DEVELOPMENT OF A SUSTAINABLE STAKEHOLDER MANAGEMENT FRAMEWORK FOR CONSTRUCTION PROJECTS IN GHANA

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DEVELOPMENT OF A SUSTAINABLE STAKEHOLDER MANAGEMENT FRAMEWORK FOR CONSTRUCTION PROJECTS IN GHANA

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DEDICATION

This thesis is dedicated to my lovely wife, Mrs Alice Eyiah-Botwe, children, Samuel Asare Botwe, Brian Asante Botwe and Cheryl Emmanuella Botwe. Also, to the entire Eyiah family in Kumasi for your prayers, warm support, the encouragement and understanding when I deprived you of the fatherly love and my presence without which I would not have made it. Furthermore, I dedicate this research work to the UJ-Commonwealth scholarship for the financial support, the Ghana Institute of Architects, the fraternity of the Ghanaian UJ PhD students and my supervisors. It is my hope this thesis will enhance construction project delivery in developing countries.

DECLARATION

I Emmanuel Eyiah-Botwe, hereby declare that, this thesis titled “Development of a sustainable stakeholder management framework for construction projects in Ghana” is my unaided work and that all the sources that I have used or referred have been duly acknowledged in the reference section. This thesis is being submitted to the University of Johannesburg for the fulfilment of the requirements for the Doctor of Philosophy in Engineering Management. It has not been submitted by me or any other person to any other institution for any degree or examination.

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Emmanuel Eyiah-Botwe Date

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'What shall I render unto the Lord for all His goodness to me?' Psalm 116:12

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EXECUTIVE SUMMARY

The construction industry's role in the infrastructure development and other sectors of the economy in developing countries is well acknowledged for its importance. Moreover, the need for an accelerated growth has led to the establishment of the Ghana Education Trust Fund (GETFund) and currently the Ghana Infrastructure Investment Fund (GIIF) for public-sector projects. Nevertheless, the diverse stakeholders involved in project development coupled with the high rate of public-sector project failure has made it receive negative public attention. Efforts by project managers to use the project management hard skills to improve project delivery have failed. However, the use of innovative stakeholder management (SM) soft skill approach has been embraced in developed countries to enhance stakeholder management success and project delivery. The identified challenge is the factors that need to be considered by project managers and a formal model to be used in Ghana as a developing country. The main aim of this study was to develop a sustainable stakeholder management framework for project SM success and enhanced project delivery.

A Mixed-Method research approach was employed using a literature review and qualitative Delphi survey to explore key constructs and measurement variables. Twelve out of the Twenty experts purposively sampled from the industry using eight-factor criteria initially agreed to participate in the study. However, ten experts participated in the three-rounds Delphi survey that identified eighty-one measured variables. The variables were categorised into critical success factors CSF (59) barrier factors CBF (8) and SM output (14). Also, identified were six exogenous critical success factors and one endogenous SM success construct. The study identified SSM as a six-factor model defined by the exogenous factors of pre-stakeholder identification; stakeholder identification; stakeholder assessment; stakeholder engagement; conflict resolution; implementation, monitoring and feedback. Also identified is the direct effect of external environment (CBF) on SSM success.

A quantitative questionnaire survey involving 350 purposively sampled industry participants was conducted. The 289-valid returned questionnaire constituted 82.5% response rate. Using an SPSS 16.0 for data entry, a Pre-CFA PC Varimax test was used to examine the validity and reliability of the measured variables and latent constructs. All the exogenous constructs (CSF and CBF) met the data internal consistency pre-set thresholds. Furthermore, a CFA test was conducted using a robust analytical structural equation modeling SEM IBM SPSS AMOS 22 for model fit.

First, the unidimensional models were overidentified and met the Goodness-of-Fit criteria. Secondly, the SEM involved using a two-step approach of analysing the six-factor distinct conceptualised measurement and structural models for model fit. An acceptable model fit was achieved after modification of the initial measurement model which had indications of meeting the model fit threshold. Similarly, the structural model achieved all the acceptable model fit threshold criteria validating the postulated six-factor SSM success model. Thirdly, the study examined and found the model to be statistically significant at 5% probability implying that the exogenous factors have a direct influence on SSM success and hence are predictors. Similarly, it was established that pre-stakeholder identification; stakeholder engagement; conflict resolution; implementation, monitoring, and feedback constructs have strong and direct influence while stakeholder identification and assessment had a weak but direct influence on SSM.

The study made a significant contribution to the body of knowledge. Theoretically, it confirmed pre-stakeholder identification; stakeholder identification; assessment; engagement; conflict resolution; implementation, monitoring and feedback as exogenous factors directly influencing the overall SM success and that SM theory is multifaceted. Thus, pre-stakeholder identification and conflict resolution were two new constructs considered in a holistic SM model. Also, it confirmed the influence of external environment factor as critical barriers to SSM success and in-depth theoretical information on SM practice in developing countries. The methodological contribution was the use of a Mixed- Method approach involving Delphi, questionnaire surveys and SEM to develop a holistic SM model. No previous study had employed that methodology. The practical significance and value of the study is the development of a holistic formal model for project managers and the Ghanaian construction industry. Project managers can enhance project delivery in the public-sector by carefully considering the six-factor SSM framework, the variables and key factors as identified.

The study recommends the evaluation of the combined and direct effects of the critical and barrier exogenous factors identified for SSM success in developing countries. Furthermore, project managers should carefully consider pre-stakeholder identification and conflict resolution factors to the known generic factors for increased stakeholder satisfaction and meeting stakeholder needs. On limitation, increased sample size could have enhanced the results due to a large number of measured variables studied. Also, this study considered project rather than process management.

LIST OF ABBREVIATIONS

ABCC	Australian Building and Construction Commission
ABCECG	Association of Building and Civil Engineering Contractors, Ghana
ADB	African Development Bank
AIPM	Australian Institute of Project Management
AMOS	Analysis of a Moment of Structures
ANC	African National Congress
APM	Association of Project Managers
AVE	Average Variance Extracted
BPP	Bureau of Public Procurement
CBF	Critical Barrier Factor
CIA	Central Intelligence Agency
CIDB	Construction Industry Development Board
CFA	Confirmatory Factor Analysis
CFI	Comparative-Fit Index
CR	Composite Reliability
CSF	Critical Success Factor
CSP	Corporate Stakeholder Practices
CSR	Corporate Social Responsibilities
df	Degree of Freedom
DSO	Delphi Survey Objectives
D&B	Design and Build
EEF	External Environment Factors
EFA	Exploratory Factor Analysis
GDP	Gross Domestic Product
GEAR	Growth Employment and Redistribution
GETFund	Ghana Education Trust Fund
GFI	Goodness-of-Fit Index
GIIF	Ghana Infrastructure and Investment Fund
GPG	Global Policy Group

IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
ILO	International Labour Organisation
IMF	Implementation, Monitoring and Feedback Documentation
IQD	Inter Quartile Deviation
KMO	Kaiser-Meyer-Olkin
M	Median
MANOVA	Multivariate Analysis of Variance
MAR	Missing at Random
MLE	Maximum Likelihood Estimation
MMDA	Metropolitan Municipal and District Assemblies
MM	Mixed Methods
MMR	Mixed Methods Research
MWH	Ministry of Works and Housing
MWRWH	Ministry of Water Resources Works and Housing
NCB	Nigeria Content Bill
NCPP	National Council for Public Procurement
NCTE	National Council for Tertiary Education
NHS	National Health Systems, UK
OGC	Office of the Government of Commerce, UK
PIB	Petroleum Industry Board
PM	Project Management
PMs	Project Managers
PMI	Project Management Institute
PPA	Public Procurement Act
PPB	Public Procurement Board
PPPE	Preferential Procurement Policy Framework
PSI	Pre-Stakeholder Identification
RAKLI	Finnish Association of Building Owners and Construction Clients

RMR	Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation
SA	South Africa
SAC	Stakeholder Assessment Criteria
SACPCMP	South African Council for Project and Construction Management Professions
SCR	Stakeholder Conflict Resolution
SD	Standard Deviation
SEM	Structural Equation Modeling
SEN	Stakeholder Engagement/Communication
SIP	Stakeholder Identification Process
SM	Stakeholder Management
SME	Small and Medium-sized Enterprises
SMME	Small, Micro and Medium-sized Enterprises
SMO	Stakeholder Management Success Output
SMS	Stakeholder Management Success
SRI	Stanford Research Institute
SSM	Sustainable Stakeholder Management
SSMF	Sustainable Stakeholder Management Framework
TLI	Tucker-Lewis Index
UK	United Kingdom
USA	United States of America
x^2/df	Normed Chi-Square

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CHAPTER ONE

INTRODUCTION

1 Background

The construction industry plays a significant role in every national economy (Ofori, 2012; Mwanaumo, 2014). Studies have revealed that globally, the sector contributes to a 15% share in the world's gross domestic product GDP (Mazhar and Arain, 2015, p.434), the driver of social and economic development of every nation (Ofori, 2012; Okoye, 2016). Also, the industry accounts for 20 to 50% of the accumulated wealth and 10 to 14% of household expenditure (Ofori, 2012). In Ghana, the construction sector's contribution towards overall GDP was estimated at 14.8% in 2014 (World Bank Group, 2015; Statsghana.gov.gh, 2015). Similarly, in South Africa, available data suggest a steady growth in the construction industry contributed 109316.14 ZAR million ($8,008m) to the GDP with the sector's influence on the national economy reaching its maximum in the last quarter of 2016 (Trading Economics, 2017). The industry thus has more linkages, roles and high multiplier effects compared to other industries, thus suggesting the need to ensure project success and the industry's sustenance (Ernst and Sarabia, 2015; Okoye, 2016).

Likewise, studies have shown that the construction sector is crucial for economic growth and employment creation (Ernst and Sarabia, 2015). Again, globally it employs about 7% of overall labour (Mwanaumo, 2014). Also, the construction industry is an important sector of the economy with a key role in national, social and economic development (Harris, 2010; Lopes et al., 2011; Okoye, 2016). In South Africa, a survey conducted shows that more than 1.4 million people are employed in the industry, either on a contract or permanently (South Africa Construction, 2015). However, in Ghana, the sector contributed to 3.5% of overall employment in 2012, registering a 2.1% growth in 2015 (Statsghana.gov.gh, 2016). Also, the industry has interlinkages, and therefore influences the growth of other sectors (Ofori, 2012). Thus, managing the stakeholders for enhanced construction project success is critical as many livelihoods depend on the sector.

According to the Project Management Institute (PMI, 2013), construction projects are undertaken to create a unique product, the success being measured by its realization within the set parameters of time, cost, performance, meeting stakeholders' needs and satisfaction.

Internationally, governments undertake building and construction projects for interventions and bringing about improvement in the well-being of the people in the areas of social, economic, physical, and environmental (Li et al., 2012). For developing countries undertaking mega construction projects such as cultural, housing projects, transportation and educational infrastructure characterises strategic efforts to achieve sustainable development goals (Othman, 2013).

These projects are undertaken with the aim of achieving project success (Yu et al., 2006). However, to realize that objective, construction projects should be effectively managed. According to Harris and McCaffer (2013), construction project management aims at delivering a definite solution by contracting with stakeholders to carry out specific activities related to the project. That requires the application of knowledge, procedures and skills to the project requirements that may have been outlined in a project brief (PMI, 2013)

The basis for measuring project success has always been the golden iron triangle of time, cost and performance: ability to meet the deadline delivered within budget and required quality (Wang et al., 2006; Jonny Klakegg, 2009). Studies, however, has revealed that success factors are considered beyond the triangle to include project management, stakeholder satisfaction and participation (Shenhar et al., 2001; Heravi et al., 2015). Likewise, according to the PMI (2013) that success in construction projects is significantly dependent on meeting the needs and satisfaction of stakeholders. Bourne and Walker (2005) attribute many project failures to poor consideration of all stakeholder needs.

According to Gudiene et al. (2013), construction project success depends on the effective organisation of multiple, specialised teams bringing to bear their knowledge, experience and skills. Also, introduced are their objectives, goals, interest and management skills which are usually competing (Chen et al., 2012). Mok et al. (2015) also assert that complex projects often have many stakeholders of diverse occupational and professional backgrounds with varying interests in the project impacting on project success. These complex projects are normally public-sector projects aimed at achieving specific development interventions. Thus, project success is a primary concern of many governments (Gudiene et al., 2013)

However, many public-sector projects around the world have failed owing to challenges encountered. Though many project managers try to accomplish project goals within the targets and as planned, there are reports of failure (Eskerod and Jepsen, 2013). One main factor identified with public project failures in various instances is stakeholder opposition (El-Gohary et al., 2006). An attempt to address the stakeholder factor is crucial to the success of projects. Failures, however, have become a common phenomenon in developing countries' construction industries with a negative impact on project cost, time and resources, with Jordan, Saudi and Ghana as examples (Ahzahar et al., 2011; William, 2015). Some of the project failures have been attributed to project stakeholders' conflicts leading to increased project time and cost (Olander, 2006).

However, beyond the time, cost and quality, is the failure to meet the functionality and firm's objective, namely the reason for which the project was initiated (Shrnhur et al., 1997). Shrnhur et al. (1997) further state that the project success dimension includes fulfilling stakeholder needs, level of stakeholder satisfaction and the ability to solve an operational problem. Several studies have identified the causes of failure to meet project objectives to be associated with stakeholders, namely contractor, subcontractor, consultant, users, and client (Alaghbari et al., 2007; Sambasvian and Soon, 2007). Similarly, some studies associate project success with contractors' and project managers' good performance (Yang et al., 2009; Gudiene et al., 2013). Therefore, project success should be a combination of project management success and stakeholder management success, achieving design goals and stakeholder impact (Eskerod and Jepsen, 2013).

Project stakeholders are referred to those who affect or are affected by the project outcome (Eskerod and Jepsen, 2013). According to Freeman (2010), stakeholders are those groups and individuals that can affect or are affected by the realisation of organisational purpose. The definition is supported by many scholars who believe that construction projects affect or are affected by individuals and groups (Andersen, 2008; Chinyio and Olomolaiye, 2010) while others use a verb, connecting verb to show the relationship between project and stakeholders (Yang, 2010). The PMI (2013) defined stakeholders as those people or organisations that are impacted by or impact a project. Also, stakeholders have an interest or an aspect of right in the project development (Bourne, 2005; Aapaoja and Haapasalo, 2014). Thus, project stakeholders by their interaction with an organisation or project can initiate or trigger a project if it is perceived to be relevant or antagonistic, disrupt, and stop the project if perceived otherwise (Mintzberg et al., 1995; Newcombe, 2003).

Studies have revealed that the relevance of a project determines its success. The determining factor for relevance, however, has been the priority of the users' needs rather than consultants or political goals. Hence, the ability of planners and decision makers to assess the needs of users is critical (Klakegg, 2009). Therefore, managing key stakeholders, including identifying their needs, interest, role, their relevance and perception plays a major role in the success of any project. Similarly, the goal of stakeholder management has been to increase the likelihood of project success (Jepsen and Eskerod, 2009). Furthermore, project success can be achieved through projects managers' performance, especially in developing countries.

In many developing countries like Ghana, projects are undertaken to achieve specific development interventions (Ofori, 2012; Othman, 2013). For this reason, the Ghana Education Trust Fund (GETFund Act 581) (2000) was set up in Ghana to fund projects in educational institutions and to increase the realisation of educational and other social infrastructure. Furthermore, the Metropolitan, Municipal and District Assemblies in Ghana as part of the decentralisation policy have embarked on many projects relating to social and educational infrastructure development. Unfortunately, these projects with participants and communities involved have failed (William, 2015). Similar reports by the GETFund in 2010 and the Performance Audit Report of the Auditor General on GETFund funded infrastructural projects in tertiary institutions also revealed widespread project failure.

There are reports of similar project failures in other countries and the fact that efforts in using hard project management skills to address project failure related to time, cost and quality have failed (Davis, 2014). Therefore, this study adopts a new approach to resolving project failure and enhancing projects success in Ghana using a soft project management skill. Stakeholder management is a soft project management skill that has been used by developed countries to enhance project success (Davis, 2014). International organisations have adopted the stakeholder management approach for enhanced project success in many fields. Likewise, developed countries, including Finland, Australia and the UK, have adopted stakeholder management for their construction sector projects (Chinyio and Olomolaiye, 2010).

International bodies like the International Finance Corporation (IFC) inform that early engagement with project interested parties enhances project relationships. As a result, organisations now prefer stakeholder interaction at the preliminary project stage. That the IFC achieves through eight stages of stakeholder identification, analysis, disclosing of information, stakeholder consultation, negotiating and partnering. Furthermore, the IFC engages stakeholders by managing conflicts, monitoring project together with the parties concerned, reporting to stakeholder and carrying out the stakeholder management functions.

Also, the African Development Board (ADB) advocates strongly for stakeholder involvement in project development. The aim is to engage persons with interest and influence and share the control over development initiatives. Also, decisions and resources which affect stakeholder participation are discussed. The ADB posits five stages of stakeholder engagement with the first three for consultation and the remaining two for stakeholder engagement.

Similar industry challenges and the quest for enhanced project success led to the UK government adopting innovations that are stakeholder focused. Newcombe (2003) informs that the United Kingdom witnessed that the clients' role and nature changed significantly in the past 50 years. That emanated from the construction sector reports by Latham (1994) and Egan (1998). The two reports stressed the need to improve areas of efficiency, quality and customer satisfaction in the construction sector (Chinyio and Olomolaiye, 2010400). Stakeholder management was unavoidable as it evaluates building from the end- users' perspective. According to Harris (2010), the formal historical appraisals also resulted in diverse forms of contract development and stakeholder interactions, including integrated and management contracts.

The Finnish, likewise, had challenges with the construction industry (Aapaoja and Haapasalo, 2014). These were related to project stakeholders. As a result, Finland integrated stakeholder management into the construction industry (Oyegoke, 2006). The object of that was to evaluate the stakeholder needs and expectations about the project objectives and to prepare the project management process to enable active stakeholder interaction during the project life cycle. Consequently, a stakeholder management model for enhanced project delivery was developed. The industry prescribes the application of the six levels at all the different phases of the occurrence of project failure. These are early identification of stakeholders, identification of potential conflict areas, stakeholder education on project gains and harms, stakeholder engagement, the involvement of other entities and the following of due process and management of the process (Oyegoke, 2010).

Likewise, in South Africa, there has been a demand for enhanced infrastructure delivery, notably housing for the black community delivery. Challenges associated with the delivery included remote project locations and associated political and social unrest from the community. Similarly, there is the challenge of developing nations' economies, commercial conflicts, and challenges with contracts (SA Construction, 2015).

Furthermore, stakeholders have been dissatisfied with the delivery of low-cost housing and have been complaining of lack of engagement (Windapo and Cattell, 2013; Zonke, 2015). The industry-related problems, stakeholders' dissatisfaction, as well as the vision for accelerated and enhanced delivery led to the setting up of the Construction Industry Development Board, (CIDB) in 2000. Subsequently, the CIDB has engaged in consultative meetings with construction stakeholders, thereby enhancing project delivery (CIDB Annual Report, 2016).

The industry challenges are not different from the Ghanaian construction industry and public-sector projects' delivery. Previous studies in Ghana have focused on the construction industry, outlining its importance and the need for development (Ofori, 2012). Likewise, others have considered causes of project delays, procurement, project managers, contractor and consultants' role in project delays and cost overruns as a means of reducing project failure (Anvuur and Kumaraswamy, 2006; Ahadzie, 2009; Agyakwa-Baah and Fugar, 2010; Gyadu-Asiedu, 2013; William, 2015). Thus, some efforts have been made towards improving project success. However, the recent study by William (2015) coupled with the Auditor General's Annual Performance Report (2013) reveals widespread evidence of project failure and stakeholders' dissatisfaction. Also, Ghana has not been an exception as far as mega projects failure in developing countries are concerned (Othman, 2013). Thus, despite the studies, the challenge of project failure still exists. However, that there is lack of studies in stakeholder management in Ghana.

1.1.1 Project Stakeholders

However, the diverse nature of the projects and dispersed locations have brought about many firms, individuals and groups being involved in the project development with a stake, share or interest (Nguyen et al., 2009; Chinyio and Olomolaiye, 2010; Weiss, 2014). The interested parties and individuals include contractors, design consultants, sub-contractors, suppliers, construction specialists, project owners, supervising consultants, and contractors (Aapaoja and Haapasalo, 2014; Wang et al., 2006). In addition, there are also customers, end-users, main contractors, principal designer, other designers, public authorities, material suppliers, residents and the municipality/council. Thus, stakeholders are individuals and organisations who benefit from the activities of an organisation but can affect and be affected by the organisation or its functioning, goals and even survival; hence they are interested in the process or its outcome (Fewings, 2005).

These stakeholders possess the power to be a threat or opportunity to the project (Gibson, 2005); hence are severally categorized depending on their relationship and involvement in the project outcome (Chinyio and Olomolaiye, 2010). Research has revealed some critical factors impacting on projects' success to include the stakeholder factor and project manager factor (Gudiene et al., 2013; Yang, 2010). In addition, there are project failures relating to project stakeholders and their management as well as the impact on the construction industry and developing nations.

1.1.2 Stakeholder Management

According to Freeman (2010), stakeholder management (SM) as a concept refers to the necessity for an organisation to manage the relationships with its specific stakeholder groups in an action-oriented way. The definition is supported by many scholars (Yang, 2010; Eskerod and Jepsen, 2013). However, Eskerod and Jepsen (2013) posit that stakeholder management should entail all the purposeful activities undertaken in connection with stakeholders for increased project success. Stakeholder management (SM) has been acknowledged to impact on the success of construction projects globally, among other factors. It therefore requires systematic identification, analysis and planning actions for communication and stakeholders' impact (PMI, 2008).

As a result of projects' complexity in nature and the diverse participants with conflicting interests, project stakeholders would have to be managed (Aaltonen and Kujala 2010). Likewise, Eskerod and Jepsen (2013) state that for projects to be undertaken and the benefits achieved, stakeholders must be managed. The Ghana Gas project as an example informs project managers of the need to manage stakeholders as failure to do so led to project delays and increased cost. Therefore, complex and uncertain projects require an effective SM approach to accommodate the conflicting stakeholders' interests (Mok et al. 2015) and maintain an acceptable balance of interests, especially political which is crucial to the success of the project (Cleland, 1999: Karlsen, 2002). However, in spite of the importance advocated by scholars in recent years (Newcombe, 2003; Olander and Landin, 2005; Chinyio and Akintoye, 2008), Yang (2010) quotes Loosemore (2006) as identifying the construction industry to have a poor record of managing construction stakeholders.

Similarly, several studies have mentioned the importance of stakeholder management in ensuring successful project delivery. However, the construction industry continues to have a poor record of SM. That can be attributed to failure to systematically identify, engage, analyse and monitor project stakeholders (Lock, 2007) and the absence of a systematic framework for stakeholder management (Yang, 2010). Further studies on mega projects in China posit managing projects which are complex to accommodate conflicting interest (Olander, 2006; Mok, et al., 2015). That has been found necessary because public sector projects in developing countries are complex (health facilities, stadia, transport infrastructure, housing projects) with several stakeholders requiring national context consideration. There is the need to consider stakeholder interests and influences, stakeholder management processes, analysis methods and engagement (Yang, 2010).

