clearly represents people with diverse background in this survey.

4.8 Job Title Distribution of Respondents.

The primary data obtained from the questionnaires had all the key stakeholders participating in the survey. 52.1% of respondents were project supervisors, 37.6 were project managers/ managers, 6.8% of total respondents were directors and 3.4% of participants were field technicians. It compares similar studies with Yang (2010), and shows a strong reflection of the participation of the stakeholders in the project management process.

Table 4.1 Demographic Distribution of Respondents.

Gender distribution of respondents	**Frequency**	**Percent**	**Cumulative percent**
Female	17	14.5%	14.5
Male	100	85.5%	100.0
Total	**117**	**100.0%**	
Age distribution of respondents			
Below 29 years.	17	14.5%	14.5
Between 30 to 39 years	84	71.8%	86.3

Between 40 to 49 years	12	10.3%	96.6
Between 50 to 59 years	4	3.4%	100.0
Total	**117**	**100%**	
Job Title Distribution of Respondents			
Director	8	6.8%	6.8
Project Managers	44	37.6%	44.4
Supervisor	61	52.1%	96.6
Technician	4	3.4%	100.0
Total	**117**	**100%**	
Organization distribution of respondents			
Construction industry	20	17.1	17.1
Manufacturing industry	57	48.7	65.8
Mining industry	4	3.4	69.2
Oil and Gas sector	20	17.1	86.3
Banking or Financial sector	16	13.7	100.0
Total	**117**	**100.0**	
Academic qualification distribution of respondents			
HND	20	17.1	17.1
First degree	72	61.5	78.6
Master‟s degree	25	21.4	100.0
Total	**117**	**100.0**	
Work experience distribution of respondents.			
Less than two (2) years	8	6.8	6.8
Between 2 to 5 years	13	11.1	17.9
Between 5 to 8 years	32	27.4	45.3

Between 8 to 12 years	36	30.8	76.1
Above 12 years	28	23.9	100.0
Total	**117**	**100.0**	
Workforce distribution of respondents			
Less than 10 workforces	33	28.2	28.2
Between 10 to 20 workforces	44	37.6	65.8
Between 20 to 30 workforces	12	10.3	76.1
Above 30 workforces	28	23.9	100.0
Total	**117**	**100.0**	

Source: field study, 2019

4.9 Identification of critical success factors.

This section seeks to provide answers to the objective of this study by administering close ended questionnaires to respondent soliciting their opinion on key issues identified from the literature as key indicators that drive project success. Respondents were asked to indicate the level of importance of the identified factors on a scale of 1= Not important, 2= fairly important, 3= Important, 4= More Important, 5= highly important. For each of the factors, the relative importance index was calculated by summing up the data obtained from respondent. The table below shows the frequency data obtained on each scales, the weight (W), Relative importance Index (RII), and Ranking of the RII on a scale of High(H)= $0.80 \leq RII \leq 1$, HighMedium (H-M) =$0.60 \leq RII \leq 0.80$, Medium (M) =$0.40 \leq RII \leq 0.6$, Medium-Low (M-L) = $0.20 \leq RII \leq 0.4$ and Low (L) = $0 \leq RII \leq 0.20$.

Table 4.2 Ranking of critical success factors for stakeholder management.

	Frequency of importance level					**Descriptive statistical values**			
Critical factors	**1**	**2**	**3**	**4**	**5**	**WGHT**	**RII**	**RANK**	**ID**
Identification of stakeholders	4	0	52	40	21	320	0.9275	H	1