Also, the need for a systematic process entailing early identification (Koster, 2009), engagement (Bal et al., 2013), analysing and monitoring project stakeholders (Olander and Landin, 2005) cannot be overemphasised for developing countries (Nguyen et al., 2009). The stakeholder management process for developing countries should, however, aim at balancing the conflicting needs, identifying critical factors and developing a systematic framework. Six activity groups of preconditions, namely stakeholder identification, assessment, decision making, action and evaluation, and continuous support have been suggested for construction stakeholder management success (Yang, 2010). Similarly, development of a typology of approaches to the evaluation of the systematic framework, the identification of context-specific nature of has been suggested for developed countries (Yang, 2010). That is worth considering as a basis for stakeholder management process for developing countries.

1.1.3 Overview of Stakeholder Management and the Construction Industry

Stakeholder management is yet to be fully embraced in the construction industry, including the UK and several reasons are responsible. These include the fact that SM is not a project management prerequisite, funding for SM support is inadequate and some project managers lack knowledge. Moreover, an effective stakeholder management approach has maintaining existing relationships, providing top-level support and being proactive (Chinyio and Akintoye 2008). Chinyio and Olomolaiye, (2010) posit that construction projects will have many stakeholders whose presence alone is a source of conflict. Likewise, Amaeshi (2010) states that corporate stakeholder practices (CSP) are a precursor to social corporate social responsibility (CSR), hence the need for SM. Similarly, Harris (2010) asserts that a positive stakeholder relationship encourages trust and collaboration, thereby reducing conflicts. These can reduce project cost and time overruns and increase profit. Also, Von Meding et al. (2013) state that corporate culture and SM are related to organisational success.

Additionally, studies suggest the absence of formal SM process in the sector (Yang, 2010). Many factors, processes and approaches have been suggested by different scholars such as Newcombe (2003), Bourne (2005), Yang (2010), and Jepsen and Eskerod (2013). However, common among scholars is the need for strategic management (Freeman, 1984) to consider a stakeholder approach, accurate stakeholder identification and consideration of stakeholders based on their salience and power attributes (Mitchell et al., 1997). Moreover, authors agree on the impact of effective communication/engagement (Bourne, 2005; Eskerod and Jepsen, 2013) and procurement on stakeholder management success (Rwelamila, 2010). Similarly, Gardiner (2005) emphasises the need to manage stakeholders' expectations as disillusioned ones can cause project failure.

Additionally, Reeds (2008) informs on the need for early and continuous stakeholder participation. Also, having clear project objectives at the outset is required. Thus, Newcombe (2003) suggests the principle of ensuring that projects benefit all and act in the interest of all stakeholders as well as the project for success. Likewise, Cleland and Ireland (2002) state that success in construction projects is significantly dependent on meeting the needs of stakeholders while Bourne and Walker (2005) attribute many project failures to poor consideration of all stakeholder needs.

An overview of the construction industry in Finland by Oyekoge (2006) reveals that in Finland, the share of the building industry contribution was about 5% of the GDP in 2004, with 33,000 licenced contractors, and a workforce of 182,000. However, there was the problem of reduced skilled domestic labour and increased foreign labour. These may be classified as internal or external stakeholders (Chinyio and Olomolaiye, 2010). Since projects are demand or supply driven, projects are owned and financed by private individuals or the public.These stakeholders may be classified as core, strategic and environmentally concerned (Carroll and Buchholtz, 2006), primary with a direct stake in the success and therefore influential or secondary, or extremely influential and representing the public interest.

To successfully manage construction stakeholders, namely clients, project users, supply chain members, financial supporters and the community for project success, there is the need for a framework or established principles. Thus, Chinyio and Olomolaiye, (2010) suggest identifying, understanding, analysing and managing stakeholders through six SM principles, including project identification, programming, appraisal, implementation and facility management for SM and project success. Construction SM success is critical since several projects failure is the result of negative stakeholder influence.

According to the Estate Department of the University of York (US), project failure and stakeholder dissatisfaction can always be related to poor stakeholder engagement or poor project planning during the project's early stages. The Estate Department further states that stakeholders should be involved in some or all the eight stages of project development. Moreover, the Department identified the project sponsor, manager, client, design team, steering and working groups and other interested individuals as stakeholders.

1.1.4 The Ghanaian Public-Sector and the Construction Industry

Ghana's population has doubled over a period of 20 years with a corresponding demand for building infrastructure, schools, hospitals and administrative buildings. There is pressure on the government and the domestic construction industry as the population grows at estimated 2.19% yearly (Egmond and Erkeens, 2007; CIA, 2003). According to Atuahene (2009), there is an over-reliance on the central government for financial support which threatens inadequate infrastructure provision.

Ghana's construction industry plays very important role in the national economy (Tuuli et al., 2007) and contributes to the GDP, socio-economic growth and employment. The industry's performance and activities in Ghana have a major influence on the achievement of developmental goals of providing infrastructure (Ayarkwa et al., 2011), making it essential that project goals are achieved. The industry's key stakeholders mentioned are the client, consultants, and contractors with public sector stakeholders extending to include government organisations, local authorities, the community and other groups whose interests are affected positively or negatively (Riege and Lindsay, 2006).

Considering that the construction industry is the third largest economic sector in Ghana based on value addition to the gross domestic product (GDP) and the 14.8% contribution to the GDP in 2014, it has economic importance in the country's development (Anaman and Osei-Amponsah, 2007; Statsghana.gov.gh, 2015). However, the industry depends largely on the public sector for survival. Thus, because many public-sector projects have failed (Ole, 2009) coupled with the reduced ability of governments to deliver socially needed infrastructure projects (Mladenovic et al., 2013), there is the need for considering enhanced project delivery. Public sector projects in Ghana include civic buildings, schools, hospitals and residential buildings, and their failure can be attributed to designers. Researchers have also attributed failure to the role of contractors, subcontractors and project financing and poor project management (Odeh and Battaineth, 2001). The decision to engage stakeholders is crucial since their perception is hinged on the view of political allegiances (Riege and Lindsay, 2006).

Contractors working in Ghana are required by law to register with the Ministry of Works and Housing (MWH). They are classified as class DI, D2, D3, D4, and K1, K2, K3 and K4 for building works and civil works respectively. The evaluation is based on their technical, plant holding and financial sub-classification as 1, 2, 3, 4 (Ayarkwa et al., 2011; Anvuur and Kumarasnamy, 2006). However, contractor classification is not updated regularly (Eyiah, 2003). Contractors manipulate the system to wrongfully get contracts (Crown Agents 1998, Westring, 1997) with construction projects' monitoring, control and delivery being poor (Ayirebi, 2005). Most construction firms in Ghana can be termed as small accounting for over 90% of all registered contractors. This affects their managerial capabilities.

Considering that construction activities are increasingly becoming highly technical and sophisticated regarding materials and specification, clients, increasing completion and the required standards, small firms lack the initiative and have limited skills in problem-solving, hence practising SM is critical (Erkelens and Egmond, 2005). Further to this, there is a lack of sufficient funds, credit facilities, appropriate technological capabilities, plant and equipment as well as key personnel of Ghanaian small contracting firms to handle projects properly (Ayarkwa et al., 2010).

Project delivery is characterised by unnecessary delays, cost, time overruns, poor quality and non-achievement of value for money, hence the PPA, Act 663 in 2003 enactment for enhanced project delivery. The situation, however, remains problematic (Auditor-Generals report 2012 on GETFund projects). Theunynck (2009) noted that aggravating this problem of project delivery is the traditional procurement route adopted and the contract strategies used. The advantages of design and build and other methods of reducing cost, time and improved quality remain elusive (Turner, 2008).

1.1.5 Public Sector Projects and Procurement

Ghana, as a developing and colonized nation, adopted its traditional method of procurement predominantly from the UK. There is, however, an indication of the public sector's deficiency in its procurement method, suggesting the need for alternative approaches (Ofori, 2007; Osei Tutu et al., 2010) in addition to the malpractices and lack of benefit (Anvuur and Kumaraswamy, 2006). Towards the realization of sound procurement practices in Ghana, the Public Procurement Authority (PPA), formerly the Public Procurement Board (PPB), was established to facilitate the fullest implementation of the PPA, Act 663 (Osei Tutu et al., 2010). Thus, the PPA currently governs the award of public sector projects.

Public sector institutions are required by the Public Procurement Act to establish an entity responsible for approvals and awards of contracts within set thresholds. Contracts with sums above the approved threshold are forwarded to the next higher entity with the Central Tender Board as the highest (PPA, Act 663). The successful tenderer by the PPA is the lowest evaluated tender, and any decision to offer the project to another contractor requires very good justification. Technical, financial, plant, staff holding and previous works executed are used among others to evaluate tenders. However, missing are health and safety, sustainability, stakeholder and risk management plans which are recommended (PMI, 2013) as impacting on project goals. The major challenges some key stakeholders in the construction industry such as the GETFund which is a major sponsor for education, health and district assemblies building infrastructure have been:

- Acting only as an agency for processing and effecting payments merely on the presentation of certificates in whose favour cheques are written out,
- Not part of the contract awarding arrangements and therefore remains largely ignorant of developments in the project cycle, and

- The persistence of these situations been detrimental to the efficient and effective operations of the Fund.

1.2 Rationale of the Study

Public sector construction projects are complex and designed as interventions for socio-cultural and socio-economic growth; the failure thereof results in major challenges. Projects such as hospitals, schools, housing and administrative buildings are aimed at improving the social well-being of the populace. There are, however, several key stakeholders, depending on the scale and complexity of the project, with diverse interests and expectations which may be conflicting. As a result of the stakeholder size and expectations, the project scope, targets and stakeholders involved may change during the project lifecycle. Effective management of these interested individuals and groups is essential for the successful project delivery.

Stakeholder management requires a systematic and sustainable approach to identifying, engaging, analysing and monitoring stakeholders involved. Effective monitoring requires documentation on stakeholders to determine roles and responsibilities to be assigned, interest, influence and power to be considered. Researchers in the construction industries in developing countries have revealed the lack of proper documentation on construction processes, including project stakeholder relations and stakeholders' knowledge in SM. Key stakeholders may change during the construction process. Because of the varying interests, influence, power and other factors, exploring stakeholder understanding, knowledge and documentation of the process become essential for enhanced SM and future projects delivery. Unfortunately, the Ghanaian construction industry has no virtually history or documented information on construction projects, or key stakeholders involved. For instance, it is impossible to obtain documented information about a particular contractor, consultant, contractor, supplier or sponsor from the government sources for an informed decision: as one contractor states "We keep mental records and die with it (*sic*)".

Ren et al. (2012) state that performance of most construction projects in Africa is very low because of the procurement practices borrowed from their former colonial masters. These, in most cases, are not suitable for their country's economy. In Ghana, the rate of project failures has become alarming, resulting in the call for immediate solutions. Several studies have attributed the failure of public sector projects to various factors relating to cost, time overruns, poor project performance, huge variations, abandoning and non-completion of projects. These factors are mostly attributed to the role of contractors, designers, clients, sponsors and users/community rather than natural disasters (Agyakwa-Baah and Fugar, 2010; William, 2015). That requires effort to improve the management roles, responsibilities, relationships, interest, and influences as these will improve public sector project delivery. Both the external and internal stakeholders may change in status during the project delivery. That depends on the huge range of construction processes; hence, depending on the project they may change. The work processes and people change almost daily on sites. The construction industry is further highly fragmented, both in the workforce and professional disciplines. Projects involve those who procure, design, specify, manage and maintain buildings and structures as well as those who undertake the process of constructing them. The fragmentation is echoed through the considerable number of representative bodies for clients, designers, contractors, suppliers and trades unions. There is not a single body to manage all the organisations involved in the construction industry. Also, there may be groups who are not represented at all in the bodies that do exist.

It is further argued that key consultants in construction industry adopted a ‘commercial’ approach in place of ‘professionalism’. The quality of information issued to contractors for construction purpose is not adequate. That, coupled with poor supervision, results in a poor construction practice which translates into, among other things, a negative health and safety (H&S) performance.

This background suggests the need for this research. It indicates that the Ghanaian construction industry, especially the public-sector, does not have a good historical record on project stakeholders and delivery. Several stakeholders impact on the growth of the industry, hence the need to consider their roles in effective public-sector project delivery by exploring their understanding and SM consideration since the industry’s performance is the collective contribution of all key stakeholders. Evaluating the SM process, therefore, requires investigating the impact of procurement methods adopted (Nguyen et al., 2009), as well as the socio-cultural and other critical factors impacting enhanced SM and project delivery in developing countries.

Since research in the UK, China and Sweden has proven that key stakeholders influence construction SM practices and eventually project delivery, enhanced SM performance for public sector projects must necessarily consider project managers, architects, engineers, quantity surveyors, contractors, suppliers, statutory approval departments, the community and politicians. Previous studies in SM have covered developed countries, and considering that most research is not systematic, this study is justified. Consequently, this study seeks to evaluate project stakeholders' role in stakeholder SM, critical success and barrier factors impacting on its implementation and develop an SM framework that seeks to enhance SM success and public-sector project delivery.

1.3 Research Study Definition

1.3.1 The Problem Statement

Though infrastructure delivery in Ghana has been every government's priority, many public-sector construction projects (GETFund projects) in Ghana have failed. Projects delivery fails to meet the project set objectives of time, cost and performance, resulting in about 70% of projects being either uncompleted or abandoned (The GETFund Review and Outlook 2000-2009). The failure is partly attributed to:

- non-involvement of some key project stakeholders such as sponsors during project planning and development stage;
- different stakeholders' involvement at different phases of project development cycle;
- non-involvement of stakeholders at project definition and planning stages;
- absence of a framework for effective management of projects and stakeholders; and
- absence of monitoring and evaluation programmes.

Based on the concerns raised by Section 13 (e) of the Audit Service Act, 2000 (Act 584), the Auditor-General commissioned a performance audit into GETFund-funded projects in public tertiary institutions in Ghana administered by the GETFund secretariat.

Secondly, the Performance Audit of the Auditor-General on the GETFund funded projects in public tertiary institutions revealed the following:

- GETFund and NCTE did not ensure that projects were adequately planned and due diligence carried out before commencement, thereby resulting in delays in completion and cost overruns due to variations which could have been minimised.
- Project planning was poor as several projects simultaneously were undertaken, resulting in delayed payment for works done, affecting project progress, resulting in fluctuations and thereby increasing the cost of the projects.

- The Technical Unit of GETFund and the NCTE had depended on the institutions to monitor and ensure project quality. However, project quality was not always guaranteed, and GETFund had no means of knowing this because there was no formal reporting required by GETFund from the consultants.

Thirdly, a review of project delivery and unfinished infrastructure in Ghana's local governments (Williams, 2015) identifies many challenges and failures of projects undertaken by Ghana's Metropolitan, Municipal and District Assemblies (MMDAs). Williams (2015) built a database of over 14,000 projects, covering all infrastructure projects undertaken by MMDAs in Ghana from 2011 to 2013 and states the following:

• Projects are either completed promptly or not at all. Estimates show that approximately one-third of MMDA projects that are started are not completed. Average projects had a five-month planned duration; however, one year after projects had begun, only 45.8% of projects were completed and over a third of projects (35.5%) remained unfinished, three years after the start date of the project.

• Mid-project interruptions and delays in construction are not uncommon. However, these delays can render projects unprofitable for contractors under the original contract terms, hence contributing to project non-completion rates.

• Policy attention shifts to new projects, often resulting in project abandonment. Agencies fail to budget to finish ongoing projects, before starting new ones. Also, timelines and budgets for projects are not realistic.

The outlined problems resulting in project failures were project management issues and stakeholder participation related. The study believes that adopting a stakeholder management (SM) approach could have increased project success. Thus, this thesis explores the use of soft project management skill to address the problem of projects failure in Ghana. Also, it examines the levels of key stakeholders' consideration, commitment to SM during construction projects development in Ghana and how the establishment of a sustainable framework can enhance SM success, thereby impacting positively on public sector projects delivery.

1.3.2 Aim of the Study

The overall aim of this study was first to explore the causative factors responsible for SM success and then develop a sustainable SM framework. The framework aims at successfully managing all activities related to project stakeholders for enhanced project performance, improved stakeholder relationship, achievement of stakeholder needs, satisfaction and gains.

1.3.3 Research Motivation

Currently, no study has explored SM success factors in Ghana and developing countries with similar characteristics. This study hopes to fill the gap and provide empirical data for research in SM in a developing country. The study evaluated a six-factor construct model by determining statistically the significance of the factors, pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback since no previous study has examined the combined factors. Similarly, the two gaps identified as pre-stakeholder identification and conflict resolution were never identified in any of the models reviewed even though theory and research had mentioned their influence.

Secondly, the researcher is motivated by the methodology adopted for this study which has not been used in previous studies. The mixed-method and the robust nature of SEM application render its outcome as having a high degree of reliability and validity.

Thirdly, as a practising architect, a project manager working in the public sector and a council member of the Ghana Institute of Architects, the researcher is motivated to find a lasting solution to the prevailing project failures in Ghana. The outcome of the study will be useful to the research fraternity and the Institute with a research responsibility for enhanced professional practice and project success.

1.3.4 Significance of the Research

The significance of the study was threefold. There was lack of studies in stakeholder management in developing countries and a gap in the literature. The study's identification of two factors as statistically significant is a theoretical contribution to the stakeholder management field. Similarly, additional variables were identified, key stakeholders' peculiar to developing countries and critical barrier factors which previous studies have not studied. These together theoretically are the study's contribution.

Furthermore, the structural equation modeling SEM method the study used included multiple exogenous and endogenous factors to test the hypothesis about the relationships among the observed variables and the six latent constructs. Similarly, the study identified which constructs had direct, positive and strong relationships, hence impacting stakeholder management success outcome as against a general outcome.

Likewise, the findings revealed that ten stakeholder management (SM) success outputs are achievable if the project management team should adopt the SM model developed. These are project performance targets, stakeholder needs, satisfaction and gains-related factors. Also, like Finland, the country can employ one formal SM approach for all public-sector projects as against having many and informal models.

1.4 The Study

1.4.1 Research Gaps

The study searched for gaps in the stakeholder and SM theory by reviewing existing theories and models. The review considered the peculiar developing nations' industry characteristics. Thus, the study identified two main gaps as related to the SM theory. Also, implementation, monitoring and feedback were modified and combined. Feedback was identified as key to evaluation and documentation but the three had not been combined as a factor in previous studies.

Gap1 Though some studies indicate the influence of pre-stakeholder identification activities on stakeholder identification and management success, no theory or model reviewed had considered it as a latent construct in a holistic model.

Gap 2 Though some studies have emphasized the influence of conflict resolution or management on stakeholder management and project delivery success, models reviewed failed to consider it as an exogeneous factor in a holistic model.

Gap 3 Also, studies have either suggested the need for monitoring, evaluation and feedback, models reviewed failed to consider the three together as a construct in a model.

1.4.2 Research Questions

Based on the research problem statement and aim, the following research questions evolved:

RQ1 To what extent does stakeholder management impact on the Ghanaian construction industry project delivery considering the historical development of the industry?

RQ2 To what extent does pre-stakeholder identification influence construction stakeholder management success?

RQ3 To what extent does conflict resolution/management influence stakeholder management success?

RQ4 How much does the consideration of critical success factors (CSFs) influence project stakeholder management success in Ghana?

RQ5 To what extent do critical barrier factors' (CBFs) mitigation influence project stakeholder management success for public-sector project delivery?

RQ6 To what extent does the hypothesised stakeholder management framework fit into the identified exogenous factors?

1.4.3 Research Objectives

To achieve the study's aim and the research questions that emanated, the following objectives were established:

RO1 To evaluate stakeholder management (SM) theories aimed at identifying SM factors that influence the construction industry project delivery considering the historical development

RO2 To establish the influence of pre-stakeholder identification factor on SM success in Ghana as a developing nation

RO3 To establish the influence of conflict resolution/management factor on SM success and project delivery

RO4 To evaluate the critical success factors (CBF) that influence SM success for successful public-sector project delivery

RO5 To evaluate the extent of the influence of critical barrier factors (CBF) the SM success.

RO6 To develop and validate a sustainable SM framework for public-sector construction projects in Ghana and developing countries with similar industry characteristics.

Though the realisation of the study objectives is discussed in detail in chapters eight and nine, a summary is presented for readers' understanding. Research objective RO1 was achieved through a literature review and confirmed using a Delphi study involving key industry participants for an understanding of the stakeholder and SM theories. Furthermore, the influence of the construction industry and the historical development on SM was evaluated. Also, RO2 and RO3 were achieved using a literature review, a Delphi study and questionnaire surveys. The findings were analysed using structural equation modelling SEM.

Research objectives RO4 and RO5 were achieved using a literature review, Delphi study and questionnaire survey validation. Also, to validate the factors, SEM AMOS version 22 software was used to model and test the hypothesised model refined after the Delphi study. Finally, the developed postulated model was validated using SEM for goodness-of-fit indices for RO6. Chapters nine and eleven further explain the above.

1.5 Research Methodology

The study adopted methods and methodology that enabled the researcher to achieve the research objectives. While methods are defined as techniques employed and the instruments used for data collection, sampling and analysing the data, the methodology is the study of the methods employed (Bryman, 2008). The methodology and methods adopted together were conceived as a system of philosophical underpinnings and rules underlying the particular techniques used to achieve the present research objectives (Ghauri and Gronhaug, 2005; Hughes and Sharrock, 2007; Saunders et al., 2007). Thus, the research approach (design) considered the plans and procedures for methods of data collection, analysis, interpretation, methodology and the philosophical assumptions used by the author to achieve the project objectives (Creswell, 2014). This study then reviewed the methodological traditions used for similar studies and the data collection techniques employed and therefore draws from some investigations. Considering the merits of both the qualitative and the quantitative approaches and the research objectives, a mixed-method research design that employs both techniques was used. A three-step approach using a mixed-method survey was adopted. Step 1 considered a literature review; step 2, the data collection and analysis; and step 3, the discussion of findings and final design of a sustainable stakeholder management framework.

1.5.1 Literature Review

The literature reviewed is an important part of any research process. Neuman (2014) advocates accumulating knowledge on research questions from work already done in the area. Research ideas were refined as after a critical review aimed at identifying the current state of knowledge in SM study, its limitations, and place in the wider context (Saunders, 2011). As stated, the purpose of a literature review includes gaining theoretical, methodological, empirical, both theoretical and empirical knowledge combined (Flick, 2009). A literature review was thus critical in the absence of SM theory on developing countries since the researcher desired to be familiar with the body of knowledge in the field for increased competence (Neuman, 2014). Also, it helped with refining the research questions and placing the research work in context. Likewise, it increased the relevance of developing a framework to address the project failure in developing countries, thereby improving construction project success.

Secondary data was collected mainly from the literature on construction stakeholder management, industry practices, projects' delivery, and public sector and procurement methods from both developed and developing countries in journals and books. Also, peer-reviewed conference proceedings were consulted and conferences and PhD students' workshops were attended for guidance on various research methods suitable for this study.

The study examined relevant literature, namely journals, conference publications, books and dissertations from both local and international authors. The review and discussion of more than fifteen SM theories, models and concepts (Chapter 2) augmented the researcher's knowledge in the SM field. It found that the stakeholder concept by SRI in 1963, strategic management; a stakeholder approach (Freeman, 1984), and stakeholder identification and salience (Mitchel et al. 1997) were major theories underpinning modern research. Following that, the study reviewed SM models and frameworks developed between 2000 and 2014 as many of those studies had reviewed the earlier theories and models extensively. The emphasis was on the research approach, the factors identified and the variables tested. The reviews were used as the basis for the development of the sustainable framework for stakeholder management success in Ghana.

Similarly, the literature studies on selected developed and developing nations focused on the historical development of the construction industry, best practices and the impact on stakeholder management. Also, project stakeholders, stakeholder management models, the critical success and barrier factors were noted. Likewise, the variables that impact on stakeholder management success about the factors and gaps identified were considered. The roles of pre-stakeholder identification, and conflict resolution were found peculiar to developing countries such as Ghana also as gaps having not being considered in the studies reviewed. Additional variables were implementation, monitoring and feedback documentation. The key and common factors posited by many scholars as influencing SM success were stakeholder identification, classification, prioritisation, communication and engagement. Lastly, this aspect of the study found the UK, Australia, Finland and South Africa to be some of the nations whose public-sector project delivery is stakeholder focused, hence making the right impact. Clarity and focus on the research enhanced the research methodology and methods to contextualise the results (Kumar, 2005).

1.5.2 Qualitative Research

A research approach must entail plan, procedures, assumptions, methods of data collection, analysis, and interpretation (Creswell, 2013). This research identified a qualitative method as one of the main approaches, hence philosophical assumptions, procedures of inquiry, and methods of data collection, analysis and associated interpretation were critically reviewed. The research used the approach for the subjective meaning of the occurrence of stakeholder management from experts' perspective, social practices and experience (Flick, 2011). Similarly, it explored using a small number of cases as per relevance to identify factors and variables responsible for stakeholder management success, and critical and barrier factors. Though complete objectivity and neutrality were not possible (Gupta and Awasthy, 2015), the aim was to develop concepts and theory through collection and data analysis (Bryman and Bell, 2007) with an emphasis on exploration and conceptual clarity (Gupta and Awasthy, 2015).

The other reason for using quantitative method was the authors' constructivist or interpretive philosophical stance on stakeholder management (Creswell, 2013). Thus, an inductive approach to research was adopted (Bryman and Bell, 2007). Also, in the absence of a formal stakeholder management model in Ghana, the study had to rely on participants' lived experiences for understanding as that was essential.

Likewise, the research considered constructivism, hence sought for the meaning of experts' experiences towards stakeholder management by looking for varied rather than narrow ideas (Crotty, 1998; Creswell, 2013). Thus, an open-ended strategy was used to collect factors and variables for the development of theory and concepts as experts' opinions were relied upon (Bryman and Bell, 2007). Also, there was a collaboration between the researcher and participants in finding a solution. Nevertheless, the qualitative approach has been criticised as being subjective, difficult to replicate, lacking transparency, reliability and validity (Bryman and Bell, 2007), as well as for the fact that it is unstandardised (Flick, 2009). The Delphi technique qualitative approach used for data was appropriate because the focus was to understand, explain, explore, and clarify the perceptions and experiences of industry participants on SM (Kumar, 2005). Similarly, the approach was useful for an emerging approach focused on a single concept and aimed at creating an agenda for change through a development of theory.

1.5.3 Quantitative Approach

The study believed that causes determine outcomes, hence the positivist/postpositivist stance was explored to determine the possible causes that influence stakeholder management outcomes. That raised the need to investigate the causal effects as well. It was a search for the objective reality as it existed in the construction 'world'. Likewise, the belief that causes influence outcome augurs well for the deductive approach between research and theory, formulating a hypothesis and conducting a test to establish the relationship and validate the theory.

However, of importance are measurements to estimate the degree of relationship (Bryman, 2007). To achieve that, the research needed to employ measurements as a basis for estimation, hence the use of the quantitative approach. Studies show that quantitative methods deal with measures, quantities and indicators. Knowledge of variables for measurement was obtained through careful observation and measurement of the existing objective reality 'out there' (Creswell, 2013). According to Bryman and Bell (2007), there are four main pre-occupations for adopting quantitative approach: measurement, causality, generalization, and replication.

Thus the quantitative approach was used to search for reliability, the validity of measurement, and dependent and independent variables for stakeholder management success.

It further examined the influence of variables on the latent constructs in the causal relationship as well as the constructs on stakeholder management output. For theoretical significance, the researcher aimed for generalization beyond the study's confines. There was also the possibility of replicating the study's findings. Testing for consistency was necessary. Therefore, the study used the Likert scale, a standardized data collection tool, as a testing instrument for consistency. The issues of causality, reliability, validity and objectivity were addressed (Flick, 2011).

Studies suggest that for the quantitative approach, the research must begin with theory which through data collection can be verified, refined or refuted (Creswell, 2013). Therefore, a hypothesised model was developed for the quantitative study, thus searching for indicators and moving from theory to conclusion (Bryman and Bell, 2007). The study also leaned on the merits that it offers objective knowledge, gained from direct experience, is value-free and can be used to develop universal causal laws when strict rules and procedures are adhered to (Robson, 2011). However, measurement and classification demand that study designs are more structured, rigid, fixed and predetermined for accuracy (Kumar, 2005). For this reason, the field survey used the Likert scale closed-ended questionnaire. Criticisms were addressed by employing a qualitative approach in support (Tashakkori and Teddlie, 1998).

1.5.4 Mixed-Method Research Design

According to Creswell et al. (2003) and Bryman and Bell (2007), a mixed-method study involves the collection or analysis of both quantitative and qualitative data in a single study. Similarly, Tashakkori and Teddlie (2003) posit that the mixed method is a third research approach which combines the qualitative and quantitative approaches into the research methodology of a single study, thereby presenting many advantages. It has a philosophical assumption and method of enquiry that guides the direction of data collection and analysis for the combined used of the qualitative and quantitative approaches. However, in applying the mixed-method design, Driscol et al. (2007) prescribe two transformative designs: a design in which qualitative and quantitative data is collected either concurrently or sequentially.

This study adopted the mixed-method approach as researchers assert that the combination of the two approaches presents valuable middle position philosophically and methodologically (Johnson and Onwuegbuzie, 2004: 17). Also, it presents both a practical and outcome-orientated method of inquiry based on action and leads, iteratively, to further action and full conviction. Similarly, the approach merges the technical strength in data collection and analysis methods of the two separate approaches (Johnson and Onwuegbuzie, 2004:17).

Furthermore, the collection and combination of both quantitative and qualitative data in this research were influenced by other factors. The details of the qualitative data provided insights which were not available through the general quantitative survey (Jick, 1979). Also, mixing the different types of methods strengthened the study (Greene and Caracelli, 1997). Using the mixed-method was necessary for understanding the complexities and enhancing the research value (Greene and Caracelli, 1997; Creswell et al., 2003).

Therefore, this study employed a mixed-method sequential approach, first using a qualitative approach (both open and closed-ended) and then validated with a quantitative method (closed-ended). The qualitative analysis followed the path of aggregation of words and categorization first and then the frequencies using the mean and median. Subsequently, the study developed themes and was analysed. In contrast, the quantitative data produced measured items that were statistically analysed and interpreted. Thus, in evaluating the critical success, barrier factors and the latent constructs of stakeholder management success the advantages of both approaches were merged and used. According to Creswell and Plano Clark (2007), the large quantitative data is used to validate the qualitative data with same individuals involved in both data collection.

The qualitative approach employed an open-ended questionnaire to search for variables and factors in addition to the closed-ended Likert scale scores to confirm and rate the extent of influence of each variable in the opinion of the experts. While typically qualitative approach adopts open-ended interviews, this study employed a Delphi survey as it was found to be superior and had many advantages. The qualitative method was used to inform the quantitative approach (Edwards et al., 1998; Bryman and Bell, 2007).

1.5.5 Criteria Governing the Admissibility of the Data

In developing countries such as Ghana, the government remains the single largest public sector developer and construction industry client. Therefore, it was necessary to treat sensitive government information for research purposes only and with ultimate responsibility. Inconsistency in information documentation was addressed by double checking data collected for accuracy and reliability. External factors that could undermine the integrity of data collected were excluded from ethical consideration.

Purposive sampling for data from the three sectors, namely the northern, middle and southern, were considered in order to generalise the findings. Also, professionals from the different professions in the construction industry were involved. Moreover, respondents from the ten (10) technical universities located throughout Ghana were used. Variability in sample size, data and analysis was considered by efforts to create the same conditions and environment.

1.5.6 Data Needed and Sources Obtained

Considering that the overall aim of the study is to use stakeholder management success to enhance project success, literature on project management related to the study and stakeholder management was sourced. According to Flick (2011), data collection is vital for testing theories. Also, two important aspects about data are what to measure and how to measure it. As data is required for testing theory and hypothesis, both primary and secondary data were needed. Thus, the data collection was for variables that are the cause of some effect (independent), are affected by the cause variable (dependent), and predict an outcome variable (predictor) and variables that change as a function of the change in the predictor (Field, 2009).

Secondary data was obtained from journals, conference proceedings, published and unpublished PhD dissertations and web-based applications such as Google Scholar and the University of Johannesburg institutional database. Primary (empirical) data was gathered mainly using a Delphi study and a field questionnaire survey.

The Delphi survey was employed to explore factors and variables that are responsible for stakeholder management success. Also, gathered were the critical and barrier factors to stakeholder management success, as well as indicators of SM success output. The Delphi survey involved experts from the academic and professional institutions who had vast experience and knowledge in project and stakeholder management in Ghana. Similarly, data from the field survey were provided by industry practitioners and experts from the academia. The research participants were stakeholders from the different professional backgrounds, both public and private sectors, and the three geographical belts in Ghana.

1.5.7 Data Analysis

Data obtained from the Delphi study was analysed using Microsoft Excel (2010) spreadsheet. The median, mean, standard deviation and interquartile deviations were noted. The qualitative analyses approach aided the development of the postulated model. Likewise, the data obtained from the field questionnaire survey used SPSS16.0 for data entry. While the demographic data were analysed using descriptive statistics, the factors and variables were analysed using Structural Equation Modeling (SEM) AMOS version 22. The graphical models were presented while their outputs were analysed. The multivariate and univariate descriptive statistics, parameter estimates and model fit were analysed.

1.5.8 Study Results

To ascertain the influence of project stakeholder management factors on stakeholder management (SM) success, it was necessary to identify the key factors that influence SM success. Therefore, the thesis presents the Delphi and field surveys findings. That meant the identification of the exogenous variables (pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring, and feedback) as the critical success factors. In addition, there were the (external environment) critical barrier factors and their variables. Tables, graphs and figures were used to represent the results. The results are presented in Chapters 8, 10 and 11.

1.5.8.1 Delphi Survey Specific Objectives

A Delphi survey was conducted for qualitative empirical data in the absence of an SM model in Ghana. The overall objective and expected output were the identification of variables and factors for stakeholder management success. In so doing, critical and barrier factors were enumerated. Therefore, the following specific objectives were developed to help to achieve the research objectives:

- DSO1: To evaluate the critical barrier factors (CBF) that influence stakeholder management (SM) success
- DSO2: To determine sub-attributes and the extent of influence of pre-stakeholder identification (PSI) related factors on SM success
- DSO3: To evaluate the influence of stakeholder identification (SIP) on SM success

- DSO4: To evaluate the influence of stakeholder types and prioritize them for analysis for SM success
- DSO5: To determine the extent of the influence of stakeholder communication or engagement on SM
- DS06: To evaluate the influence of conflict analysis on the implementation of the sustainable stakeholder management framework
- DSO7: To determine the extent of the impact of implementation, monitoring and feedback documentation on SSM
- DSO8: To evaluate the SSM output attributes as a result of SM success by considering performance, gains, achievement of needs and satisfaction, relationship, and environment
- DSO9: To seek and confirm or otherwise factors identified from the literature review and those formulated as gaps.

1.5.8.2 Bias

Field survey can be susceptible to bias (Leady and Ormrod, 2010; Mwanaumo, 2014). Bias in research occurs when there is a distortion of data as a result of the influence of a single or set of conditions (Leady and Ormrod, 2010). According to Creswell (2014), the researcher must build in protections against bias and have controls for alternative explanations to be able to generalize and replicate the findings. Therefore, to reduce bias, the study employed a mixed-method approach. The findings of the quantitative field survey were compared to the Delphi findings as well as the use of the robust SEM analysis technique. Also, the Likert scale and descriptive analysis were employed.

1.5.8.3 Reliability

Reliability is enhanced through the method and source of data collection (Trochim, 2006). It measures whether an instrument can be interpreted consistently across different situations (Field, 2009). Thus, the study examined the data, trend of scores and the returned questionnaires to avoid missing data and inconsistencies on the part of respondents. The study also avoided a mismatch of the combined methods to ensure that the research findings were reliable as the mixed-method approach aimed at enhancing reliability (Bryman, 2008). Lastly, this research relied on active industry practitioners, targeted sampling and trustworthy research assistants for a reliable source of data. The source of data, means of collection and the robust analysis the SEM technique employed were the means of data reliability (Trochim, 2006).

1.5.8.4 Validity

According to Field (2009), validity refers to whether an instrument measures what it was designed to measure. A means of reducing measurement error is to enhance the validity and reliability of the data. Criteria/construct reliability assesses whether the instrument measures what it claims to measure. Also, content validity assesses the degree to which individual items represent the construct being measured and cover the full range of the construct. The study used the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy, Bartlett' test of sphericity and Cronbach's alpha to assess the validity and reliability of the data.

1.6 Ethical Statement

Flick (2009) suggests that using mixed methods in one study raises additional ethical issues. The researcher adheres to ethical issues, and professional conducts derived in the literature review and the researcher's institution on the problem of context and anonymity of participants. Ethical considerations included optional personal data, non-reference to participants by name or institution in the data collection, processing and analysis, voluntary offer of information to be outlined and attached to surveys and request for participation. The researcher's institution only will have access to raw data which will be destroyed after use. Values such as trust, accountability, reliability and fairness were adopted.

1.7 Structure of the Study

This study presents twelve chapters. Chapter one introduces readers to the entire study while chapters two to six cover the literature reviewed. Chapter seven presents the methodology, while chapters eight to eleven consider the empirical data and analysis, with chapter twelve as a conclusion. The details are presented as follows:

Chapters one: Introduction

The first of the twelve chapters of this thesis entails a summary discussion of the overall research. It provides the background, problem statement and justification for the study. It states the research questions and objectives and indicates the methodology for achieving the objectives as well as the literature reviewed. A summary of the research methods employed (qualitative, quantitative and mixed-methods) and literature in the study area are presented. A brief discussion on data which is an essential aspect of this study is discussed, including validity and reliability of data. It further provides the structure, limitations, contributions made, benefits of the study and conclusion.

Chapter two: Theoretical perspective of stakeholder theory, stakeholder management theory and concepts

The chapter presents a literature review on projects delivery and project stakeholders with the emphasis on construction project stakeholders. The stakeholder concept and stakeholder management theories relevant to this study are examined and stakeholder management frameworks relating to project delivery reviewed. Project stakeholders and their role in project delivery and stakeholder concepts are established. Gaps in the literature on existing stakeholder frameworks are explored. Fourteen models and frameworks posited between 2000 and 2014 were reviewed, and seven latent constructs noted.

Chapter three: Gaps in stakeholder management research

Following a review of the existing stakeholder theories and stakeholder management processes, gaps identified are expounded upon. Gaps relating to stakeholder management and construction industry practices in Ghana identified. These relate to pre-stakeholder management factors, the impact of procurement, external environment challenges, conflict resolution, implementation, monitoring and feedback. Pre-stakeholder identification and conflict resolution were the main gaps discussed. However, implementation, monitoring and feedback combined as a factor have not been holistically considered in any existing model. The chapter concludes by outlining the major factors to be considered in the research as a contribution towards the body of knowledge in stakeholder management.

Chapter four: Stakeholder management and construction project delivery in the developed countries

The chapter reviews construction industry, project stakeholders, project delivery, stakeholder management frameworks, policies, models and plans legally adopted and implemented to enhance construction projects by selected developed countries. Finland, United Kingdom and Australia are used as case studies. Also, SM frameworks and models used are reviewed to assess their impact on the construction industry and possible gaps. This study is interested in the development of stakeholder management processes, the identified stakeholders, the role of public procurement methods and the policies in place for strict adherence. Likewise, critical success factors and challenges are identified. It concludes by outlining possible critical factors and what are considered as best practices.

Chapter five: Stakeholder management and project delivery in developing countries

The chapter considers the concept of stakeholder, SM process, development and historical records in Nigeria, Botswana and South Africa. Also, references are made to Malaysia as a developing nation outside the Africa continent. It assesses project stakeholders' levels of understanding of SM practices, stages of consideration and implementation. It compares the approach to SM implementation and interventions by both countries and enumerates the challenges and impacts faced by both countries on project delivery. It further reviews the role of the procurement methods adopted, the impact of the socio-economic and socio-cultural environment on the implementation of SM and any identified existing legislation and its impact. Key stakeholders, roles and responsibilities, engagement, identification, analysis and relationships are noted. Critical success factors (CSF) and challenges are identified. It ends by identifying gaps as compared with SM practised by developed countries and advocated by scholars.

Chapter six: Overview of the construction industry in Ghana

This chapter begins with an overview of the construction industry in Ghana. It examines the project stakeholders, their capacity and the industry performance. It assesses the procurement methods, considers the Public Procurement Act, examines the stakeholder engagement, identification and management during the project development and execution stages. Additionally, it considers critical success and barrier factor to SM success in Ghana.

The fifteen CSFs for SM success identified in developed countries (Yang, 2010) are reviewed. In addition, the socio-economic, cultural, role of procurement method adopted and level of stakeholder awareness are considered. Moreover, previous studies, knowledge and practice in SM, key stakeholders' commitment, the construction industry's characteristics, and critical success and barrier factors are compared with research findings already identified in studies done in developed countries. Reports on project failure relating to project stakeholders' role are reviewed. The critical success factors are then confirmed or otherwise by research participants from the developing countries. That is critical for the framework development for enhanced stakeholder management process and improved projects delivery.

Chapter seven- Research methodology

The chapter presents and justifies the research design used to achieve the research objectives. It discusses the qualitative, quantitative and mixed-methods used. The three-step approach entailing a literature review, a Delphi study and field surveys conducted for this study and their specific objectives are discussed. The primary data collection, analysis and finally the development of framework and validation are also included. The SEM technique for analysis of the field data and validation of the postulated model is discussed in detail, outlining its advantages and the steps involved in its application. It states the research gaps, research questions and objectives leading to the development of the framework. The sampling design; data collection questionnaire administration; data analysis including descriptive analysis, statistical methods, and the relative importance index; ethical considerations, and limitations are outlined. The chapter is essential as it explains the steps taken by the author to achieve the research objectives.

Chapter eight: Delphi survey findings and analysis

The chapter employs the Delphi technique for the qualitative study to gather in-depth and quality information from experts. That is necessary as all the information is not available from the literature. Key considerations are the number of experts to be used, expert qualification criteria, the evaluation process and the number of iterations. The empirical statistical findings and analysed data are presented as tables, graphs and other statistical representations in a manner that can be compared.

Chapter nine: Development of conceptual framework

Findings from the empirical studies from Ghana, a literature review from developed and developing countries on stakeholder management processes and a review of stakeholder and stakeholder management theory are noted. In addition, the Delphi survey results are used in developing a conceptual South Africa sustainable stakeholder management framework for validation using quantitative data.

Chapter ten: Field survey findings

The chapter displays the results of the quantitative data collected to validate the qualitative survey and the conceptual framework. The findings are presented relating to the key factors identified for the framework development. These include the descriptive, inferential, and preliminary CFA, the measurement models, structural models and the final framework design.

Chapter eleven: Discussion of Field Survey Findings

The chapter discusses the field (questionnaire) survey results relating to the influence of each exogenous variable on stakeholder management success. Furthermore, it assesses the direct influence of each exogenous variable on stakeholder management success. It also compares the Delphi survey and questionnaire summary results and enumerates the similarities and differences. Finally, it assesses the level of the postulated model fit in the identified factors and concludes the chapter.

Chapter twelve: Conclusion and recommendations

The chapter concludes the entire study after validation of the developed framework and evaluation of the research objectives. It recaps the aim and study objectives. Then the author discusses the achievement of each of the objectives and how the sub-objectives supported the achievement of the study objectives. Similarly, the six-factor model is summarised as representing the influence of the critical success factors on stakeholder management success. The influence of the critical barrier factor is also mentioned. Then the theoretical, methodological and practical significance of the study is outlined. This is followed by, recommendations made for the areas of significance earlier outlined. Finally, after limitations have been highlighted, conclusions are drawn.

1.7.1 Delimitation of the Study

Most developing nations in Africa have similarities in the pattern of infrastructure development. The construction industries are no exception with many professionals and contractors operating in different countries on the continent. Also, most of the legislatures, practices governing the construction industry and procurement systems of many developing nations originate from the United Kingdom and Europe. Though there are differences in climatic conditions, the affiliation to the bodies which regulate the construction industry professionals such as the African Union of Architects and the Chartered Institute of Builders have provided common grounds for professionals to operate.

In Ghana, for instance, a sizeable construction workforce originates from Togo, a neighbouring country. Equally, there are many Ghanaian construction professionals and labour force working in Liberia and Sierra Leone. These similarities justify the decision to limit the source of primary data to Ghana; however, the findings will be useful to all developing countries, especially in Africa. Research participants were from all the regions in Ghana, the academia, industry, and public and private institutions. Furthermore, the research limitation to professionals in three major cities only and higher institutions of education is as a result of limited cost, time and availability of documented information.

The United Kingdom and Finland are cited for SM implementation best practices with comprehensive studies in stakeholder management. SM documentation and comprehensive studies in Australia, China and Hong Kong were also available and were reviewed, hence the decision to limit the study on SM implementation to the three developed countries. This justifies the basis for the use of the outcome of the review of the frameworks and SM frameworks implementations in these countries as a basis for the sustainable SM success framework for Ghana. The existing stakeholder management models reviewed and the development of the sustainable SM success framework consider stakeholders that influence, impact or are influenced by the outcome of construction projects realisation.

1.8 Benefits of the Study

1.8.1 Benefit to the Government

The most significant beneficiary of this dissertation will be the government of Ghana. That will be the response and solution to the recommendation in the Auditor-General’s report on the GETFunded projects which are public sector projects. As a developing country, in Ghana succesful project delivery is a major intervention for a nation with scarce resources. The following are some outlined benefits:

- Identifies major stages and areas to be considered in the formulation of the national stakeholder management policy framework for construction projects;
- Helps identify key stakeholders for public sector construction projects for effective engagement and management;

- Enhances public sector projects delivery and reduces the prevalence of project failures which will result in increased infrastructure development – a prerequisite for the improved well-being of the populace;

- Provides a basis for the establishment of regional co-operation and collaboration in project stakeholder management, assistance in research and development for SM and training of project stakeholders involved in public sector projects delivery; and

- More importantly, the developed SM success model can be used for SM success by considering the pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring and feedback factors. Also, the indicator variables and details of the management process are outlined in the conclusion.

Finally, the model has a planning significance for the Metropolitan, Municipal and District Assemblies (MMDA) in Ghana for project planning and development for reducing the negative influence of stakeholders and the rate of project failures. The model presents activities to be considered for the beneficiary community and key stakeholders to ensure their continuous support, role, achievement of needs and satisfaction.

1.8.2 Benefit to the Construction Industry

There is evidence of project failure such as the Affordable Housing Project in Ghana, collapse of many construction firms, contractors and consultants with huge debts as a result of poor stakeholder management resulting in project failure (Modernghana.com, 2017; GETFund Report, 2010). A framework addressing stakeholders' management for improved project delivery will enhance the construction industry's growth. Similarly, the study identified gains and reduced project conflicts as an outcome of stakeholder management success. Thus, the relationship among industry participants will be enhanced. Likewise, project stakeholders will make a profit (gains), while stakeholder needs and satisfaction will be achieved.