„Managing stakeholders with social responsibilities“.	0	4	36	48	29	308	0.8928	H	2
„Formulating appropriate strategies to manage stakeholders“.	0	4	32	48	33	296	0.858	H	3
„Predicting stakeholders“ reactions for implementing the strategies“.	0	0	40	44	33	296	0.858	H	4
„Analyzing conflicts and coalitions among stakeholders“	4	8	16	52	37	276	0.8	H	5
„Assessing attributes (power, urgency, and proximity) of stakeholders“.	0	0	24	48	45	264	0.7652	H-M	6
„Analyzing the change of stakeholders“ influence and relationships during the project process“.	20	16	36	24	21	256	0.742	H-M	7
Assessing stakeholders“ behavior	4	4	16	48	45	252	0.7304	H-M	8
Formulating a clear statement of project missions	0	4	28	40	45	252	0.7304	H-M	9
Keeping and promoting a good relationship	8	4	16	45	44	244	0.7072	H-M	10
„Communicating with and engaging stakeholders properly and frequently“.	4	8	24	36	45	236	0.6841	H-M	11
„Understanding the area of stakeholders“ interests“.	0	0	16	45	56	228	0.6609	H-M	12

„Exploring stakeholders‟ needs and constraints to projects‟.	4	0	32	32	49	228	0.6609	H-M	13
Compromising conflicts among stakeholders effectively.	4	0	28	32	53	216	0.6261	H-M	14
Predicting the influence of stakeholders accurately.	4	8	24	24	57	188	0.545	M	15

Source: field study, 2019

From the table above, it is clearly shown that "predicting the influence of stakeholders accurately" come first with RII value of 0.9275 indicating high (H) critical success on project delivering process and project manager must pay attention to. "Prior research on project stakeholder management has called for increased understanding of the dynamic nature of project stakeholder management (Achterkamp and Vos, 2008; Olander and Landin, 2005; Yang et al., 2009)" "Exploring stakeholders‟ needs and constraints to projects" appears second with RII value of 0.8928, followed by "Assessing stakeholders‟ behavior and predicting stakeholders‟ reactions for implementing the strategies" with RII of 0.858 and "Analyzing conflicts and coalitions among stakeholders" comes fifth with 0.800 RII value.

The first five discussed above fall in high (H) value category i.e. $0.80 \leq RII \leq 1$. Many scholars pinpoint to these factors as critical to project delivering. As noted by "Freeman et al. (2007) state that project managers need to clearly understand the range of stakeholder reactions and behaviors". The second category of critical factors falls within $0.60 \leq RII \leq 0.80$ and these factors starts from the sixth critical factors to the fourteenth critical success factors with RII value of 0.7762 to 0.6261."Identification of stakeholders" was ranked sixth, followed by the seventh factor with RII of 0.7420 "Compromising conflicts among stakeholders effectively".

"Understanding the area of stakeholders‟ interests" and "Formulating a clear statement of project missions" were ranked eighth respectively with RII value of 0.7304, the tenth, eleventh, twelfth and fourteenth rank factors are; "Formulating appropriate strategies to manage stakeholders", "Communicating with and engaging stakeholders properly and frequently", "Analyzing the change of stakeholders‟ influence and relationships during the project process", and "Keeping and promoting a good relationship" with their RII values

0.7072, 0.6841, 0.6609, 0.6261 respectively. The third and last category had RII value of 0.5449 with the factor; "Assessing attributes (power, urgency, and proximity) of stakeholders" "Winch and Bonke, (2002) noted that lack of understanding of the various interest groups, the drivers of their actions and their influence potential during the project lifecycle on the part of management, has been identified as a major challenge in international projects".

4.10 Ranking Factors That Impact Project Negatively.

"Respondents were to evaluate by rating their degree of agreement for each of the identified CSFs according to a five-point Likert scale (1 = Fully disagree and 5 = Fully agree) by bearing in mind projects that they been involved". From the RII assessment, the following ratings were obtained.

Table 4.3 Ranking Factors That Impact Project Negatively.

Negative critical factors	Importance level					Statistical values			
	1	2	3	4	5	W	RII	RANK	ID

Lack of planning and monitory of scope of work	16	0	3	33	65	482	0.8239	H	2
Lack of complete document before commencement	12	4	4	44	53	473	0.8085	H	3
Lack of qualified personal on the project	20	0	6	23	68	470	0.8034	H	4
Late in scope validation	8	4	8	56	41	469	0.8017	H	5
Bureaucracy in decision making process	16	2	3	46	50	463	0.7914	H-M	6
Error in design and specification	16	6	6	30	59	461	0.788	H-M	7
Poor super vision of installation works	12	4	12	45	44	456	0.7794	H-M	8
Lack of project installation equipment and special tools onsite	20	0	4	44	49	453	0.7743	H-M	9
Frequent change of project scope	24	0	0	45	48	444	0.7589	H-M	10
Poor communication between parties involved on the project	16	8	4	48	41	441	0.7538	H-M	11
Under estimation of project installation cost	24	7	0	42	44	426	0.7282	H-M	12
Under estimation of project duration	16	15	7	39	40	423	0.7230	H-M	13
Delay in payment of work completed	16	9	4	66	22	420	0.7179	H-M	14

Source: field study, 2019

From the table 4.3 above, 14 factors were identified from literature to potentially impact project success negatively. “Lack of planning and monitory of scope of work” was rank first with RII value of 0.8239, followed by “Lack of complete document before commencement” with RII score of 0.8085. The third ranked factor was “Lack of qualified personal on the project” with RII score of 0.8034 and this was preceded by “Late in scope validation” which was ranked fourth. The first and fourth factors falls in one (the high importance) group.

The fifth, sixth, seventh and eighth ranked factors are; “Bureaucracy in decision making process”, “Error in design and specification”, “Poor supervision of installation works”, “Lack of project installation equipment and special tools onsite” with their RII scores as 0.7916,

0.7880, 0.7795, 0.7743 respectively. This indicates that the presence of these factors in any undertaken project will not be successful and project managers must make possible effort to eliminate these to the bare minimum. Again, the respondents scored "Frequent change of project scope" as the ninth amongst thirteen factors presented to them. "Poor communication between parties involved on the project" was ranked tenth followed by "Underestimation of project installation cost" with RII values of 0.7538 and 0.7282 respectively.

"Underestimation of project duration" and "Delay in payment of work completed" were ranked as the bottom two with their RII values of 0.7230, 0.7179 respectively. These result clearly shown that each factor listed has high (H) and high-medium (H-M) propensity to cause project failure.

4.11 Ranking Factors That Impact Project Positively.

"Respondents were to evaluate by rating their degree of agreement for each of the identified CSFs according to a five-point Likert scale (1 = Fully disagree and 5 = Fully agree) by bearing in mind projects that they been involved". From the RII assessment, the following ratings were obtained.

Table 4.4 Ranking Factors That Impact Project Positively.

Positive critical factors	**Importance level**					**Statistical value**			
	1	**2**	**3**	**4**	**5**	**W**	**RII**	**RK**	**ID**
Timely validation of project scope and elimination of scope creep	0	0	3	41	73	538	0.9196	H	1
Hiring people who have expertise in project management	4	0	8	24	81	529	0.9042	H	2
Availability of all relevant document such as detail design drawing.	4	0	4	37	72	524	0.8957	H	3
Use decision making tool like expert judgments, meeting, change, control process etc.	4	0	0	52	61	517	0.8837	H	4

Employ earn value management tools to forecast cost and duration of installation project.	0	0	12	52	53	509	0.8700	H	5
Managing ineffective planning and scheduling process using tools like CPM, PERT etc.	0	8	8	52	49	493	0.8427	H	6

Source: field study, 2019

The table 4.50 show analysis of respondents view on positive impact level of critical success factors. “Timely validation of project scope and elimination of scope creep” was ranked first with RII value of 0.919 followed “Hiring people who have expertise in project management” with RII score of 0.904. The third and fourth factors are; “Use decision making tool like expert judgement, meetings, change control process” and “Employ earn value management tools to forecast cost and duration of install project” with their RII scores of 0.883, 0.870 respectively. The last ranked factor in this category was “Managing ineffective planning and scheduling process using tools like CPM, PERT” which records RII value of 0.842.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction.