1.9 Conclusion

The chapter provides the background to this dissertation, outlining the role of the construction industry in a nation's socio-economic and infrastructure development. to this end, the need to minimise the rate of construction projects failure while enhancing project success is discussed. Also, readers are informed on who project stakeholders are, their diverse interests in project development, the resulting conflicts, and why there is a need to identify, engage, analyse and manage them. The development of stakeholder and SM theories and studies done in developed nations were mentioned. It further highlighted the challenges with SM by contextualising the problem within the construction industries in developing countries, other developed countries and the impact on project delivery in the public sector in Ghana.

It followed with the problem statement, emphasised project stakeholders' role in construction project failure, gave the research definition, stated the research gaps, and formulated questions and objectives aimed at improving stakeholder management success for improved projects delivery. Of importance were theoretical areas to be reviewed, the research design and how the objectives are to be achieved. It concluded by outlining how the objectives were achieved and the perceived benefits of the study to both the government of Ghana and the construction industry.

CHAPTER TWO

THEORETICAL PERSPECTIVE OF STAKEHOLDER CONCEPT, STAKEHOLDER MANAGEMENT AND CONSTRUCTION PROJECT SUCCESS

2 Introduction

The chapter reviews findings from various scholars and studies on project stakeholders, stakeholder theories, the stakeholder management (SM) process, models, and frameworks with an emphasis on construction stakeholders and project success. This study examines project stakeholders and stakeholder theories relevant to this research, SM frameworks and models relating to project delivery and in the context of developing countries. Construction stakeholders' specific role and responsibilities in project implementation and the entire SM process are considered with the purpose of identifying existing gaps in the literature on project stakeholders, SM theory and frameworks. It seeks to address the primary research objective aimed at developing a sustainable stakeholder management framework for construction projects in developing countries.

The chapter considers literature on projects, construction projects, public sector projects, stakeholders, construction stakeholders, stakeholder theory, stakeholder values, and stakeholder roles and responsibilities. In addition, the study reviews the historical development of stakeholder management, the stakeholder management concept, and the process which includes identification, engagement, analysis, planning, monitoring, models, frameworks and approaches. This is because it is naive to think that there are still new fields to explore, where nothing ever has been published before (Flick, 2009). It concludes by identifying gaps in the literature and relating to developing countries which forms the basis of the next chapter.

2.1 Contextualising Stakeholder Management - Projects

Stakeholder management relates to the coordination of the projects and activities that are related to the individuals, groups and organisations. The latter affect, impact or are affected by the projects. The PMI (2008) and BS 6079 (2000) define a project as a unique and transient endeavour undertaken to achieve the desired outcome. Also, projects have a unique set of coordinated activities with definite starting and finishing points. Similarly, projects are to meet specific performance objectives with defined schedule, performance and cost parameters. Projects face pressures from external stakeholder environments (Aaltonen, 2011) with different interests and demands (Olander and Landin, 2005). Moreover, the project team usually includes people who do not work together, sometimes from different organisations and across multiple geographical locations, requiring effective management and project execution. Likewise, projects relate with complex and vibrant environmental challenges requiring clear decisions from stakeholder participation (Reeds, 2008). Therefore, Meredith and Mantel (2006) suggest that a project must exhibit the characteristic of importance, run by a senior responsible officer (SRO), and the progress monitored to meet specific performance criteria.

Organisations' activities are categorised as large, medium or small-scale projects depending on the financial resources, project team size, deliverables and complexity. Projects are referred to as short term if the schedule is within a year, or medium to long term when the schedule is more than a year, as a construction project when the product is a building or road. The projects may be local or international with the latter facing a variety of pressures from their uncertain and complex external stakeholder environments (Aaltonen, 2011). Projects, irrespective of their categorization, involve a wide array of stakeholders whose interests and demands need to be considered in the managerial decision-making to ensure the success of the project (Cleland, 1986; Olander and Landin, 2005). Therefore, project management advocates that stakeholders' interests be considered for their support and project success (Achterkamp et al., 2008).

Project management processes entail stages of initiating, planning, executing, monitoring, controlling and closing and draw on ten areas, including stakeholder management, for project success (Lock, 2007; PMI, 2013). Projects are successful only when delivered by handing over to the project owner or users (Lock, 2007). Several public-sector projects in Ghana and other developing countries have failed as they remain undelivered (GETFund Outlook 2000-2010, Othman, 2013; William, 2015). This study considers SM in public-sector construction projects in Ghana with the challenges of a developing country (Othman, 2013) and a high rate of project failure (William, 2015).

2.1.1 Construction Projects

According to Irurah (2001), construction can be interpreted at four levels, namely site activity, the full project cycle, everything related to the business of building, and the creation of human settlement. The most common explanation is that the site activities will lead to the realisation of a particular building or another construction project (e.g. road). However, development is viewed as a distinct stage in the project cycle (Irurah, 2001). According to Decker (2013), construction intervention is limited to those aspects under the direct control of the contractor (execution stage) without addressing stages earlier or later in the project cycle. The second interpretation of construction addresses the complete cycle of a construction project. The entire project period covers critical stages such as feasibility, design, construction, operation and decommissioning. While interventions in the project lifecycle as outlined considerably reduce the impact of the building product, it still does not consider the full scope of activity related to construction. Construction by itself is a large sector of the economy, responsible for millions of jobs and a significant proportion of GDP in most countries (Du Plessis, 2007).

2.1.2 Construction Projects Success

Developing countries embark on construction projects aimed at development intervention and project success (Othman, 2013). Gyadu-Asiedu (2009) states that undesirable project performance is one of the main industry challenges in developing countries. Project success has been associated with time, cost and quality as performance (PMI, 2008). However, PMI (2013) introduces achieving stakeholder needs and satisfaction. Nonetheless, construction project activities are temporary undertakings with diverse stakeholders involved. As a result, there is a challenge in integrating the interested parties and professionals for construction project success (Winch, 2010).

Some researchers have linked project success to the efficient and continuous management of project stakeholders (Bourne and Walker, 2005; Olander, 2007; Aaltonen et al., 2008; Chinyio and Akintoye, 2008). Projects are commonly acknowledged as successful when completed on time, within budget, by specification and to stakeholders' satisfaction (Nguyen, 2004; PMI, 2013). Also, is fitness for purpose for occupiers (Takim and Akintoye, 2002) and meeting the expectation of project stakeholders (Sanvido et al., 1992). Ashley et al. (1987) referred to project success as having results much better than expected usually assessed by the cost, schedule, quality, safety and participant satisfaction". Moreover, Nguyen (2004) adds grouping success factors under comfort, competence, commitment and communication.

Bourne (2005) mentions building and maintaining relationships and delivery of value. A project is delivered when completed, and the defined terms of specific tangible deliverables met. Moreover, a successful project is linked with the whole-life cycle and not necessarily successful until it meets the initial set criteria for completion (Fewings 2005, OGC, 2007). Therefore, stakeholder management is necessary for successful project delivery because stakeholders can influence project success.

Equally, construction project failures can be related to either a lack of or inadequate stakeholder management during the project development (Akintoye et al., 2003; Bourne, 2005; Olander and Landin, 2008). According to Egan (1998) and Wood et al. (2002), the construction industry is project-based, associated with poor quality, poor service and unfulfilled promises as a result of a lack of co-operation, mistrust, ineffective communication and adversarial relationships among stakeholders (Kadefors, 2004; Wikforss and Löfgren, 2007).

Furthermore, studies have associated construction project participants with project failures. Assaf and Al-Hejji (2006) identified from 57 out of 73 factors and 7 out of 9 groups studied that project delays are stakeholder related. Furthermore, Chan and Kumaraswamy (1997) posit that the five principal factors responsible for project failure are poor risk management, supervision, slow decision making, client-initiated variations and work changes. Four of these factors are stakeholder related.

Moreover, many of these public-sector projects are initiated and funded by governments, thereby requiring improved project management and project stakeholder controls to avoid mega-costs and time overruns (Eskerod and Jepsen, 2013). The projects support governments in achieving their social and economic development objectives (Othman, 2013). According to Mok et al. (2015), mega construction projects have stakeholders of diverse occupational and professional backgrounds with different levels and types of interests in the project. Also, as they are complicated in nature, evaluating and understanding these complexities are critical for these projects’ success (He et al., 2015).

However, Ahadzie et al. (2008) inform that there is no agreement on what should be the critical success criteria for construction projects despite several studies. Davis (2014) suggests that perceptions of success by interested parties are significant as just as the actual performance of the project. Moreover, Pinto and Slevin’s (1987: 1989) seven success factors posited and referenced by many authors are stakeholder related. Also, project definition is recognised as complex and challenging but a key factor influencing the project success. Thus, project definition should identify stakeholders' needs and define the specifications (Cano and Juan, 2011). The consideration of stakeholder identification, conflict resolution, SM and careful project definition is vital for project success.

2.2 Stakeholders

Studies have defined, identified and classified stakeholders differently following the first introduction of the stakeholder concept into the management domain by the Stanford Research Institute in 1963. The production and managerial view of a firm considered owners, suppliers, customers and employees by managers (Freeman, 2010). Over a decade, the agency theory dominated, considering the relationship between managers and stockholders (Hills and Jones, 1992). Nevertheless, the nature of a contractual relationship could not be explained by the agency theory which identified a firm's stakeholders as managers, employees, customers, suppliers, creditors, communities and the general public (Hills and Jones 1992). Similarly, Freeman (1984) identified groups that play a vital role in the success of the business as consumer advocates, customers, owners, competitors, and the media. Also, employees, environmentalists, suppliers, government, and the local community are referred to as stakeholders. The past three decades have produced a plethora of books and articles primarily relating to the stakeholder concept (Donaldson and Preston, 1995: Yang, 2010). However, these studies have credited the stakeholder theory to Freeman (1984). Mitchell et al. (1997) state that the concept of "stakeholders" has become embedded in managers' thinking and management circles since Freeman (1984) published his landmark book, *Strategic Management: A Stakeholder Approach*.

2.2.1 The Stakeholder Concept

Following the introduction of the "stakeholder concept" into the management domain by the Stanford Research Institute in 1963 (Freeman, 1984, p.31), researchers have raised questions relating to stakeholders, leading to several definitions and concepts. Newcombe (2003) suggests that considering clients only as stakeholders by the traditional approach to construction gives recognition to the client only. Freeman (1984) posits that there are individuals, groups and organisations which affect and are affected by the activities of an organisation. According to Mitchell et al. (1997), the assertion raises the question of:

- Who are project stakeholders?
- What do these project stakeholders expect from a construction project?
- How do project managers manage these stakeholders?

Freeman (1994) advised that organisations should pay attention to stakeholders according to the "principle of who (or what) counts", leading to the call for normative and descriptive theories on stakeholder identification and salience respectively (Mitchel et al., 1997). Furthermore, stakeholder theories evolved from later studies by scholars such as Donaldson and Preston (1995), Mitchell, Agle, and Wood (1997), Friedman and Miles (2002) and Phillips (2003). Consequently, Elias et al. (2002) assert that the stakeholder concept is diversified into corporate planning, system theory, corporate social responsibility and organisation theory. Moreover, the increased study led to the chronology of stakeholder theories by McElroy and Mills (2000).

2.2.2 Stakeholder Definition

Researchers have defined a stakeholder differently. This study compiles a chronology of stakeholder definitions as reviewed in the literature. This definition follows a review of publications, chronology of definitions (Friedman and Miles, 2006) and the extensive study of Yang (2010).

Table 2.1: Stakeholder Definition

Date	Author	Stakeholder definition	Keywords
1963	Stanford memo	Those groups without whose support the organisation will cease to exist (Freeman & Reed, 1983; Freeman, 1984)	Support as "Livewire."
1964	Rhenman	Are depending on the firm to achieve their personal goals and on whom the company depends for its existence	Dependent on each other
1971	Ahlstedt & Jahnukainen	Driven by their interest and goals, are participants in a firm and thus depending on it and on whom for its sake the firm is depending (Nasi, 1995)	Interest, goal
1983:91	Freeman & Reed	Wide: can affect the achievement of an organisation objective or who is affected by the attainment of an organisation's objective. Narrow: "Organization is dependent for its continued survival."	Affect, be affected Dependent
1984:46	Freeman	Can affect, be affected by the achievement of	Affect, be affected

		organisations objectives	
1987:393	Freeman &Gilbert	Can affect or is affected by a business	Affect, be affected
1987:5	Cornell &Shapiro	"Claimants" who have "contracts."	Claimants have contracts
1988:7576	Evan & Freeman	"Have a stake in or claim on the firm"	Stake, claim
1988:79	Evan & Freeman	"benefit from or are harmed by, whose rights are violated or respected by corporate actions."	Benefit, harm, violation or respect of rights
1988;112,	Bowie	"without whose support organisation will cease to exist."	support
1989:36	Alkhafaji	"groups to whom the corporation is responsible."	responsible
1989: 57	Carroll	"assets to have one or more of this kind of stakes"- ranging from an interest to a right" to ownership or legal title to the company's assets or property.	Stake, interest, right, ownership or legal title
1990	Freeman and Evan	"contract holders."	Contract
1991:209	Thompson et al.,	"in a relationship with an organisation."	Relationship
1991:61	Savage et al.	"have interest in the actions of an organisation... the ability to influence it."	Interest, influence
1992:133	Hill & Jones	"constitutes who have a legitimate claim on the firm… established through the existence of an exchange relationship."	Legitimacy, relationship
1993:205	Brenner	"having some legitimate, non-trivial relationship with an organisation (such as) exchange transaction, action impacts and moral responsibility."	Legitimacy, impact
1993:60	Carroll	"asserts to have one or more kinds of stake in business"- may be affected or affect	Asserts, stake, affect
1994:415	Freeman	participants in "the human process of joint value creation."	Role
1994:483	Wicks et al.	"interact with and give meaning and definition to the corporation."	Interacts
1994:433	Langtry	the firm is significantly responsible for their wellbeing, or they hold a moral or legal claim	Responsibility
1994:90	Stank	"can and are making their actual stakes known" – are or might be influenced	Stakes
1994:5	Clarkson	"bear some form of risk as a result of having invested some kind of capital, human or financial, something of value, in a firm"	Investment risk
1995:10	Clarkson	"have, or claim, ownership, rights, or interest, in a	Claim, rights, interest

6		corporation and its activities"	
1995:19	Nasi	"interact with the firm and thus make its operation possible."	Interacts
1995:76,	Brenner	"which could impact or be impacted by the firm/organisation."	Impact
1995:85	Donaldson & Preston	"persons or group with a legitimate interest in procedural and substantive aspects of corporate activity."	Legitimate interest
1995	Jones	Groups and individuals with (a) the power to affect the firm's performance and or (b) a stake in the company's performance	Power, affect, stake
1996	Gray et al.	Any human agency that can be influenced by or can itself influence the activities of the organisation in question	Influence
1996	PMI	Individuals and organisations who are actively involved and whose interest may be affected positively or negatively	Actively involved, affect
1997	Mitchell et al.	Legitimate or urgent claim on the corporation or the power to influence the corporation	Legitimacy, urgency, power
1997	Carroll and Nasi	Any individual or group who affects or is affected by the organisation, its processes and functions	Affects, affected
1998	Argandona	Those who have interest in the company, everyone in the community who has a stake in what the company does, parties with a stake in the corporation, something at risk, something to gain or lose as a result of corporate activity	Interest, stake
1999	Agle et al.	Voluntary members of a corporative scheme for mutual benefit, mutual advantage, justifiable in the case that it can be approved by all those affected by the norm	Affect
1999	Reed	Those with an interest for which a valid normative claim can be advanced	Interest
2000	Gibson	Those groups or individuals with whom the organisation interacts or has interdependencies and any person or group who can affect or is affected by the actions, decisions or policies, practices or goals of the organisation. Have the power to be a threat or benefit to an organisation.	Interacts, affects, power, threat
2000	Kochan and Rubinstein	Contribute valid resources, which are put at risk and would experience costs if the firm fails or relationship terminates, direct influence on organisational performance.	Contribution
2000	Scott and	A direct influence on organisational performance	Influence

	Lane	and survival.	
2001	Henry	Moral actors, the relationship cannot be reduced to contractual or economic relations	Relationships
2002	Cragg	The corporation impacts, individuals and collectives whose interests are affected both positively or negatively	Impacts
2002	Orts and Strudler	Participants in business who have some economic stake directly at risk	Financial stake
2003	Newcombe	Groups or individuals with stake in, or expectation of the project performance	Stake
2004	Freeman	"Those who are vital to the survival and success of an organisation."	Vital
2005	Bourne	Who have interest or some aspect of rights or ownership in the project, contribute in the form of knowledge, support, impact or can be impacted	Interest, ownership, right. impact
2006	Moloney	Individuals and groups who benefit from organisation	Benefit
2006	Carroll and Buchholtz	Have claims, rights and expectation	Claims, rights
2008	PMI	Persons or organisations who are actively involved in the project, whose interest may be affected positively or negatively by the performance or completion of the project	Actively involved
2009	Beach, Sandra	Groups or individuals who can actually or potentially affect or be affected by the achievement of governance network outcomes (Mitchell et al., 1997, p. 869)	Actually affect
2010	Chinyio & Olomolaiye	Affect and are affected by an organisation and its activities	Affect
2010	Yang	Adopts Freeman (1984): individuals or groups who can affect or be affected by a construction project	Affect
2013	Eskerod and Jepsen	Persons and entities that affect and can be affected by the project	Affect
2014	Aapaoja and Haapasalo	Individuals or groups who have an interest or some aspect of rights or ownership in the project, can contribute in the form of knowledge or support, or can impact or be impacted by, the project. Adopts Bourne, 2005	Interest
2015	Mok et al.	Diverse occupation and professional background, different levels and types of interest	Interest

(Source: Researcher's review)

A stake is an interest, a share in undertaking or investment in a business or entity; hence individuals, organisations or entities with a stake in a project can be referred as stakeholders (Weiss, 2006). The existence and nature of the stake present an argument. Moreover, the basis of "stake" determines “who or what counts" (Mitchell et al., 1997). Freeman (1984) acknowledges the Stanford Research Institute (SRI) as offering the earliest definition of stakeholders in 1963 (Freeman, 1984). The SRI memo defined stakeholders as those groups without whose support the organisation would cease to exist (Freeman and Reid, 1983). The book, *Strategic Management: A Stakeholder Approach*, highlighted the definition. Subsequently, Freeman (1984) defined stakeholder as any individual or group who can affect or is affected by the achievement of the firm’s objective and is generally acknowledged. According to Mitchell et al. (1997), the stakeholder concept has since been entrenched in management scholarship and managers' thinking.

According to Table 2.1, there are many stakeholders’ definitions. Freeman (2010, p.46) formally defines stakeholders in an organisation as “any group or individual who can affect or is affected by the achievement of the organisation’s objectives”. Also, Mitchell et al. (1997, p.869) state that stakeholders “…can actually or potentially affect or be affected ...” by a project. That definition by Friedman and Miles (2006) suggest that outsiders, individuals and groups can consider themselves as stakeholders of an organisation. Similarly, that definition is broader when considered together with that of Gray et al. (1996) as any human agency that can itself influence or be influenced by the activities of an organisation. Moreover, it raises the difficulty of identifying stakeholders of an organisation or its activities. Accordingly, many stakeholder definitions are based on dependence, influencing connection and the defining adjective (Yang, 2010, p.16,17).

2.2.3.1 Definition Based on Dependence

Firstly, the chronology of the definitions further suggests that there are stakeholders who depend on the organisation for survival (Langtry, 1994) and those that the organisation equally depends on for existence (Nasi, 1995). Stakeholders can be responsible for the achievement of organisations and vice versa (Carrol, 1993; Gibson, 2000). Stakeholders’ role in an organisation’s performance suggests the need to manage stakeholders for the survival of the institutions. Scott and Lane (2000) posit that stakeholders’ influence determine organisations’ survival.

2.2.3.2 Definition Based on Influencing Connection

Secondly, Yang (2010) states the existence of an influencing connection between the organisation and stakeholders. McElroy and Mills (2006) suggest that the nature of the relationship is defined by a verb (Yang, 2010, p.16). Thus, Freeman's (2010, p.31) definition of stakeholders as those who can affect or is affected by the achievement of organisations' objectives has been quoted in many research studies. The influencing connection is "affect" or be "affected". Thus, stakeholders are considered as individuals or groups who can influence the achievement of an organisation's objectives (Freeman and Gilbert, 1987; Jones, 1995; Rowley 1997; Gibson, 2000; Kujala, 2001). Chinyio and Olomolaiye 2010 agree and states further that stakeholders can affect an organisation and its activities. Likewise, Cragg (2002) and Bourne (2005, p.31) uses the verb 'impact' or 'impacted' by the project in defining stakeholders.

Also, Evans and Freeman (1988) suggest that not only can stakeholders influence an organisation, its objectives or activities but can be harmed by a project outcome of an organisation. Following these definitions, Gray et al. (1995) and confirmed by Mitchell et al. (1997) state that stakeholders can be influenced or can themselves influence the activities of the organisation in question. Stakeholders' "influence" can be positive or negative (Newcombe, 2003). While Wicks et al. (1994) and Gibson (2000) submit that stakeholders interact with a project, Brenner (1993) and Nasi (1995) state that interested parties "impact" on project outcome. Given the influencing verb, stakeholders are individuals or organisations that affect or are affected, can harm or are harmed, influence or can be influenced, interact and impact on a project or project outcome.

2.2.3.3 Definition Based on Defining Adjective

Thirdly, scholars define stakeholders by including a defining adjective, another type of qualifier or aspect of either the organisation or the participants which narrows the definition (Yang, 2010; Friedman and Miles, 2006). Stakeholders are considered as dependents on organisations for survival (Freeman and Reed, 1983) or as having a legitimate claim (Hills and Jones, 1992). That is echoed by several scholars, including Carroll and Buchholtz (2006).

Also, stakeholders have been defined as having interest, interacting, being involved, impacting, affecting, or benefiting in an organisation or its activities (Savage et al., 1991; Newcombe, 2003; Bourne, 2005). Likewise, Newcombe (2003) suggests that construction stakeholders have different levels, types of investment, and interests in construction projects and can be seen as multiple clients or customers in the projects. He further states that stakeholders are groups or individuals who have a stake in or expectation of the project's performance. Moreover, Newcombe (2003) identified clients, project managers, designers, subcontractors, suppliers, funding bodies, users and the community as stakeholders.

Furthermore, Bourne (2005) defined stakeholders as individuals or groups who have an interest or some aspects of rights or ownership in the project, can contribute in the form of knowledge or support, impact or be affected by the project. Bourne’s definition is considered a much broader definition compared with Freeman’s definition of individuals or groups who can affect or be affected by a construction project (Yang, 2010). This research defines stakeholders as individuals, groups and organizations’ with interest in, who can affect/be affected, impact/be impacted or can influence construction projects’ success or their outcomes.

2.2.4 Construction Stakeholders

The building sector non-debatably has stakeholders because of the several small and medium-sized entities involved in the demand and supply chain. Also, many individuals and organisations affect or are affected, impact or are impacted by construction project activities. Al-Khafaji et al. (2010) identify owners, sponsors, customers, local communities, subcontractors, project managers, superintendents, project team members and end-users as stakeholders. Also, architects and consultants, material and product suppliers, government regulators and public agencies involved in issuing permits, insurance and bonding companies and media are regarded as stakeholders. Figure 2.1 illustrates how Freeman (2010) identified firm’s stakeholders which was adopted by Yang (2010). Other studies have similarly identified stakeholders to include project owners, facility users, project managers, facility managers, designers, shareholders, legal authorities, employees, contractors, subcontractors, suppliers, and process and service providers. Also, stakeholders are competitors, banks, insurance companies, media, community representatives, neighbours, the general public, government establishments, visitors, customers, regional development agencies, the natural environment, pressure groups and civic institutions. Traditional authorities, politicians, statutory approval bodies, town councils and planning departments, project champions, project sponsors and contractors are also all stakeholders (OGC, 2009; Chinyio and Olomolaiye 2010; Eyiah-Botwe, 2015). Figure 2.1 illustrates a firm’s stakeholders in general.

According to Oyegoke (2010), there are some dimensions of the number and types of interested parties on a project. Thus, stakeholders should possess a power attribute, have ownership rights, and be a user, sponsor or in the supply chain. This study adopts project clients, project champions, project managers, facility users and administrators, supply chain members, designers, contractors, subcontractors, suppliers, process and service providers and project sponsors as stakeholders. Also, the local community and traditional authority, government establishment, development agencies, civic institutions, politicians and statutory approval bodies are regarded as project stakeholders in Ghana.

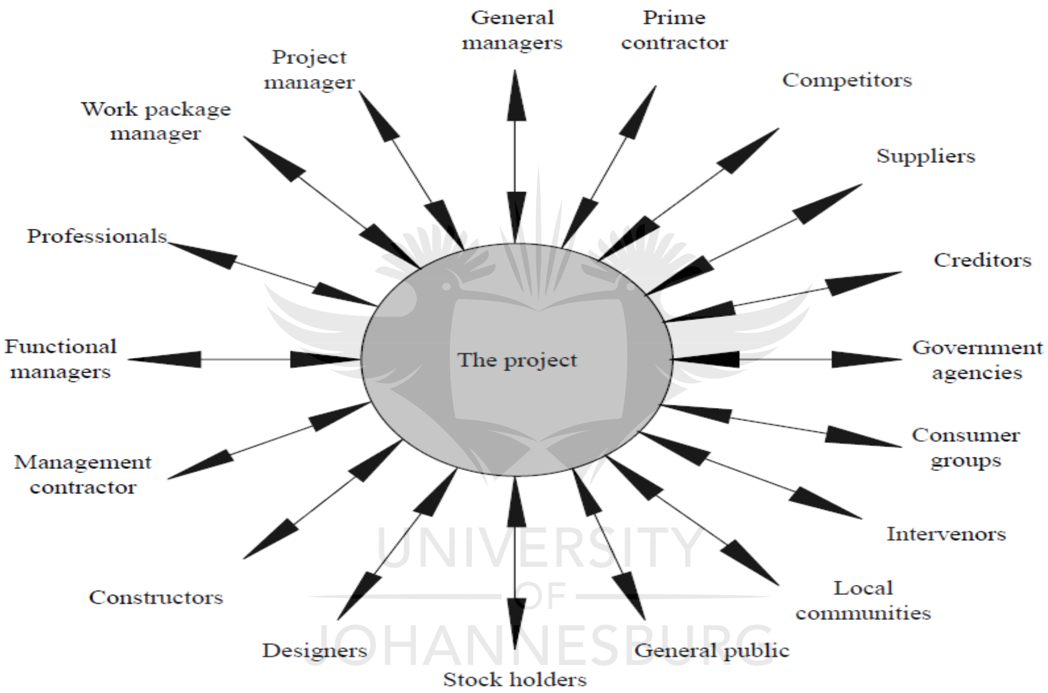


Figure 2.1: Freeman's Stakeholders' View of a Firm

(Source: Yang, 2010)

2.2.5 Managing Stakeholder Expectation

PMI (2008) defines stakeholder expectation management as a process of communicating and working with stakeholders to meet their needs and address issues as they occur. Disappointed and disillusioned stakeholders can cause a project failure (Gardiner, 2005). Stakeholder expectations determines their contribution (Eskerod and Jepsen, 2013), including: delivering project on time and cost, conflict resolution upfront, completing on schedule and profit (Al-Khafaji et al, 2010). Thus, different stakeholders (client, project team, construction team and users) have different expectations (Al-Khafaji et al, 2010). According to Gardiner (2005) in Chinyio and Olomolaiye (2010), when all parties concerned dance to the same tune, then the project moves on. Stakeholder expectation requires effort and sufficient documentation processes. Gardiner (2005) states that the parties concerned usually have a hidden expectation which, when revealed leads to late scope changes. Project managers need to understand project stakeholders and their hopes. Stakeholders' expectations may be as a consequence of a legal right or moral right which determines the need or stake (Oyegoke, 2010).

2.2.6 Stakeholder Satisfaction

Stakeholder satisfaction is perception less expectation (Eyiah-Botwe and Owiredu, 2017). Meeting the expectation of stakeholders is the minimum project goal criterion while the ability to provide extra as perceived brings satisfaction to the stakeholder. Key project stakeholders' collaboration on further projects depends on satisfaction (Cleland and Ireland, 2007). Project success is not about the budget, time and quality achievement as traditionally believed (Chua et al. 1999). It is rather meeting and going beyond stakeholders' expectations (Mallak et al. 1991; Sanvido et al. 1992) of the future value of the project with a wider view of project success (Olsson et al., 2008). Meredith and Mantel (2011) suggest that key stakeholders have different perceptions about project satisfaction and these may be conflicting in some instances (Polonsky, 1995).

2.3 History of the Stakeholder Theory

2.3.1 Classical Literature

Stakeholder theory has gained popularity in the past three decades, focusing on different perspectives on how managers of organisations and firms should manage their stakeholders. The SRI in which 'stakeholder' appeared in an economic sense in 1963 has been the source of the stakeholder concept (Freeman, 1984). Following that, the corporate planning theory, systems theory, organisation theory and corporate social responsibility theory (Figure 2.2) were developed (Freeman, 1984; Mitchell et al., 1997; Elias et al., 2002). Elias et al. (2002) present the development of stakeholder theories as a stakeholder literature map (Figure 2.2).

2.3.1.1 Corporate Strategy

Literature suggests that Ansoff (1965) argued for rejection of the stakeholder theory in his classic book, *Corporate Strategy*, since it considered objectives and responsibilities as synonyms. The rejection was part of the fight for the survival of stakeholder theory. Strategic planning literature began to feature stakeholder theory prominently in the late 1970's. Taylor (1971) predicted that the importance of stakeholders would diminish because businesses were going to run for other stakeholders. King and Cleland (1978), however, analysed stakeholders in project management using a developed method.

2.3.1.2 Organisation Theory

Rhenman (1968) referred to stakeholders as individuals and groups which depend on an organisation for survival and the vice versa. Pfeffer and Salancik (1978) also suggested the effectiveness of an organisation as determined by the ability to manage the demands of interest groups using a model of society and environment. An organization-environment model developed suggest that management of demands of interest groups leads to an organisation's effectiveness (Freeman, 1984).

2.3.1.3 Systems Theory

The systems theory contributed to the development of stakeholder theory. Ackoff (1974) argued for stakeholder participation in system design importance when he suggested that stakeholder interaction and support help in solving societal issues. Thus, the systems theory was in contrast to earlier predictions that the influence of interested parties would diminish (Taylor, 1971). The systems approach, therefore, supported the stakeholder influence and the need for stakeholders' management.

2.3.1.4 Corporate Social Responsibility

Many researchers became concerned with corporate social responsibility (CSR) as management literature featured the stakeholder concept. Post (1981) covered areas such as ideas, concepts and techniques of earlier researchers and included non-traditional stakeholders in research using the stakeholder theory concept as a significant difference. More initial investigations and theories have not considered non-traditional stakeholders. The corporate social responsibility also was in contrast to the corporate strategy as it was a proponent of stakeholder consideration (Figure 2.2).

According to Elias et al. (2002), the development of the stakeholder concept in the management literature is classified into different stages as shown in the stakeholder literature map (Figure 2.2) with Freeman (1984) developing the first three levels of the map.

Figure 2.2: Stakeholder Literature Map

(Source: Elias et al., 2002)

2.3.2 Stakeholder Key Models

Yang (2010) states that three key models were developed which have become the foundations for modern research in stakeholder management. These are the following:

- stakeholder strategy formulation,
- stakeholder salience, and
- the social network models.

Likewise, Elias et al. (2002) assert that the approaches of Freeman (1984) and Mitchell et al. (1997) to stakeholder management is appropriate for the development of the framework. It is worth stating that stakeholder theory aims at avoiding partiality and preferential treatment to prevent a threat to project success and survival (Beauchamp, 1982). This study examines key models that advocate for interested parties' consideration for enhanced stakeholder management success. Thus, stakeholders can be assessed together with their interest using that approach (Elias et al., 2002).

2.3.2.1 Freeman's Stakeholder Strategy Formulation (Strategic Management) Model

Freeman (1984) asserts that the stakeholder approach requires strategic management, thus a strategy formulation. This theory is considered as the foundation of stakeholder management theory. Firstly, the model was developed by a traditional view of managing the organisation and its stakeholders. Secondly, it considers the firm as central but with a direct relationship with all stakeholders. Thirdly, the model was based on rational mapping. The model considers all parties concerned as playing a vital role in the success of the firm and who affect and are affected by the organisation's activities (Freeman, 1984). The stakeholder strategic management model reiterates the need to investigate stakeholder behaviour and logically explain each stakeholder's objectives, external environment, and beliefs about the firm. Also, possible coalitions in similar beliefs, actions and goals need to be identified. (Yang, 2010). Thus, there was a need for the stakeholders' view of a firm which illustrates a firm's stakeholders (Figure 2.3).

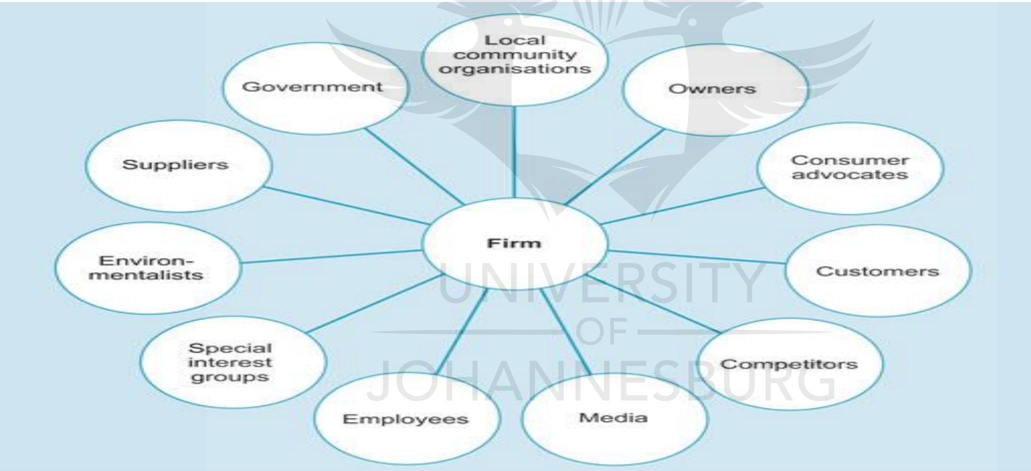


Figure 2.3: Stakeholders' View of a Firm

(Source: Freeman, 2010)

It is also necessary to understand how to formulate, implement and monitor strategies formulated to manage each stakeholder. Finally, there is a suggestion for a new practical approach to stakeholder relationship management by considering new theories and models about certain non-traditional groups: keeping traditions but rethinking strategies to be able to manage non-traditional customers. Through empirical study Booth and Segon (2008) identified that a core theme in the strategy-making process for each organisation was the strong emphasis on stakeholder considerations in strategic thinking. The same stakeholder reflections are useful in developing strategic plans, introducing innovations to supplement traditional planning process in strategy formation (Mintzberg, 1995).

2.3.2.2 Mitchell et al.: Stakeholder Identification and Salience Model

This model of the theory of stakeholder salience (Figure 2.4) evolved based on the concept of 'dynamics of stakeholders' in response to questions raised in previous study on the "principle of who or what counts". It has been the foundation for many types of research works, both theoretical and empirical (Elias et al., 2002). Three attributes, namely

- power to influence,
- the legitimacy of stakeholder relationship and
- the urgency of stakeholder claim

were identified and emphasised in an attempt to determine the "Principle of Who or What Really Counts" that is "who and what are the stakeholders of a firm" and "to whom or what managers pay attention" (Mitchell et al., 1997, p. 853). Considering stakeholders as those who can affect or be affected by an organisation's activities suggests that stakeholders possess at least one of these attributes to influence the outcome of an event. The theory of stakeholder salience is raised.

Salience relates to the degree by which managers give priority to competing stakeholder claims. While the broader view of stakeholders suggests that organisations can affect or be affected by anyone, the narrow view suggests managers give priority to competing stakeholder claims owing to limited resources. The limited resources and the need for prioritisation advocate for the typology of stakeholder identification and classification. Arguably, using normative assumption and the three attributes as variables, the field of stakeholders is defined. Using the stakeholder typology developed by Mitchell et al. (1997), seven types of stakeholders can be identified as Dormant, Discretionary, Demanding, Dominant, Dangerous, Dependent and Definite (Figure 2.4).

Also, the study classifies stakeholders as latent, expectant or explicit and to which managers give low, moderate and high attention respectively. Moreover, it states that stakeholder attributes are variable, not steady, socially constructed, and not objective, since reality, consciousness and wilful exercise may or may not be present. Thus, managers must be able to predict stakeholder changes and pay attention accordingly.

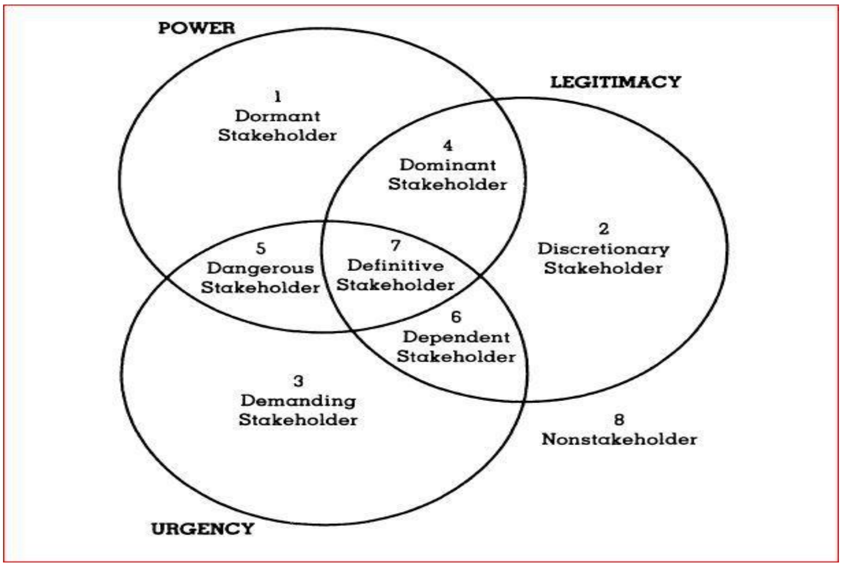


Figure 2.4: Stakeholder Typology

(Source: Mitchell et al., 1997)

2.3.2.3 Rowley et al.: Social Network Analysis (SNA)

Earlier stakeholder theories had focused on stakeholder identification and classification for a dyadic relationship. Researchers' interest had been on the direct connection between the firms at centrality and focused on the personal stakeholders' influence (Carroll, 1989; Nasi, 1995). Rowley (1997) argues that to build a stakeholder theory of the firm, researchers must move beyond the analysis of dyadic relationships.

The SNA considered multiple and interdependent stakeholder relations with an organisation by reviewing the organisations' stakeholder networks (densities), focal organisations' centrality and the degree of impact on the group rather than the individual. It further assessed the organisations' resistance to stakeholder pressure and how the structure of organisation stakeholder relationships affects their responses. The study suggests the following two propositions:

1. As network densities increase, the ability of the focal organisation to constrain the organisation actions also increases.
2. As a central organisation's centrality increases, its ability to resist stakeholder pressure increases (Table 2.2).

Rowley (1997) concludes that no single theoretical perspective is a sufficient explanation. Also, each organisation has a different set of interested parties presenting a unique structure and pattern of influences, arguing that managers must consider multiple stakeholders as against individual stakeholders. A matrix of the density of the stakeholder network against the centrality of the focal organisation is as follows:

Table 2.2: Structural Classification of Stakeholder Influences: Organisational Responses to Stakeholder Pressure

Density of the stakeholder network	Centrality of the focal of organisation		
		High	**low**
	High	Compromiser	Subordinate
	Low	Commander	Solitarian

(Source: Rowley, 1997).

2.3.3 Stakeholder Development Stages

Stakeholder theory development literature suggests at least seven stages of stakeholder theory development. The first three steps were developed by Edward Freeman (Elias et al. 2002). Classical stakeholder followed as a second stage after the introduction of the stakeholder concept in SRI (1963). Classical stakeholder literature developed on the basis that "…stakeholders are those groups without whose support an organisation will cease to exist" (Freeman, 2010, p.31). Moreover, it suggests that the survival of a group depended on the assistance of the main groups (Yang, 2010).

Following that was strategic management which proposed a framework for stakeholder analysis. The three levels considered in the framework are rational, process and transactional, based on Freeman's (1984) definition of stakeholders. A rational process was used to identify stakeholders using a stakeholder map and chart. The method of analysis was the use of a two-dimensional grid. A transactional level considered transactions among interested parties and based on legitimacy, assessed whether negotiation fitted within a stakeholder map taking into account the external environment in a systematic way. This theory acknowledged that interested parties are not static, but change; new ones appeared as others dropped out and were no longer involved.

While the question of "who or what counts" is answered by the strategic management theory, the question of "to whom or what do managers pay attention" remained unanswered (Mitchell et al., 1997). The stakeholder identification and salience model suggested that a stakeholder can be identified by the possession of one or more of the three relationship attributes of power, legitimacy and urgency. Possession of one attribute is latent; two are considered moderate and all three are considered as high if perceived so by the project manager. The level of power possession leads to the seven-typology identification of stakeholders as dormant, discretionary, demanding, dominant, dangerous, dependent and definite stakeholders.

Managers are supposed to consider stakeholders beyond possession of the power to include the legitimacy and urgency of the stake. Arguably, these two important models have considered a dyadic relationship between the firm and the individual's influence on the company. Rowley's (1997) approach was the development of a theory that examined the entire stakeholder structure, and multiple stakeholder relationships with the enterprise. The stakeholder social network analysis finds the following:

- No single theoretical perspective can explain everything related to stakeholders;
- Each firm faces a different set of stakeholders hence there are unique patterns of influences;
- There are the multiple or simultaneous demands of stakeholders; and
- An organisation's position in its network is an important determinant of its behaviour.

Stakeholder theory development focussed on defining the concept and classifying stakeholders into categories (Rowley, 1997). A matrix of network density of stakeholders against focal organisation centrality suggests that focal institution may command, compromise, subordinate or solitairian. Mok et al. (2015) suggest the need for using SNA for managing interrelations in a project due to weaknesses in stakeholder network analysis.

2.4 Contemporary Stakeholder Theories

The development of stakeholder key theories and the interest generated in the field have resulted in the outcome of several modern stakeholder theories. Amaeshi (2010) states that a firm's level theorization of stakeholder salience goes beyond managerial perspective to include the organisation context on stakeholder-related decisions. Jawahar and McLaughlin (2001) propose that decisions on stakeholder salience are influenced by where a firm is on its organisational life cycle. Jones et al. (2007) argue that organisation stakeholder culture rather affects the salience decision. Mok et al. (2015) affirm the impact of not only organisational culture but also the national culture on the stakeholder management process.

2.5 Stakeholder Management (SM) Approach

Kalsen (2000) argued that the management of stakeholders lacks strategies, plans and methods. That has resulted in spontaneity and casual action, without coordination and discussion with the project team. Thus, many stakeholder management models and approaches have evolved without a formal approach (Chinyio and Olomolaiye, 2008). That could be attributed to increased SM literature and its adoption as a soft skill. Thus, Newcombe, (2003), Gardiner (2005), Pinto (2007) and Yang (2010) have proposed SM models. However, Reed et al. (2009) and Chinyio and Akintoye (2008) have suggested the need for SM formal approaches in the construction industry, including that of the UK. However, Finland has a formal stakeholder management framework. Nevertheless, a formal framework for the developing countries construction industry is undeveloped (Yang, 2010).

2.5.1 Stakeholder Management Definition

Lock (2007) defines stakeholder management as the systematic identification, analysis, planning actions, communication, and negotiation aimed at influencing the stakeholders. Chyinio and Olomolaiye (2010) state that it involves identifying and classifying stakeholders for initial and subsequent engagements with the interested parties in a timely, planned and coordinated manner. Eskerod and Jepsen (2013) broaden the definition as consisting of all purposeful activities carried out in connection with the project to enhance project success.

2.5.2 Stakeholder Management Factors

Scholars have suggested that there are several stakeholder management processes. The several processes, models and framework identified in literature confirm Chinyio and Akintoye's (2008) assertion that there is not a formal or single process for stakeholder management. Yang (2010) subsequently proposed the need for a formal stakeholder management process. Studies have suggested four different factors for the SM process. This study reviews the following major factors proposed by scholars between 2000 and 2012:

Table 2.3: Key Factors for Stakeholder Management Success

No	Name of Researcher	Key factors for stakeholder management
1	Karlsen (2002)	Identifying stakeholders; analysing the characteristics of stakeholders; communicating and sharing information with stakeholders; developing strategies and following up.
2	Elias et al. (2002)	Developing a stakeholder map of the project; preparing a chart of specific stakeholders; identifying the stakes of stakeholders; preparing a power versus stake grid; conducting a process level stakeholder analysis; conducting a transactional level stakeholder analysis; determining the stakeholder management capability of the R&D projects; analysing the dynamics of stakeholder interactions.
3	Young (2006)	Identifying stakeholders; gathering information about stakeholders; analysing the influence of stakeholders
4	Bourne and Walker (2006)	Identifying stakeholders; prioritising stakeholders; developing a stakeholder engagement strategy.
5	Olander (2006) adopted Cleland (1999)	Identifying stakeholders; gathering information on stakeholders; identifying stakeholder mission; determining stakeholder strengths and weaknesses; identifying stakeholder strategy; predicting stakeholder behaviour; implementing stakeholder management strategy.
6	Lock (2007)	Systematic identification, analysing, monitoring and controlling
7	Walker et al. (2008)	Identifying stakeholder; prioritising stakeholders; visualising stakeholders; engaging stakeholders; monitoring effectiveness of communication
8	PMI (2008)	Identifying stakeholders, planning communication, distributing, managing expectations, reporting performance
9	Jepsen and Eskerod (2009)	Identifying the (important) stakeholders; characterizing the stakeholders, pointing out their (a) needed contributions, (b) expectations concerning rewards for contributions, (c) power about the project; deciding which strategy to use to influence each stakeholder
10	Chinyio and Olomolaiye (2010)	Identifying and classifying stakeholders for initial and subsequent engaging with stakeholders timeously, planned and in a coordinated manner
11	Yang (2010)	Pre-condition, identifying stakeholders, assessing stakeholder, making decisions, acting and evaluating with continuous support.
12	Eskerod and Jepsen (2013)	Carrying out all purposeful activities in connection with the project stakeholder to enhance project success. identifying stakeholders, assessing and prioritising.
13	Hammed and El-	Managing information; inputting information; assessing

	Sawalhi (2013)	stakeholders; making decisions; acting and evaluation; supporting continuously.
14	Bal et al. (2013)	Identifying stakeholders; relating with issues; prioritising stakeholders and issues; managing stakeholders; measuring performance and putting targets into action
15	Aapaoja and Haapasalo (2014)	Defining the project purpose and customer constraints; identifying project stakeholders according to their functional role; assessing the stakeholder salience and the probability of their impact/ability to contribute; classifying and prioritising stakeholders according to four groups.