The researcher gives a brief summary of findings obtained from analyzing data gathered in the survey questions administered to respondents, conclusions were made based on the findings and recommendation were also put forward.

5.2 Summary of key findings.

This study focused solely on exploring critical success factors for managing stakeholders in engineering installation project in Ghana and the findings obtained reflects the opinion of practitioners in the industry. Based on the findings, recommendations were put forward to improve stakeholders‟ engagement and participation in some of the critical factors identified.

The researcher was guided by these objectives;

1. To identify the critical success factors for stakeholder management.
2. To identify the level of impact of these critical success factors on stakeholder management.

5.2.1 Objective 1: Identification of Critical Success Factors.

Many critical success factors for project delivery have been recognized by the researcher and were likened to stakeholder management (Davis, 2014). It should be noted that some of these recognized factors were linked to project success and hence worth considering for stakeholder management for effective project delivering. One of the significant duties of project manager is to manage project stakeholders as project success depends on all the stakeholders concerned. The literature review process saw fifteen critical success factors, and these form part of the

questionnaires administer to respondent. The opinion of these respondents were analyzed using frequency and relative importance index, and it was observed that, their RII values falls between 0.5449 and 0.9275 which implies that all the factors identified were all very important to project success. The higher the RII value or the closer the RII value to 1 the more critical the factor is. From the respondent view (**table4.30**),

"Predicting the influence of stakeholders accurately" was ranked first. This must communicate to project managers that they must conduct a little background check on key project stakeholders on the project i.e. identify their strength, power and influence that they are bringing on to the project.

The findings are aligned with other studies that indicate that conflicting stakeholder interests are a sensitive problem for the industry and for a wider range of stakeholders in the manufacturing sector. Identification of stakeholder interest, managing stakeholders with social responsibility, analysis of disagreements and alliances between stakeholders, assessment of stakeholder characteristics (power, urgency and proximity) are directly linked to conflict of interest. Each of these critical success factors scored RII values higher than 0.7000, indicating that participants agree that in the engineering industry these critical factors were considered to be crucial. Nevertheless, participants viewed the identification of stakeholders as the most important, as shown by its largest RII value. This reinforces the statements made by Cleland (1999), Friedman and Miles (2002) and others in the literature review on the need to evaluate and predict how each stakeholder might affect the project.

This would lead to the allocation of minimal funds to arbitrate disputes.

5.2.2 Objective 2: The Impact Level of the Critical Success Factors.

Assessing the impact level of the critical success factors in installation project is very significant to the project team, this will help decrease the probability of project failure, and

project managers need to identify these critical factors, know their impact level, and put corrective measures in place to mitigate the negative effects that these factors brings to the project achievement in the future.

Most of these project activities are delicate and high requirements are placed on project team and stakeholders during the project installation. Several studies demonstrated that management of stakeholders is essential for effective project management. Considering the importance of stakeholders‟ management; the 10th edition of the stakeholder management knowledge area has been added to the fifth edition of PMBOK. Although management of project stakeholders was acknowledged as a significant area, less study was done on the impact level of projects critical success factors. The impact level of the critical success factors were grouped into positive and negative impact level. In all, there were thirteen negative and five positive factors identified. Questionnaires were prepared and send to respondents to share their opinion on these factors whether they can affect project success. Data were gathered and analyzed using relative importance index, the result shown clearly in table 4.40 and table 4.40 that all factors have higher potential to influence the project success positively or negatively.

From table 4.40, “Lack of planning and monitory of scope of work” was ranked to have the highest negative impact on project followed by “Lack of complete document before commencement of project”. Indeed, many scholars point to these factors as key element for which project can survive on. The presence of these in any of the project phases will lead to course overrun, shoddy works, and project duration exceeding schedule time, project failure and many others.

“Timely validation of project scope and elimination of scope creep”, and “Hiring people who have expertise in project management” were ranked first and second with their RII values been 0.919 and 0.904 respectively. Table 4.50 shows the positive impact level of all critical factors

identified. The closer the RII values to 1 the highly positive this factor can influence the project success.

5.3 Conclusion.

This research aimed at identifying and evaluating the level of impact of critical success factors for efficient management of stakeholders in the execution of engineering projects. Two research objectives were developed as: to identify the critical success factors for stakeholder management, to identify the level of impact of these critical success factors on stakeholder management. The literature review recognized thirty-four critical success factors. Five of these are; Identification of stakeholders, managing stakeholders with social responsibilities, formulating appropriate strategies to manage stakeholders, Predicting stakeholders‟ reactions for implementing the strategies, Analyzing conflicts and coalitions among stakeholders . The literature agreed with the results and evaluation that the factors are critical but have distinct impacts. The RII of 0.545 confirms this, since the stakeholders ' influence was ranked 15th and the lowest, but above RII of 0.500.

Secondly, the research assessed the impact level of each of the critical factors in chapter C and D and the following five factors were recognized: Timely validation of project scope and elimination of scope creep (RII of 0.9196); Hiring people who have expertise in project management (RII of 0.9042) ; Availability of all relevant document such as detail design drawing (RII of 0.8957); Use decision making tool like expert judgement, meeting, change, control process etc (RII of 0.8837); Employ earn-value management instruments for forecasting installation project cost and duration. RII of 0.8700 were highly ranked in the first to fifth descending order. The results and rankings showed that the perception of critical factors is not very different from other studies. However, the perception of critical success factors that have a major impact on the project's success differed.

5.4 Research Limitation.

The researcher adopted a standard approach to explore critical success factors for managing stakeholders in engineering installation project. However, it‟s important to mention that there are some limitations. These are;

1. The researcher used close ended questionnaires to seek opinion of practitioners in the industry. This method can restrict practitioners who have different view on the subject under study.
2. The research faced a challenge in administering questionnaires to respondents. Prior to administering of questions to respondents, the researcher solicited for email address from respondent but this turns out that most of these email collected were inaccurate. The researcher has to make several calls and visits to some of these people.

5.5 Recommendations.

Based on the findings and conclusions drawn in the previous sections, the researcher put forward the following to be done by project managers;

a) Project managers may carry out a stakeholder profiling in order for an efficient stakeholder management strategy to be drafted.
b) Project managers need to correctly evaluate the characteristics of stakeholders in order to fully comprehend the project dynamics.
c) Project managers must develop an effective communication strategy in order to minimize the drawbacks in decision-making process.
d) Project managers must develop strategies that will lessen the adverse effect of such factors as disputes between stakeholders, and must create harmonious atmospheres for stakeholder relations, in order to ensure stakeholders friendly during the project execution process.

5.6 Recommendation for Further Studies.

Future researchers can identify main performance indicators for engineering projects installation and evaluate their link or connection with the critical factors that have already been recognized.

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APPENDIX1: SURVEY QUESTIONNAIRE.

Please read through this section carefully and tick [√] the suggested answer that much your profile.

SECTION A.

GENERAL INFORMATION.