(Source: Review by researcher)

Stakeholder management is essential for project delivery considering projects' complexity, various interested parties and the threats and opportunities within the set targets of cost, time and performance (OGC, 2003; Chapman and Ward, 1997). Olander (2006) mentions that construction projects attract interest from various stakeholders whose expressed needs and expectations are often in conflict with each other and managed through a process. A stakeholder management process involving evaluating the needs and expectations of stakeholders about the project through stakeholder analysis is, therefore, essential.

Table 2.4: Major Stakeholder Management Factors as Identified by Scholars

Major factor	Karlsen (2002)	Elias et al. (2002)	Young (2006)	Bourne and Walker (2006)	Olander (2006)	Lock (2007)	Walker et al. (2008)	PMI (2008)	Jepsen and Eskerod (2009)	Chinyio and Olomolaiye (2010)	Yang (2010)	Eskerod and Jepsen (2013)	Hammed and El Sawalhi (2013)	Bal et al. (2013)	Aapaoja and Haapasalo (2014)
Pre-stakeholder identification factor		x									x		x		x
Stakeholder identification	x		x	x	x	x	x	x	x	x	x	x	x	x	x
Stakeholder assessment											x	x	x		x
Stakeholder classification		x	x		x					x					x
Stakeholder prioritisation		x	x	x			x		x			x		x	x
Stakeholder analysis	x	x	x			x		x							

Stakeholder engagement/ communication/ conflict resolution	x			x	x		x	x	x	x		x		x	
Implementation, monitoring and feedback	x				x	x	x	x	x		x			x	

(Source: Researcher’s compilation)

The literature reviewed identified eight major factors involved in the stakeholder management process as follows: pre-stakeholder identification; stakeholder identification; stakeholder assessment; stakeholder classification; stakeholder prioritisation; stakeholder analysis; stakeholder engagement/communication/conflict resolution; implementation, monitoring and feedback. Three out of five articles reviewed between 2010 and 2014 stressed the need for pre-stakeholder identification consideration before the formal stakeholder management process.

2.5.2.1 Pre-conditions

According to Yang (2010), pre-conditions’ consideration is required for construction stakeholder management (SM). However, the pre-condition is not stated as a key factor in the holistic model developed. Rather, a precondition of economic, legal, cultural and ethical issues should be considered for all the major constructs in the stakeholder management framework developed. Thus, it is necessary for a pre-stakeholder identification factor to be considered. Gudiene et al. (2013), on the other hand, state economic, legal, cultural, ethical, social and political environment factors as external factors critical to project success in developing countries which must be discussed at the project initiation stage. Aapaoja and Haapasalo (2014) stress purpose and customer constraints. Since stakeholder management is a project management soft skill (Davis, 2014), stakeholders’ views of project success need to be considered in the stakeholder management process. Considering pre-stakeholder factors is critical for both stakeholder management and project success (Elias et al., 2002; El-Sawalhi and Hammad, 2013; Aapaoja and Haapasalo, 2014). Developing countries have their project outcomes and policies shaped by stakeholder attitudes (Aerni, 2005). The media, public and politicians have responded to stakeholder’s influence (Mittelman, 2000; Aerni, 2005). Thus, considering political and socio-cultural stakeholders’ whose concerns are driven by political affiliation and ignorance on the project and its management is important. The existence of political and socio-cultural stakeholders suggests the consideration of the role of useful project management factors that impact on stakeholder management and vice versa for research gaps in pre-stakeholder factor.

2.5.2.2 Stakeholder Identification

The second major factor identified is stakeholder identification. All the fifteen models reviewed (Karlsen, 2002; Aapaoja and Haapasalo, 2014) mentioned the formal stakeholder identification factor as the only common factor revealed. However, there was no consensus on how and when stakeholders are identified. Several researchers have proposed stakeholder identification as the first factor for consideration (Karlsen, 2002; Elias et al., 2002; Young, 2006; Bourne and Walker, 2006; Olander, 2006; Lock, 2007). Nevertheless, Jepsen and Eskerod (2009) and Eskerod and Jepsen (2013) have argued that stakeholder identification takes place at all the stages. The emphasis has been on early stakeholder identification and consideration of the following: (Karlsen, 2002; Elias et al., 2002; Young, 2006; Bourne and Walker, 2006; Olander, 2006; Lock, 2007). According to Jepsen and Eskerod (2009) and Eskerod and Jepsen (2013):

- Stakeholder identification occurs at the project definition stage;
- An expert staff identifies stakeholders;
- All stakeholders are involved at the initial stage;
- All interested parties are identified before project design sign off;
- Have a good strategy for prompt stakeholder information;
- Exclude all late stakeholders;
- Review an existing stakeholder list; and
- Have a directly designed register.

Koster (2009) argues that for the sake of efficiency, key project stakeholders need to be identified early in the project lifecycle.

2.5.2.3 Stakeholder Assessment

Stakeholder assessment has been identified as the next major factor after stakeholder identification (Yang, 2010; Eskerod and Jepsen, 2013; Hammed and El Sawalhi, 2013; Aapaoja and Haapasalo, 2014). Stakeholder assessment entails stakeholders' evaluation based on their needs and interest in the project or firm. According to Yang (2010), stakeholders should rather be assessed based on their attributes, attitude and inter-relationships. The PMI (2008) states the need for determining the level of participation desired for each identified stakeholder, specifying the nature of each stakeholder claim and assessing each stakeholder's ability to press the claim.

This assessment is considered as analysing stakeholders. Other scholars assert the need to classify and prioritise the stakeholders (Elias et al., 2002; Young, 2006; Bal et al., 2013; Aapaoja and Haapasalo, 2014). The argument of rather classifying and prioritising participants is grounded on the stance that there are several types of stakeholders (Mitchell et al. 1997; Winch and Bonke, 2002; Carroll and Buchholtz, 2006). It is, therefore, useful to consider the types of stakeholders based on their attributes and attitudes before analysing.

2.5.2.4 Stakeholder Classification

Following the formal stakeholder identification, some scholars rather suggest stakeholder classification as a major factor for consideration (Elias et al., 2002; Young, 2006; Chinyio and Olomolaiye, 2010). Classifying stakeholders is aimed at categorising stakeholders for effective engagement. While Elias et al. (2002), Young (2006) and Aapaoja and Haapasalo (2014) state classification as a major factor, most scholars mention the identification of stakeholder types as part of the stakeholder management process. Stakeholder identification, however, becomes necessary when different stakeholders are likely to impact differently. The several stakeholders have different interests and project expectations. Newcombe (1999), for instance, mentions stakeholders who can be antagonistic and hence impact negatively on the project outcome. In developing countries where political stakeholders are critical in project realisation, stakeholder classification is essential as political affiliation motivates stakeholder attitude and influence.

Carroll and Buchholtz (2006) suggest stakeholders' categorisation as primary, with a formal agreement with the project owner and secondary if not. It is worth noting that primary stakeholders are essential or critical for project delivery (Clarkson, 1995; Calvert, 1995; Winch and Bonke, 2002) but could be without strong influence due to buyer dominance (Walker, 2007). Chinyio and Olomolaiye (2010) also assert that some stakeholders are more critical to the project success though the position may change as the project progresses with other interested parties also increasing their support base.

2.5.2.5 Stakeholder Prioritisation

Stakeholder prioritisation is a major factor identified in the literature review following the definition of Mitchell et al. (1997) of stakeholders about power, urgency and legitimacy of the claim. According to Mitchell et al. (1997), depending on power, urgency and legitimacy claim of the stakeholder, seven different types of stakeholders were identified as follows: Dormant, Discretionary, Demanding, Dominant, Dangerous, Dependent and Definitive stakeholders. The Dormant is the lowest considered and the Definitive, the most significant to be considered. As a result, researchers have argued for stakeholder prioritisation by their power (Elias et al., 2002; Eskerod and Jepsen, 2013; Bal et al., 2013; Aapaoja and Haapasalo, 2014). Bourne (2005) proposes prioritisation as one of the five main factors in stakeholder management using the stakeholder circle. Further research has also mentioned attributes like interest, importance, impact, position, proximity, agreement with the project owner, commitment, responsibility, and role as other related factors which call for the need to prioritise stakeholders.

2.5.2.6 Stakeholder Analysis

Stakeholder analysis is a major factor but presented differently by many scholars. While the early scholars stated stakeholder analysis in the stakeholder management process, (Karlsen, 2002; Elias et al., 2002; Young, 2006) a factor with related factors, later scholars grouped a series of factors together to represent stakeholder analysis. Thus, stakeholder assessment, stakeholder classification and prioritisation are mentioned instead of stakeholder analysis (Yang, 2010; Eskerod and Jepsen, 2013; Aapaoja and Haapasalo, 2014). The PMI (2008) defines stakeholder analysis as a technique for systematically gathering and analysing both quantitative and qualitative information to determine whose interest should be noted. Stakeholders' interest, influence and expectations are therefore identified in the process.

Olsson et al. (2008), quote Mikkelsen and Riis (2003) as stating that stakeholder analysis is not based on a democratic process to ensure equal rights or stakeholder representation. On the contrary, stakeholder analysis builds on a process describing the project's position in a political field of force between stakeholders with conflicting and congruent interests. Stakeholder analysis is about understanding stakeholder support, position, predictability, power and influence on the project objectives. A stakeholder impact analysis aims at determining the nature, the impact of stakeholder power, position, its likelihood and whether stakeholders are the project proponents or opponents (Olander, 2007).

As part of stakeholder analysis, there is the need to assess stakeholder influence. Olander and Landin (2005, p.321) argues that a negative attitude to a construction project by the interested parties can severely obstruct its implementation. Such obstruction will cause cost overruns and exceed time schedules due to conflicts and controversies concerning project design and implementation. An evaluation of stakeholder demands and influence should be considered as a necessary and important step in the planning, implementation, and at the completion of any construction project. Watson et al. (2002), Susskind and Cruikshank (1987) suggest that stakeholders power and interest levels may be used to influence project outcome and to their advantage if their perceptions are not addressed. Also, when there are wrongful, preconceived ideas and assumptions. Team leaders should acknowledge stakeholder concerns and interests, especially those who can affect the project and deal with these through good relationships, dialogue and communication when interests are conflicting at the early stages of the project.

Olander and Landin (2005) examined two projects. The project stakeholders influenced the project beyond the project manager's control resulting in time, cost overruns and bad media publicity. Lessons derived from negative stakeholder influence on the Lund, Sweden railroad project and a housing project consisting of 60 apartments delayed for over six years are summed up as follows:

- Project managers and team leaders should investigate all possible alternatives and solutions to realise the objectives of the project, not only from the quantitative aspects of technology and economy but also from the more qualitative aspects of potential influence from stakeholders.

- All the powerful and negative arguments about the chosen alternative should be defined clearly in relation to the other options investigated, in order to be regarded as trustworthy by those stakeholders who are negatively affected by the project.

- The stakeholders' base of influence is not static. The stakeholder analysis must be conducted and updated during the entire life cycle of the project, with the purpose of gaining knowledge about the potential influence various stakeholders have at different stages of the project.

• Before any major decision to proceed into a new phase of the project, there should be an analysis of how the decision affects the various stakeholders to be proactive in the stakeholder management process.

Research suggests the use of stakeholder mapping as a tool for analysing stakeholder influence. Stakeholder management should consider two steps: Firstly, an attempt to classify, prioritise and change project opponents to proponents if it requires changes to the project mission. This will prevent possible proponents defecting. Secondly, mapping should be used to manage the stakeholders (Winche and Bonke, 2002). According to Bourne and Weaver (2010), the need for a practical, usable approach in visualising stakeholders has led to the development of different mapping techniques. Stakeholder mapping employs a qualitative perception of stakeholders' importance in using a network of relationships to influence a project. Thus, Bourne (2005) identified mapping as a factor of the five-factor stakeholder management model. On a scale of 0-10, stakeholder mapping is used to determine stakeholder power influence on decisions made (Olander and Landin, 2005).

However, Gardiner (2005) and Lock (2007) suggest mapping stakeholders according to impact on project delivery, response and resolution of issues for benefits' realisation. Stakeholder mapping can be based on stakeholder value, threat and potential for cooperation, interest, power and attitude (Savage et al., 1991; Mitchell et al., 1997; Fletcher et al., 2003; Chinyio and Olomolaiye, 2010). Bourne and Weaver (2010) state that the commonly used dimensions are power, support, influence, interest and attitude. Stakeholder mapping produces a better picture for communication, relationships and assessment of stakeholders on project implementation and delivery. Also, it can be represented as a grid (Fig 2.5). The study identified the following:

- Dimension matrix (Johnson and Scholes, 1997; Newcombe, 2003)
- Salience model analysis (Mitchell, 1997; Elias et al., 2002; PMI, 2008)
- Social network analysis (Newcombe, 2003; Landin, 2008; Mok et al., 2015)
- Stakeholder Circle as used by scholars in analysing and managing project stakeholders (Bourne, 2005; Weaver, 2010; Aapaoja and Haapasalo, 2014).
- Power/interest (Johnson and Scholes, 1997; Newcombe 1998)
- Power/predictability (Newcombe, 2003; Chinyio and Olomolaiye, 2010)
- Power/influence (PMI, 2008)

- Impact/Probability (Winch, 2003)
- Importance/Influence (Mitchell, 1997)
- Influence/interest (Imperial College, 2007: Bourne and Weaver, 2010)
- Influence/impact matrix (PMI, 2008)
- Power/proximity (Bourne and Weaver, 2010)
- Help/Harm-potential matrix (Savage et al., 1991; Eskerod and Jepsen, 2013).

The mapping (Fig 2.5) is used to determine stakeholder power, political and social influences.

High	Keep satisfied (A)	Manage closely Key player (B)
Power		
Low	Minimal effort Monitor (C)	Keep informed (D)
	Low **level of Interest**	High

Figure 2.5: Power/Interest Matrix. (Source: Newcombe, 2003)

2.5.2.7 Stakeholder Communication/Engagement

Stakeholder communication/engagement is a key factor of the project stakeholder management process. Studies have shown that it is critical to the success of every project and efficient project management. Al-Khafaji et al. (2010) state that the survival of any organisation depends on its ability to develop and maintain an active and continuing relationship. Many scholars have identified project communication as crucial for the success of any project (Gudiene et al., 2013; Osei-Kyei and Chan, 2015). Yang (2010) identified effective communication and engagement with stakeholders as the second critical success factor for stakeholder management. The PMI (2008) considers the entire stakeholder management process as part of project communication management. Construction projects have several stakeholders with diverse cultural, social and organisational backgrounds. The different stakeholders have needs, interest and expectations that need to be identified and addressed. Project information needs efficient management. According to the PMI (2008), project information management requires timely generation, collection, distribution, retrieval and disposition of information. Stakeholder engagement primarily focuses on getting to know and understand each other, at the management level. Meeting provides the opportunity to communicate, discuss and agree on stakeholders' expectations, a set of values and principles that all stakeholders will uphold.

According to Al-Khafaji et al. (2010), effective communication requires appropriate timing, simplicity, clarity and relevance. Moreover, communication can be verbal (projected as oral, written, and/or electronic) on nonverbal (expression, expressive behaviours, and/or body language). Additionally, the information flow approach can be downward, upward or horizontal.

Project stakeholders must be presented with information in a manner and approach that can be understood and make the necessary impact on the project success. A process must thus be established on planning, distributing and managing the information. A communication plan which is the first stage therefore plays a vital role in stakeholder communication. A communication method can be in the form of a template or map and must address the following:

- What to communicate
- Who to communicate
- When to communicate
- How to communicate and
- What are the constraints (Bourne and Weaver, 2010; Eskerod and Jepsen, 2013).

A communication plan can only be effective after a careful and proper identification of all stakeholders, classification and prioritisation are complete (Bourne, 2005; Eskerod and Jepsen; 2013). The type of information to communicate depends on the stakeholder's attitude, expected benefits, interest, importance and commitment. After that, the project manager must decide on the communication method or channel to appropriate for distributing the information. The channel may include telephones, emails, instant messages, social platforms and software (PMI, 2008; Chinyio and Olomolaiye, 2010).

Who to communicate with depends on the stakeholder assessment about the project. Moreover, communication plans for internal and external stakeholders are different. Takim (2009) urges for overall communication to project stakeholders for effective feedback. The project client with sole power and end-users with hidden agendas play important roles in determining project priorities (Takim, 2009). The proximity, power and importance of stakeholder are therefore vital in stakeholder communication (Bourne, 2005). Stakeholder participation is increased when there is enhanced transparency and involvement (Martinez and Olander, 2015).

On when to communicate, studies have identified reactive and proactive approaches (Chinyio and Olomolaiye, 2010). With proactive strategies, the project manager takes the initiative to communicate to stakeholders ahead of the need while reactive approaches are in response to stakeholders' action. Studies suggest that proactive approach is recommended as a project manager can have more control over the project rather than a reactive approach when the parties concerned take the initiative (Eskerod and Jepsen, 2013). Unique and crisis information will also have to be planned in addition to the regular information required.

The stakeholder type and nature of the project can influence the communication approach and method. Research has suggested vertical (top-down or bottom-up, upward or downward) and horizontal methods (relating to line managers). Other proposed methods include the 'push', 'pull' and 'interactive approaches' (PMI, 2008; Eskerod and Jepsen; 2013). While the 'push' method relates to information forced on stakeholders, the 'pull' methods are a choice of stakeholders to access.

Also, stakeholders can be networked so that information may be received at the same time by all stakeholders or only by selected stakeholders at a time. The approach of selective distribution of information results in an impersonal or interpersonal type of communication. A project manager may also use verbal and non-verbal communication methods. Body language can be carefully read and addressed by the project manager.

2.5.2.9 Action and Evaluation

According to Yang (2010), action and evaluation are key factors for the proposed framework, mainly for developed nations. The need for monitoring and control forms an important part of project communication management, hence stakeholder management process (Bourne, 2005). In the context of a project management, stakeholder management is planned at the project feasibility and planning stages. A strategy/plan should be developed for each major factor considered such as a pre-stakeholder plan, stakeholder identification plan, analysis, and engagement plans. As the project progresses, the stakeholder management plans are implemented as demanded at every project stage. It is however, necessary to track, review and regulate the performance. As stated, project targets and stakeholders may change during the project implementation, raising the need for monitoring and feedbacks reviews.

Yang (2010) suggests implementing strategies, evaluating the stakeholder management effects and stakeholder satisfaction with engagement as part of the stakeholder management process. Monitoring and feedback become essential as project participants' power and base are not also static. It is equally necessary to assess the implementation effectiveness of all strategies developed for the major factors (Mitchell et al., 1997; Olander and Landin, 2005). Therefore, some theories reviewed by this study have suggested the need for implementation, monitoring and feedback as a major factor to be considered (Olander, 2006; Lock, 2007; Walker et al., 2008; PMI 2008).

2.6 Stakeholder Value

Project stakeholders are invaluable to the success of every construction project. Planning construction projects using hard skills does not guarantee project success (Davis, 2014). Eskerod and Jepsen (2013) opines that a project cannot be established, accomplished and the benefits realised without carefully considering and dealing with the project stakeholders. The assertion on project benefits' realisation is as a result of the fact that a project can be affected, influenced and impacted by project stakeholders. A convergent stakeholder theory attempts to describe stakeholder actions and reaction to change. The change in stakeholders' actions requires project managers to endeavour to develop reciprocally trusting and cooperative relationships with the interested parties.

Stakeholders' value is further critical because the successful completion of project deliverables and project objectives addressing stakeholder expectations is heavily dependent upon relationship management skills (Cleland, 1999). In addition to managing stakeholders need and expectations, stakeholders' role, commitment and contribution in achieving successful stakeholder management success and eventually project success cannot be overemphasised. Stakeholders' obvious connections with the project, support and cooperation are vital for project success (Bourne and Walker, 2005).

Considering stakeholder value is critical to the success of stakeholder management, as power attributes of stakeholders can influence the management process either positively or negatively. Stakeholders' negative influence on project development has led to project managers' loss of project control, hence leading to time and cost overruns (Olander and Landin, 2005). Mitchell (1997) mentions Etzioni (1964) who suggests that the following features of stakeholder attributes as summarised below are relevant to the salience theory's dynamism, providing a preliminary framework for understanding how stakeholders can gain or lose salience to a firm's managers:

- Stakeholder attributes are variable, not a steady state.
- Stakeholder attributes are socially constructed, not an objective reality.
- Consciousness and wilful exercise may or may not be present.

Stakeholders with political support can influence the securing of project resources. When resources are inadequate, the need arises to negotiate, and stakeholder value becomes evident (Pinto, 2000; Bourne 2005). Crawford and Da Ros (2002) identified project success as political and further argued the following regarding stakeholder value:

- There is a strong correlation between organisational politics and the acquisition of project resources;
- The ability of the project manager to make efficient use of organisation politics contributes significantly to project success; and
- The above arguments raised bring to bear the value of project stakeholders in achieving project success.

2.7 Conclusion

From the literature review, it was identified that there are three major areas of consideration under the stakeholder theory, namely the stakeholder concept, stakeholder definition and stakeholder management. On the stakeholder concept, the literature reviewed posits that SRI first introduced the stakeholder concept into the management domain in 1963. The attention was for organisations to consider "groups without whose support an organisation will fail to exist" (Freeman 2010, p.31). That suggests that in achieving construction projects success, there are groups or individuals involved in the project team whose support is needed. Moreover, stakeholder management became embedded in managers' thinking and management circles after the publication of *Strategic Management: A Stakeholder Approach* (Freeman, 1984). Thus, the development of other theories in stakeholder management has been founded on Freeman (1984) and the SRI (1963) stakeholder concept.

Regarding construction stakeholders, the research revealed that stakeholders had been defined by a 'connecting verb', 'influencing verb' or a 'defining adjective'. Most scholars have referred to Freeman's definition of stakeholders as individuals, groups or firms that can affect or are affected by a project or its outcome together with influence and impact. However, other studies broadened the definitions to consider the power, legitimacy and urgency of interested parties to influence the project outcome. Subsequently, stakeholder types, the need for classification and prioritisation for the purpose of engagement have come to the fore.

This study, therefore, defines construction project stakeholders as individuals, groups or organisations who can affect/be affected, impact/be impacted or influence/be influenced by projects' outcome. The stakeholders considered for this study include the project clients, project champion, project sponsor, project manager, supply chain members, designers, contractors, subcontractors, suppliers, process and service providers, local community, government establishments, traditional authorities, politicians, and statutory approval bodies. The literature review further revealed several types of stakeholders' classification and prioritisation about stakeholders' proximity to the project, interest, influence, commitment, role, importance and power attributes.

Finally, this study placed emphasis on reviewing the literature on the existing stakeholder and SM theories between 2000 and 2014. Fifteen models identified as useful to the study were discussed. The research discovered that SM involves more than one key factor. It entails systematically coordinating all factors related to project stakeholders to ensure successful project delivery. The study found two construction SM models as incorporating most of the factors identified in the others. The major factors identified are stakeholder identification, assessment, classification, prioritisation, analysis, engagement/communication and monitoring. However, the key factors and indicators are differently perceived by other scholars. The two adopted models argue for pre-stakeholder factors though not as latent constructs in holistic models. Again, these factors and the study areas focused on developed countries, hence the recommendation and the need to consider a sustainable SM framework for Ghana.