1. **Sex of Respondent**. Male [ ] Female [ ]

2. **How old are you?**

Below 29 years [ ] 30 – 39 years [ ] 40 – 49years [ ] Above 50 years [ ]

3. **What is your highest academic qualification?**

HND [ ] Bachelor,,s Degree [ ] Master,,s Degree [ ]

Doctorate degree [ ] other, please specify ……..…

4. **Which of these industries do you work?**

Construction industry [ ] Manufacturing industry [ ] Mining industry [ ]

Oil and Gas industry [ ] Banking/ Financial sector [ ] Others [ ]

5. **Level of experience in years**

Less than 2 [ ] 2-5 [ ] 5-8 [ ] 8-12 [ ] > 12 [ ]

6. **What is your role in your organization?**

Director. [ ] Project Manager/ Manager [ ] Supervisor. [ ] Contractor. [ ] Technician. [ ]

7. **How many people worked on this project?**

Less than 10 workers [ ] 10 – 20 workers [ ]

21 – 30 workers [ ] More than 30 workers [ ]

SECTION B

IDENTIFICATION OF CRITICAL SUCCESS FACTORS FOR STAKEHOLDER MANAGEMENT IN PROJECT EXERCUTION OR INSTALLATION.

Below are Factors relating to critical success for stakeholder management in installation projects in Ghana. These have been identified as key performance indicators (KPIs) that influence project execution. With your experience and expertise, kindly indicate the level of influence of each determinant using the scale below.

1= not important, 2= fairly important, 3= important, 4= more important, 5= highly important

9. Question: **To what extent do you think the following Critical Success Factors influence installation project in your organization?**

ID		**Levels of Importance**				
	Scale	1	2	3	4	5

1	Managing stakeholders with social responsibilities (economic, legal, environmental and ethical)					
2	Identifying stakeholders properly					
3	Formulating appropriate strategies to manage stakeholders					
4	Predicting stakeholders' reactions for implementing the strategies					
5	Analyzing conflicts and coalitions among stakeholders					
6	Assessing attributes (power, urgency, and proximity) of stakeholders					
7	Analyzing the change of stakeholders' influence and relationships during the project process					
8	Assessing stakeholders' behavior					
9	Formulating a clear statement of project missions					
10	Keeping and promoting a good relationship					
11	Exploring stakeholders' needs and constraints to projects					
12	Exploring stakeholders' needs and constraints to projects					
13	Understanding the area of stakeholders' interests					
14	Compromising conflicts among stakeholders effectively					
15	Predicting the influence of stakeholders accurately					

SECTION C

Below are Factors that affect project delivery process, these have been identified as key performance indicators (KPIs) that impact project execution process. With your experience and expertise, kindly indicate the level of impact of each factors using the scale below.

1= fully disagree, 2=Disagree, 3= Neutral, 4= Agree, 5= fully agree

10. Question

To what extent do you think the following Factors will impact project installation negatively in your organization?

ID	**Factors that can impact project negatively**	**1**	**2**	**3**	**4**	**5**
1	Frequent change of project scope					
2	Lack of complete document before commencement					
3	Late in scope validation					
4	Lack of project installation equipment and special tools on site.					
5	Poor supervision of installation works.					
6	Underestimation of project installation cost					
7	Underestimation of project duration					
8	Delay in payment of work completed					
9	Error in design and specification					
10	Poor communication between parties involved on the project					
11	Bureaucracy in decision making process					
12	Lack of qualified personal on the project					

13	Lack of planning and monitory of scope of work					

SECTION D

Below are Factors that impact project delivery process positively, these have been identified as key performance indicators (KPIs) in project execution process. With your experience and expertise, kindly indicate the level of impact of each factors using the scale below.

1= fully disagree, 2=Disagree, 3= Neutral, 4= Agree, 5= fully agree

10. Question

To what extent do you think the following Factors will impact project installation positively in your organization?

ID	Factors that can impact project installation positively.	1	2	3	4	5
1	Managing ineffective planning and scheduling process using tools like; CPM, PERT and WBS.					
2	Use decision making tool like; expert judgments, meetings, change control process and quick approval procedures to effect changes.					
3	Employ earn value management tools to forecast cost and duration of installation projects.					
4	Hiring people who have expertise in project management.					
5	Timely validation of project scope and elimination of scope creep.					
6	Availability of all relevant documents such as detail design drawing and detail assembly drawing before commencement.					