CHAPTER THREE

GAPS IN STAKEHOLDER MANAGEMENT RESEARCH

3 Introduction

This chapter aims at addressing the gaps identified in the stakeholder theory and stakeholder management process literature which were not examined as major factors (constructs) by the existing stakeholder management frameworks, models and processes. It is worth mentioning that some scholars suggest these factors as related factors (variables) by the existing structures which were developed based on studies conducted in western developed countries. This study identifies the gaps as research questions to be addressed since they have not been fully answered or examined by previous scholars in the field.

3.1 Identified Gaps

In the literature reviewed the study identified both main and related factors as gaps which this research seeks to fill. Addressing those gaps will be a contribution to the body of knowledge in the construction stakeholder management area. The main factors (constructs) discovered as gaps are pre-stakeholder' implementation, monitoring, and feedback factors. Other factors are identified as gaps but are related factors and are discussed as part of the study on developed and developing countries, outlined as best practices and lessons learnt. This study deliberates on the revealed gaps for the purpose of the development of a sustainable stakeholder management process for developing countries.

3.2 Gaps in Sustainable Stakeholder Management Conceptual Framework

This study reviewed existing stakeholder theories which form the basis for stakeholder management considerations. Though this research agrees to a large extent with stakeholders identified in the literature, the literature primarily covered developed western nations such as the UK, Finland and Australia as revealed in Chinyio and Olomolaiye (2010) and Yang (2010). Construction projects' delivery in developing countries such as Ghana is a major government socio-economic intervention due to the role in economic development and a measure of the success of the government (Ofori, 2012). As a result, this study carefully considers stakeholders such as government representatives, politicians and the traditional authority who have significant influence and are critical to the success of projects in developing countries. Since the stakeholder management process considers all the activities related to stakeholders for a successful project delivery, stakeholders in developing countries present a different approach to the stakeholder management process as compared with the western developed nations.

This study reviewed more than fifteen existing stakeholder management frameworks and models. Citing the Stakeholder Circle proposed by Bourne (2005) and the stakeholder management frameworks by Yang (2010), Eskerod and Jepsen (2013), Aapaoja and Haapasalo (2014) as examples, again the studies were focused on western developed nations where project management is well developed. Construction project delivery and project management development in developing countries, including Ghana, are certainly different hence the major factors (constructs) cannot be the same. Also, the study reveals that researchers consider stakeholder management as a project management soft skill (PMI, 2008; Davis, 2014). The stance that stakeholder management is a soft skill suggests careful consideration of the role of project management in project success and sustainable stakeholder management process in developing countries. The reason is that the success of construction projects is a fundamental issue for most governments, users and communities (Gudiene et al., 2013).

Since the studies do not present an overview of the SM and project management approach in developing countries, the relevance of the results and application cannot be consistent with those of developing countries owing to the peculiarities (Aigbavboa, 2013). As stated, this study therefore proposes the observed gaps from the reviewed frameworks as the new main factors for the current study and the new conceptual framework. These primary constructs are pre-stakeholder, conflict resolution, implementation, monitoring, and feedback. The main constructs adopted are stakeholder identification, classification, prioritisation, analysis and engagement. However, there are related factors (variables) of these constructs that the study identifies which are peculiar to developing nations, including Ghana. The development of the sustainable stakeholder management framework for Ghana addresses the identified gaps and relevant factors.

3.3 Gap One: Considering Pre-stakeholder Identification Factor

This study finds it important to examine the reasons behind the differences in the major factors (constructs) proposed for stakeholder management frameworks, processes and models in the developed nations. Also, the study attempts to explore the development of stakeholder management process in Ghana, any gaps as a result of the differences in stakeholder groups and the project development approach as pertains to the developed nations.

As stated, stakeholder management process is a soft project management skill (Davis, 2014). This stance is augmented by the consideration of stakeholder management as project communication management, one of the ten project management areas noted for a successful project delivery (PMI, 2008). The objective of stakeholder management is to mobilise stakeholders to contribute positively and more efficiently towards the success of a construction project success. The goal calls for coordinating all activities related to project stakeholders for successful project delivery (Eskerod and Jepsen, 2013).

According to Davis (2014), stakeholder management as a soft skill has become necessary with the persistent reports of project failure in spite of all efforts to consider project management hard skills regarding project time, cost and specification. Chen et al. (2012) and Gudiene et al. (2013) also suggest the claim that success in construction projects is dependent on the active organisation of multiple, specialised teams, each of which brings its ability, experience, knowledge and skill towards completing the joint project. Thus, stakeholders can contribute to the success of a project or otherwise, hence the need to manage stakeholders.

As revealed in the literature reviewed, all the studies agree on formal stakeholder identification as a major factor. However, Elias et al. (2002), Yang (2010), Eskerod and Jepsen (2013), Aapaoja and Haapasalo (2014) suggest the consideration of a factor or more before the formal stakeholder identification factor. While Yang (2010) suggest pre-condition of economic, cultural, legal and ethical considerations, Eskerod and Jepsen (2013) suggest a review of all activities related to the stakeholder, including the project phases of formation and planning. Aapaoja and Haapasalo (2014) argue for project definition and customer constraints before the formal stakeholder identification. This together with suggestions by Chen et al. (2012) and Gudiene et al. (2013) suggests that there are several activities related to stakeholders that will ensure successful project management and eventually project success. Research findings indicate that project scope often changes in developing countries owing to poor project planning, the absence of design details, less consideration of stakeholder expectations and needs, and the limited role of project managers and consultants among others, influencing project stakeholders and project execution (GETFund Report, 2012; Eyiah-Botwe, 2015).

The research findings further support pre-stakeholder activities such as project definition and procurement systems as impacting stakeholder management success. A study conducted by Ofori (2012) on critical success factors for project management in Ghana identified, among others, effective communication, clarity of project purpose and goals, stakeholder involvement and top management support which are stakeholder related. It is essential that at the project formation and planning stages, project managers and team leaders carry out excellent project feasibility studies, clarify project goals and objectives, and determine the level of stakeholder involvement.

This study defines the pre-stakeholder identification factor as entailing all the project management-related activities that are connected to stakeholders' involvement and influences that determine project participants. Also, stakeholder types, attributes and impact on project success should be determined before the formal identification of stakeholders. As stakeholder management aims at successful project delivery, the study examines stakeholder-related activities that influence project participants, stakeholder management and eventually project success. Yang (2010) has extensively reviewed previous studies conducted in the western developed nations and found the need for preconditions suggests re-examining this factor for developing countries. Therefore, the study considers four areas as established by literature review as follows:

- Project formation and planning (Elias et al., 2002; Gudiene et al., 2013; Aapaoja and Haapasalo 2014);
- Project stakeholder factor (Gudiene et al., 2013; Abubaker et al., 2009);
- Procurement method adopted (PMI, 2008; Rwelamila, 2010); and
- Stakeholder education (Eyiah-Botwe, 2015).

3.3.1 Project Formation and Planning

Every project has different phases which together define the project lifecycle. The steps may include project formation (inception), planning, execution, and close down of the project. Having the project formation and planning well conducted is critical for a successful project and management of project participants (Fewings, 2005). The client representative prepares a business case or project execution plan at the project formation or inception stage and evaluates after appointing the design professionals to carry out a feasibility study. Other literature suggests the development of a project charter at the initial project stage which stipulates the business case and conducts a feasibility study as a pre-project phase (PMI, 2013). This study considers several options including project scope, design team, project benefits, needs and constraints (Fewings, 2005; Eskerod and Jepsen, 2013; Aapaoja and Haapasalo, 2014).

A well-considered project formation and planning stages will consider and decide on the project needs, benefits, scope, team, constraints, and targets in addition to establishing key stakeholders' (Eskerod and Jepsen, 2013). Furthermore, the study outlines the project aims and objectives as well as the human resource plan. Razali and Anwar (2011) state that the central determination at any project commencement are the project objectives and customer needs. Having adequate project feasibility reveals the apparent conflicts and challenges to be encountered, the necessary planning to mitigate and project stakeholders to be consulted. Thus it is essential to have the following related factors well addressed at the project formation and feasibility stages to avoid late changes which affect the stakeholder identification process:

- an adequate project feasibility study,
- clear stated project objectives,
- well-defined project scope,
- very detailed design,
- outlined stakeholders' needs and expectations and
- what constitutes stakeholder satisfaction

These factors together assist in preparing a project management plan that identifies project participants, their needs and expectations for the project or its outcome. As part of the feasibility study, the project manager prepares and defines the project for execution. According to Aapaoja and Haapasalo (2014) and illustrated in Figure 3.1, defining the project purpose and customer constraints should be the first key factor for consideration. However, the model (Figure 3.1) is not holistic as it considers only the aspects of stakeholder identification and classification.

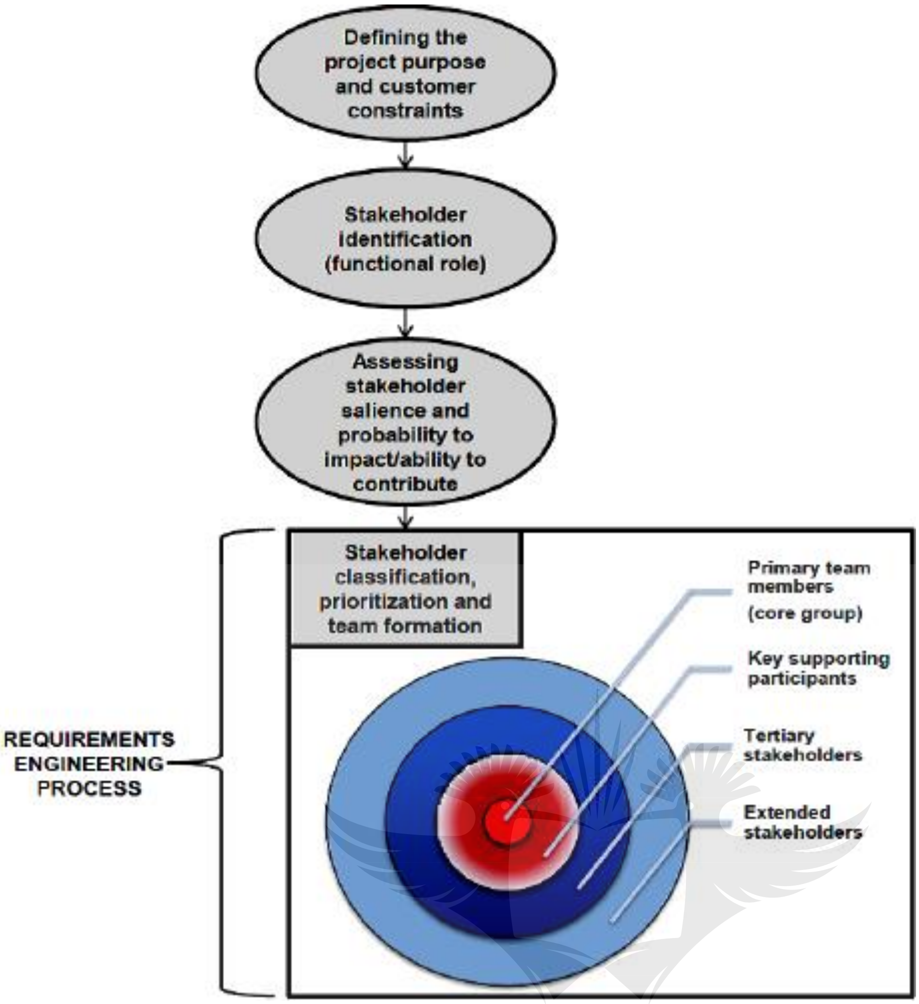


Figure 3.1: Framework for Stakeholder Identification and Classification

(Source: Aapaoja and Haapasalo, 2014)

3.3.1.1 Project Definition

According to Fageha and Aibinu (2012) project definition refers to defining and preparing a project for execution and aims at deciding on whether to proceed with the project or not. An incomplete scope definition in the initial stages of a project's life cycle is a common source of tension in the construction project development (Fageha and Aibinu, 2012). Stating the project mission and objectives clearly are part of the project definition. That is supported by Ofori (2012). Also, Pinto and Slevin's (1987) ten project success factors posited include project mission (clear definition of goals and direction), top management support (making available resources, authority and power for implementation) and schedule and plans (detailed design specification). Similarly, the Audit Report on GETFund Project (2013) in Ghana mentions initiation, planning, implementation, as well as the procedure for managing project scope, time and budget, and concluded that project failure is partly due to poor project initiating and planning. According to Gibson et al. (2006), project definition provides sufficient information that is required to identify the work to be performed and avoiding fundamental changes that impact negatively on project performance. The information from the project scope definition can lessen the likelihood of cost overrun.

Fageha and Aibinu (2012) assert that poor project planning and poor scope definition can result in expensive changes, delays, rework, cost overruns, schedule overruns, and project failure. Scope changes are the product of uncertainties at early stages and lead to the inclusion of new project stakeholders with different needs and expectations. Stakeholder consideration is crucial for public projects where the community is mostly the beneficiary. Right project formulation and pre- project planning can lead to saving up to 20% in costs and 39% of the schedule in facilities projects (Cho & Gibson, 2001). An adequate feasibility study with clearly stated project objectives and stakeholder needs is crucial for a successful stakeholder management process, project execution and outcome.

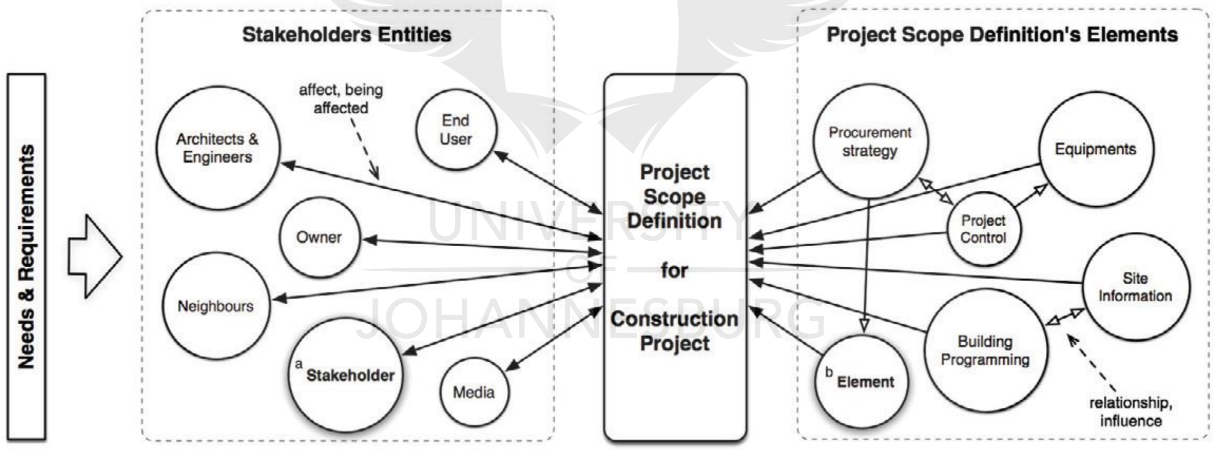


Figure 3.2: Formulating of project scope definition practice

(Source: Fageha and Aibinu, 2012)

3.3.1.2 Project Responsibility and Role

Harris and McCaffer (2013) opine that construction project management should focus on achieving a unique solution by contracting stakeholders to undertake precise project functions and duties. Well outlined roles and responsibilities aid in stakeholders' identification. Wang et al. (2006) suggest that roles determine the four key stakeholders. However, studies suggest that having a project well planned will not guarantee a project's success. Achieving project management success and benefits leads to attaining project success (Anderson, 2008). According to the PMI (2013), project success entails the achievement of time, cost and quality targets but more importantly, meeting stakeholders' need and satisfaction.

A good project strategy is necessary which will consider the efficient management of tasks and project participants. Therefore, project realisation requires an individual with the responsibility to achieve the project objectives. Project managers are appointed with the sole responsibility of managing project human resources and project participants to meet the project objectives. A project manager's competence is a critical factor for affecting the project's planning and implementation (Gudiene et al., 2013). Thus, a project manager's leadership, organizational and coordinating skills, experience, authority and trust are critical.

A study in Ghana on construction delays identified the underestimation of the costs, time, the complexity of projects, inadequate supervision and professional management as among the top ten factors (Fugar and Agyakwah-Baah, 2010). These factors are planning and project manager related. Thus, the project leader element becomes a significant aspect of stakeholder and project management success.

3.3.2 Project Stakeholder Factor

Project managers' role is important as their primary task is to ensure that they deliver projects successfully. However, successful stakeholder management and project success require coordinating all the activities related to all stakeholders to ensure project success. Morris and Hough (1987) assert that project success is dependent upon the multiple project stakeholders involved in a project and their perceptions of success. Studies suggest that project success has moved from scrutinising the technical aspects to consider its relationship to the client organisation, the project manager or project team (Davis, 2014). An effective project management plan creates communication channels, among others. Ofori (2012) asserts effective communication and stakeholder involvement as critical for project management success. Research states that an active communication between project managers and owners result in project success (Müller, 2003; Turner et al., 2009). Likewise, Davis (2014) argues for stakeholders' direct involvement in determining the stakeholder role in project success. Project stakeholders; project managers, project team, client, contractor, users, customer, project sponsor or owner are more considered as the key stakeholders. This study, therefore, examines the PM factor in ensuring SM success.

3.3.2.1 The Project Manager-Related Factors

The project manager (PM) or team leader is the lead person with the assigned responsibility of completing the project and achieving the three primary project objectives, namely time, cost and performance (Lock, 2007). Considering project success to include meeting stakeholders need and satisfaction, PM must coordinate activities related to the stakeholders for project success. According to the PMI (2008), the PM is the person responsible for the overall success of the project. Newton (2012) states that successful project management is ultimately about effective communication and people management and not the mechanical or methodological aspects. Gudiene et al. (2013) explored the critical success factors for the development a project management success model. They identified PM-related factors as one of the essential groups. Lewis (2002) further argues that the PM's responsibility is to facilitate the planning, scheduling and controlling of all activities to achieve the project's objective with all stakeholders involved. Project success can be realised through the proper performance of PM involved in the project (Gudiene et al., 2013). Likewise, Bourne (2005) asserts that the level of PM's knowledge, skill and experience can influence project success. A PM must not only be mindful of stakeholder consideration but planned documentation of processes and controls. The PM should possess the right skills to build the current project team.

In Ghana and in many developing countries, the architect is the team leader who acts as the project manager. It is necessary to examine whether architects as team leaders have formal knowledge in project management. Morris (2004) discusses how useful formal knowledge of project management is in achieving successful project outcomes and concludes that information is different from knowledge. Competence is the ability to perform in an efficient and consistent manner and requires a blend of relevant formal knowledge, skills and behaviours. Project managers should have expertise and knowledge to function effectively (PMI, 2008). Likewise, it is an essential factor which affects a project's planning and implementation. The other factors related to the sound performance of a project manager are leadership, organisational and coordinating skills, experience, authority and trust (Gudiene et al., 2013). This research, therefore, explores the impact of project managers' competence, knowledge and their influence on the successful stakeholder management process in Ghana.

This study identifies the absence of project management as a degree course in the Ghanaian universities until recently as having impacted or PMs competence. Project management is part of the professional practice at the postgraduate level for students of architecture. It is not strange that some architects who are team leaders do not have formal knowledge in project management. Project management skills have been developed through experience working with professional bodies and firms and, in recent times, attending project management training by chartered project managers. Project managers with formal knowledge in best practice and competency through the practice of stakeholder management as a soft project management skill are likely to perform better and achieve project success.

In addition to competence and knowledge, leadership plays a significant role in a successful stakeholder management process and eventually project delivery. According to Fewings (2005), the Construction Clients Forum (2002) mentions the provision of leadership as one of the seven essential considerations in considering construction investment. The project manager who manages both the client and other stakeholders must provide the right leadership role. Also in the construction sector, there are breaches in professional ethics due to competition and the absence of regulatory bodies in some instances (Bowen et al., 2007; Ofori, 2015). However, managing project team members is different from providing leadership as the literature suggests that all managers are not necessarily leaders. Managers' primary responsibility is to plan, organise, control and monitor policies and strategies using administrative structures. On the other hand, managers exercise authority based on position to accomplish the task, lead rather than appeal to team members' values and behaviour for support and exhibit an enhanced commitment to an active relationship. Also, project managers have a responsibility through effective leadership to motivate project participants for enhanced output and the achievement of project objectives (Maylor, 2003).

It is inappropriate to perceive leadership as issuing instructions to team members based on project managers' authority but the subtle working towards gaining project teams' support. Leadership is about communicating the vision to the construction project participants and inspiring them for enhanced performance. Good leaders employ influence in the absence of direct authority. Fewings (2005) states that leadership means building and encouraging teams to understand and deliver project ideas, with team members making a profit on the project and greater value being achieved through collaboration.

Additionally, O'Neil (2000) argues that effective leadership is about:

- providing meaning and purpose,
- focusing on the right things to do,
- getting others to do what you want,
- motivating people towards getting things done willingly, and
- enabling others to take responsibility.

Project managers' leadership skills, therefore, influence stakeholders' behaviour and a successful stakeholder management process. According to Morris (1994), projects require a high standard of leadership, people with strong drive and ability to lead those involved to accept project goals and work towards achieving them. According to the PMI (2008), successful projects require strong leadership throughout all phases of the project. Since projects have several participants, PM should, through excellent interpersonal relationship skills, motivate project participants and exploit their strength to realise project set objectives. Project managers ought to be leaders not only by a traits' approach but through a desire to develop skills and style through learning. Project managers must demonstrate better interpersonal relationships through leadership, impact and right judgement for successful project realisation.

The team leaders' leadership style will determine the level of project success. As a result, managers should not focus on managerial function and ignore the bigger picture of sociological, physiological and political behaviour which requires effective leadership (Elmualim, 2010). Studies suggest there are the different leadership styles including the following:

- autocratic versus democratic,
- directive versus participative, and
- decisiveness versus harmony (Wood, 1997; Fewings, 2005)

Elmualim (2010) mentions five main clusters of theories on leadership. The contingency theory suggests that leaders take reactive reaction and that the decision is dependent on the situation or context. Transformational theory focuses on the project vision and effective communication based on the manager's personal qualities. Transactional theory considers influencing participants' attitudes and behaviour using a reward system. The distributed theory examines the interdependence and coordination of the new group as requiring distributed leadership practice. Project managers must be leaders with vision and ready to impact knowledge (Chan and Cooper, 2007). They must also be honest, reliable and trustworthy (George et al., 2007). This study, therefore, explores the influence of the following:

- Project manager's competence,
- Project manager's leadership skills,
- Project manager's knowledge,
- Project manager's decision-making ability and
- Project team's experience in the stakeholder management process.

3.3.2.2 Other Stakeholder Factors

Several project participants are involved in a construction project delivery. These include the construction clients, project users, the supply chain members, financial supporters, and the community/public (Oyegoke, 2010). The individuals, and groups affect or are affected by project outcome (Freeman, 1984). The scale of the project when large has the likelihood of increased number of participants who asserts to have stake or some right (Carroll, 1989) and legitimate interest (Donaldson and Preston, 1995). Mok et al. (2015) opine that for mega-scale projects, project participants exhibit diverse cultural and social backgrounds. The new team formed may be working together for the first time, hence with different experiences. The previous team experience of the stakeholder impacts on the stakeholder management process owing to work and regional cultures. Changes in project scope may be caused by interested parties and can cause significant disruption to the project. The adverse effect is the main reason why project stakeholders' involvement in similar projects is of importance.

3.3.3 Procurement System and Stakeholder Management

The procurement approach adopted for a construction project influences the project stakeholder type and project stakeholder management. Procurement entails the method of tendering and contracting between the client and the supply chain (Fewings, 2005). Managing project procurement should be a process. The PMI (2008) advocates for project procurement management as a process entailing the following:

- plan procurements (identify project needs that must be met by the project team),
- conduct procurements (the process of obtaining bids and award of the contract),

- administer procurements (managing procurement relationships and monitoring contract performance), and
- close procurements (completion of procurement requirements).

Complex projects can involve managing several contracts or subcontracts with different stakeholders and relationships at the same time influencing SM involved and project success.

Construction procurement remains a key factor to project success. Rwelamila (2010) argues for early consideration of the building procurement system if the project is to be delivered successfully since it determines the project stakeholders. Positive stakeholder management means that the project procurement approach needs early attention. Love et al. (2002) opine that the procurement method assigns specific responsibilities and authorities to the participants. The approach in procuring the project shapes the relationships between the different elements of construction in a project and establishes contractual frameworks that determines the nature of relationships for the period of stakeholders' interaction (Oyegoke et al., 2009).

Rwelamila (2010) defines construction procurement systems (CPS) as an organisational structure that defines and describes individual roles and responsibilities. Also, it includes stakeholders' relationships, the sequence of activities and timing of events required to provide the facility, practices and techniques of management used. In fact, research suggests that the choice of a procurement system should proceed development of a project brief as the CPS decides who should be involved the development of the brief (Latham, 1994; Rwelamila, 2010). The procurement system defines the stakeholders' roles and creates social relationships, power structure, individual responsibilities, the sequence of activities practices and techniques of management (Newcombe, 1996: Rwelamila, 2010). A choice of CPS and a good project manager will be required to build the project team to deliver the client and project objectives. The selection of the right CPS will lead to a successful stakeholder management and eventually project success. Studies have suggested the following as CPS classifications:

- Separated or traditional,
- Integrated, design and build,
- Management orientated systems, management contracting, and
- Construction management (CIOB, Code of practice, Rwelamila, 2010)

The main differences are related to the sharing of responsibility, risk and authority. The different CPSs imply that stakeholders involved have different responsibilities, interests and influence on the project as well as an impact on project organisation and sequence.

3.3.3.1 Impact of Separated System

The separated system is the choice mostly used in Ghana. The separated system mainly refers to the traditional method. The main characteristic is the separation of design and construction responsibilities. Irrespective of the methods under this system, the two roles remain separated. The conventional methods or routes are the two-stage selective which involves either open or restricted tendering, the negotiated tendering or the cost reimbursable contracts. While there is enough time for the project manager with competent skills and knowledge to identify stakeholders, there is weak contractor collaboration and client involvement in the design stage. Also, the absence of all stakeholders' involvement implies some needs are not considered (Rwelamila, 2010).

3.3.3.2 Impact of Integrated System

These include design and build, package deals, turn keys and develop and construct. Project delivery responsibility regarding the design and construction are combined. The literature recommends the integrated system for speed of mobilisation, early involvement of all stakeholders and single point of responsibility. The integrated approach enhances stakeholder management as almost all project team members participate from the project onset. Late scope changes are avoided, hence new stakeholder involvement at a later stage is prevented. Interested parties' identification is much easier due to the single point responsibility employed. Moreover, as the designers and contractors work as a team, it is simpler to assess the impact of the environment and identify all stakeholders.

3.3.3. Impact of Management System

The different methods of the management system approach include management contracting, construction management, design, and management. This system, unlike the integrated system, does not encourage designer and contractor collaboration. The risk allocation and responsibility require for flexibility in the stakeholder management process as time, cost and specifications can vary. The impact on stakeholder management process is more negative than positive. However, for public projects, the choice of the CPS may be entirely decided by the construction client based on the priorities and developers' objectives.

The Public Procurement Act PPA, Act 663 rather considers methods than systems or approaches, hence outlines the competitive, restricted and sole sourcing as the procurement practices for consideration. This procurement approach justifies the different stakeholder management processes between the western developed countries and some developing countries, including Ghana. Separated, integrated and management-oriented systems define the structure, stakeholders involved, needs, interaction and contractual framework (Ren et al., 2012). The PPA, Act 663 approves the use of any of the three; the emphasis is on an open competitive method using the separated system (traditional) method with a two-stage competitive open or selective tendering route. The key challenges are the following:

- Identifying stakeholders involved a stage of stakeholder involvement, and
- Maintaining a set of project participants for the same or similar project.

Nguyen et al. (2009) argue projects have diverse stakeholders with interest and needs and rigorous management for project success, This, however, appears not to be supported by the traditional procurement approach as stakeholders' involvement could be after the tender stage and coming with their project needs and expectations. For each project, one CPS may be better and produce a better result than the others, but one particular approach cannot be considered to be the best. Pinto (2007) asserts that CPS impacts on the stakeholder management process and continues to outline six areas for consideration when analysing the influence of CPS on stakeholder management process as follows:

- Identifying project stakeholders,
- Assessing the environment,
- Identifying the goals of the principal stakeholders,
- Assessing clients' capabilities,
- Developing solutions, and
- Testing and refining solutions.

Analysing each procurement approach by considering these areas will affect initial decisions differently, hence stakeholders and stakeholder management. A procurement plan can be a constraint; hence it needs careful attention as argued by some scholars and more especially for developing countries like Ghana. It is the trend that new governments when they are inaugurated, upon coming to power review project procurement and in some instances, cancel already awarded projects. Also, it is a common practice that new political governments make changes in stakeholder representation in the project development process, affecting the entire stakeholder management process when elected to power.

3.4 Gap Two: Implementation, Monitoring and Feedback Factor

This study combines implementation, monitoring and feedback consideration as one significant factor. The literature review of the existing theoretical models developed in the western nations measured evaluation or monitoring. This study examines the reason for its non-consideration as a key factor but rather related factors. Again, though frameworks reviewed suggest how monitoring and feedback should be of concern to project managers, they failed to highlight its impact on the stakeholder management success.

This study opted for caption, implementation, monitoring and feedback as against control to emphasise the need for the full implementation of stakeholder management plans or strategies developed as the output of each key process/factor. The research considers outputs from pre-stakeholder identification, stakeholder identification, classification, prioritisation, and stakeholder analysis as identified in the reviewed frameworks. Also, project managers should fully implement stakeholder engagement, conflict analysis, critical challenges, success factors and any other agreed on plans. The PMI (2008) mentions the need for a project management plan that integrates all planning outputs. This research examines the implementation as the input, monitoring the process and feedback as the output. Monitoring and feedback become the control system. Fewings (2005) suggests that the monitoring system is critical to the health of the process and should influence the overall planning process. Other studies have not combined the three.

3.4.1 Implementation of Developed Plans/Strategies

The study discusses the full implementation of plans and strategies by the team leader/ project manager as outputs from factors considered. Project implementation is a critical task even after careful planning and development. Similarly, the stakeholder management process can be a peculiar function after the development of all the strategies. The reasons include the reality of unforeseen events, environmental challenges and changes in stakeholder attitude at the operational levels during the project execution process. In developing countries where project resources are inadequate, coupled with human activities dominating the project implementation processes, the full implementation of decisions to meet stakeholder needs can be challenging.

Newcombe (2003) argues that team and project leaders have the tendency to satisfy construction clients only. Research also suggests that stakeholder perceptions of their contributions to a project determine their attitudes (Eskerod and Jepsen, 2013). The argument suggests that failure by project managers to fully implement decisions as agreed or perceived by stakeholders will influence stakeholder participation in the process. Karlsen (2002) suggests the need to develop strategies and follow up its implementation. There should be a clear policy that indicates an active management of the stakeholders during the process. According to Olander (2006), a decision to implement stakeholder management strategies can be followed up with additional guidelines, action plans, procedures and allocation of supporting resources to make stakeholder management an ongoing activity. Project stakeholder management processes consist of executing the management functions of planning, organising, motivating, directing and controlling the resources used to cope with strategies from stakeholders (Cleland, 1999; Olander, 2006). As part of leading the project management process, the project manager has two main tasks, namely predicting stakeholder behaviour and implementing stakeholder management strategy. According to Cleland (1999) project managers should:

- ensure that the key managers fully appreciate the potential impact that both supportive and opposition stakeholders can have on the project process;
- manage the project review meetings to incorporate stakeholder views an integral part of determining the status of the project;
- maintain contact with the major external stakeholders to improve the chances of identifying the stakeholder' project perception and their probable strategies;
- ensure an explicit evaluation of probable stakeholder response to major project decisions;
- provide an ongoing, up-to-date report on stakeholder position for managers and professionals to use in evolving and implementing project plans; and
- Provide ideal safety systems to protect sensitive project information that might be utilised by opposition stakeholders to the detriment of the project.

The key issues raised agree with the suggestion to develop a management plan (PMI, 2008). Though the two key frameworks; Yang (2010) and Aapaoja and Haapasalo (2014) adopted for this study failed to include implementation in their models for the studies conducted in the developed nations, this study found it useful adding it to monitoring and feedback as a construct.

3.4.2 Monitoring Stakeholder Management

Monitoring stakeholder management (SM) implementation entails an ongoing process aimed at assessing the implementation of the plans and strategies that constitute the entire SM. Also as part of the monitoring, there is a tracking of those day-to-day events and deliverables necessary for achieving SM success through data collection and reviews. The PMI (2008) suggests that monitoring should include collecting project performance data on plans, producing performance measurements and reporting on the information. Monitoring is a vital part of project management, usually developed to guard against non-compliance during the project execution stage. Stakeholder management equally adopts monitoring to assess the impact of implemented strategies and plans in the management process.

3.4.2.1 Monitoring Objectives

Stakeholder management plan is typically developed at the project formation and planning stage. After the development of the SM plan, the project team at the initial stages of project definition and planning must agree on the type, plan and frequency of data collection. Also, the project stakeholders should agree on the analysis to be undertaken for monitoring performance. Through the analysis, problems may be identified in the early stages and corrective action implemented. The primary aim of stakeholder management in construction project development is to gain stakeholder support in project implementation so that the project activities will be issue driven rather than stakeholder (Jergeas et al., 2000; Mok et al., 2015). Construction project implementation in developing countries requires a stakeholder identification process at every stage as well as a review of the stakeholder management. Since SMP is usually developed during the project formation and planning stage there is the need for reconsideration due to the following reasons:

- New project participants become involved as the project progresses;
- Stakeholder expectations and interests may change (Eskerod and Jepsen, 2013);

- Changes in stakeholder power and influence due to coalitions formed (Olanden, 2006); and
- Project scope changes, affecting project resources (Eyiah-Botwe, 2015).

There is, therefore, the need to review the stakeholder management plan as there may be problems related to stakeholders during the project implementation phase.

3.4.2.2 Monitoring Stakeholders Outcome

Eskerod and Jepsen (2013) refer to studies as suggesting a review of the stakeholder management plan at project meetings and stage gates (Mikkelsen and Riis, 2003; Vaagaasar, 2006). Moreover, research suggests that stakeholder attitudes are not static during project implementation, hence monitoring and controlling the SM is vital and may lead to the following:

- Reviewing performance and targets against performance baseline;
- Controlling changes and recommendation of preventive actions;
- Giving attention to areas and stakeholders that require attention;
- Managing the implementation of plans and strategies; and
- Influencing factors that can cause undesirable changes.

According to Sampietro (2016), monitoring SM process also leads to the following:

- The identification of new stakeholders;
- Re-evaluation of the importance of specific stakeholders; and
- Assessment of the effectiveness of the stakeholder management strategies.

3.4.2.3 Usefulness of Stakeholder Management Monitoring

Scholars in construction stakeholder management have cited the model developed by Karlsen (2002). Aaltonen (2011), Jepsen and Eskerod (2009) have both mentioned that process in the development of their models. The model outlines six steps, including defining objectives, resources and operational details; identifying stakeholders; evaluating their interests and impacts; reporting evaluation results; formulating stakeholder management strategies; and monitoring effectiveness. Additionally, Mok et al. (2015) suggest stakeholder identification, analysis, strategy development and performance control as critical factors for SM success in relation to mega construction projects delivery globally.

Though the construction stakeholder management framework developed by Yang (2010) for developed nations is the principal framework adopted for this study, the research finds the Karlsen (2002) theory as particularly appropriate for developing countries. The reasons include the identification of project definition and monitoring of performance as ineffective in project management in Ghana (Williams, 2015). The project stakeholder management includes executing the management functions. According to Mok et al. (2015) and Cleland (1999), these functions are planning, organising, motivating, leading and controlling the project resources to align with strategies from stakeholders. Consequently, monitoring of implementation entails directing and controlling the management process. Sustainable and SM for developing countries require the monitoring of the stakeholder management plan implementation for performance review and giving attention to stakeholder needs and negative influences arising during the process.

3.4.3 Feedback on Stakeholder Management

Feedback refers to data on the performance of a task which serves as a basis for improvement. Feedback on stakeholder management (SM) entails gathering information on the implementation of the strategies outlined in the SM plan. Consequently, there will be a change or control of the process. Stakeholder feedback is a tool employed for appraising SM to determine the needed adjustment and have the process back on track. Feedback control is critical to the health of SM success, and the project hence should influence the project planning process (Fewings, 2005). Stakeholder feedback can be deployed for SM evaluation and to determine what adjustments are needed to get the SM back on track and achieve success.

3.4.3.1 Types of Feedback

Feedback may be positive or negative, depending on how well the performance of the task is as influenced by several factors, including external environment factors identified in this study as critical challenges (Fewings, 2005). A major factor that leads to negative feedback is poor planning of the stakeholder management plan. Changes in stakeholder position, commitment, and attitude due to changes in expectation and needs also require consideration. Feedback is positive if the appraisal meets the baseline performance criteria set at the project planning stage, implying that stakeholders have remained committed and proponents of the stakeholder management objectives. The biggest problem with feedback control is the time required to measure an output and take corrective action to avoid feedback becoming reactive (Eskerod and Jepsen, 2013).

Studies also suggest that a control system can be feedback or feed forward (Fewings, 2005). While a feedback control system considers monitoring performance of set targets, identifying gaps and instituting corrective actions, a feed forward control system considers

- regular events, advance meetings ahead to discuss issues related to meeting objectives and stakeholders;
- taking a proactive approach that is reactive to avoid mitigation; and
- reviewing proper appraisal of feedback, among others.

3.4.3.2 Outcome of Feedback

Positive or negative feedback is an assessment result of overall satisfaction with the stakeholder relationship employed (Strong et al., 2001; Olander, 2006). A satisfaction model developed by Strong et al. (2001) suggests the need for feedback to determine expected and actual information that was implemented. Satisfaction with the information and outcome will lead to overall SM success and stakeholder satisfaction.

How well stakeholders fare is critical to achieving project results. Most attention has been on the front-end analysis with little or no consideration for the performance management. Project managers can arrange for stakeholders' feedback for evaluating stakeholder management to determine what adjustments are needed to get back on track. Existing frameworks fail to include implementation, monitoring and feedback together in a holistic model.

The stakeholder models reviewed for this study identified the need for feedback; however, as an indicator variable (Olander, 2006; Bal et al., 2013) while Yang (2010) posits evaluation and continuous support, and the PMI (2008) mentions report performance. Scholars have suggested the need for tools for feedback collection. Among the proposed tools are emails, online services, project social media platforms and report cards (PMI, 2008; Jepsen and Eskerod, 2013). Feedback request must be simple, precise and easy for stakeholders to have an interest in responding. Project managers should follow up a feedback request from project participants. Stakeholders' time is valuable, hence stakeholder consultation for feedback should be efficient as possible. The need for comments in the form of a report performance or evaluation with proper documentation cannot be overemphasised.

3.5 Gap Three: Conflict Management/Resolution

Conflict resolution and management are used interchangably as synonyms by different authors. While conflict resolution aims at finding an end to a conflict, management of the conflict reduces its negative impact. Thus, the study evaluates the influence of reducing the negative impact or eliminating conflict for enhanced SM. The study identified another aspect of stakeholder engagement in addressing needs, expectations and differences as relating to conflict and resolution. According to Aapaoja and Haapasalo (2014), each project participant has specific requirements with respect to the project, thereby creating fundamental conflicts with others. Also, is the many functions versus the inadequate funding (Aapaoja and Haapasalo, 2014). Other studies support that assertion suggesting that conflicts are at the root of most project management challenges (Olander, 2007), happening at both the strategic level (e.g. setting project objectives) and at the tactical level (e.g. change management) (Olander, 2007; Aapaoja and Haapasalo, 2014).

Conflicts in the project environment cannot be avoided but can be managed (PMI, 2008). Moura and Teixeira (2010) state that conflict is a fact of life. The nature of project development, the scarce resources and the several stakeholders involved are major causes of project disputes (Moura and Teixeira, 2010). As mentioned, the diverse stakeholders with different cultural, social practices and interests inevitably raise conflicts. Studies have shown that conflicts have been a major setback in project development and account for major project failure (Newcombe, 2003).

Also, negative stakeholder attitudes and stakeholder opposition can severely obstruct project implementation and SM success (Olander and Landin, 2005). The negative stakeholder influence on the Lund, Sweden railroad project and a 60-apartments housing project caused a delay for over six years. Olander and Landin (2005) identified that project stakeholders influenced the project beyond the project manager’s control, resulting in time, cost overruns and bad media publicity.

Furthermore Aapaoja and Haapasalo (2014) assert that challenges due to collaboration and the confrontational nature of construction stem from the culture and habit differences between team members and other stakeholders. The outcome of such conflicts are disrespect, mistrust, and rivalry among the project partcipants and these must be overcome (Dietrich et al, 2010). That is resolved by evolving and maintaining teamwork and stakeholder management during the project development (Dietrich et al, 2010; Aapaoja and Haapasalo, 2014). Managing conflict is vital as stakeholder management is about managing the relationship between the project and stakeholders

To address project conflicts, a project manager must realise that conflict is natural and requires transparency, focus and openness on the part of the project manager in resolving. Also, the project managers' leadership skills in predetermining conflicts and the possible types are essential. Stakeholders or parties involved in the conflict should show a willingness to resolve the differences. Conflicts may be addressed through analysis by identifying the type and cause. The types may include open conflict, hidden, latent, between two parties, individuals or more. Conflicts may arise when there are differences in objectives, interest, values, facts and personalities (Moura and Teixeira, 2010). Some of the known conflict resolution approaches are dialogue, negotiation, mediation and conciliation and arbitration.

3.6 Conclusion

The study set out to discuss the gaps identified in the existing stakeholder management literature reviewed. The SM frameworks and models had been developed from studies conducted in mainly developed western nations influenced by the construction industry practices and stakeholder types and to be assessed if they are appropriate for Ghana as a developing country. It deduced that project environmental factors prevailing in Ghana as a developing country differ from those of the western developed countries. Also, literature suggests that poor project planning, development and stakeholders' role have been a factor responsible for project failure in Ghana. In addition, this research examined the need for the identified gaps to be included in the proposed holistic sustainable stakeholder management framework for public-sector construction projects in Ghana.

Firstly, the research identified pre-stakeholder activities as having influence on SM success. Also, the project formation, planning, implementation, monitoring and feedback on stakeholder management plan are sub-factors that influence pre-stakeholder acivities. Considering pre-stakeholder activities for SM success is supported by studies' outcome that stakeholder management plans entail all the plans and strategies which are the output of the key factors related to stakeholder management success. However, the stakeholder plan is usually developed at the project planning stage and implemented during the project execution phase. During the project formation and planning stages, many stakeholders' interest are not taking into consideration and scope changes occur, hence the difficulty in achieving stakeholder satisfaction as a measure of SM success.

Also, the project managers' competence, leadership and experience in project and stakeholder management suggest the need for careful consideration as designers and team leaders are made project managers, not necessarily with knowledge and experience in project management. It must be mentioned that the discussion emphasised the role of the different procurement systems and the impact on the stakeholders and SM factors to be considered. Thus a pre-stakeholder identification factor that considers project definition, project managers factor, education and procurement system employed requires careful consideration for SM success. Project success centres on meeting stakeholders' needs and satisfaction which is an output of SM success. The best approach to meeting stakeholder needs is considering stakeholders during the project formation and planning stage and repeating the process through the different phases.

Secondly, this study discussed the role of implementation, monitoring and feedback as key factor for SM success and project delivery. Though other studies have mentioned evaluation or monitoring as key factors, this study discussed implementation, monitoring and feedback as a collective major factor for sustainable stakeholder management. The study revealed that stakeholder type and composition differ at different project phases. Also, stakeholder interest and needs are not static and change with time. Furthermore, stakeholder power attributes may vary and the support base increased, hence the need to monitor stakeholder influence at different stages of project implementation for changes in their commitment, interest and expectations.

On implementation, there is the need for full implementation of the stakeholder management plan, review and control of developments. Also, proactive response to changes in expected and actual satisfaction of stakeholders is a prerequisite for SM success. In chapter two this study discussed the adopted model which for studies suggest that each of the key factors, namely stakeholder identification, classification, prioritistion, analysis, communication and evaluation strategic plan must be fully implemented.

Thirdly, the thesis discussed conflict resolution/management factor as a gap in SM literature. It found that there is conflict emanating from the different stakeholder interests and project objectives. Also conflicts arise from the different cultures and work ethics. The conflicts need to be resolved or their influence minimised for SM success, both at the project planning and implementation stages. It is believed that by considering pre-stakeholder identification factors, conflict resolution, implementation, monitoring and feedback, sustainable SM success can be achieved. This will be characterised by excellent communication, continuous key stakeholders support, promotion of good relationships and trust, reduced conflicts; and improved stakeholder collaboration. These when achieved will lead to project success: reduced project time and cost, increased quality, stakeholder profit, socio-economic benefit, and the achievment of stakeholder satisfaction and needs.

There is a huge demand for infrastructure development in Ghana as a developing nation for socio-economic growth. Hence all the need for SM and project delivery success. Success should be considered with the emphasis on project success as meeting stakeholder needs and satisfaction asserts the need for sustainable SM implementation.

CHAPTER FOUR

STAKEHOLDER MANAGEMENT AND CONSTRUCTION PROJECT DELIVERY IN DEVELOPED COUNTRIES

4 Introduction

The earlier literature reviewed discussed the stakeholder, stakeholder management theory, and the gaps identified from the literature. Having deliberated on the SM frameworks and processes, key and related factors in general, this chapter focuses on the SM processes employed in the construction industries of selected developed countries. The aim is to identify the construction industry practices, the SM process used and the influence on construction project delivery. The study will further discuss the SM key factors, related factors, principles, challenges and critical success factors for the implementation of the SM process and the impact on successful construction project delivery. The role of government policies, education and professional bodies' embracement will be useful. The lessons learnt, gaps identified and best practices will serve as a guide in the development of a successful SM framework for the construction industry in developing nations and in particular for Ghana's public-sector projects.

There are several project participants involved in a construction project delivery, either as individuals or as groups. These several participants have interests (Bourne, 2005) or affected by the construction project delivery process (Freeman, 2010) or outcome hence are project stakeholders. Stakeholders have different needs, project expectations, work culture and diverse interests in the project. Furthermore, stakeholders may have assigned responsibilities and roles, varying levels of commitment, act as project proponents, or opponents, and therefore all activities related to them should be coordinated for the successful project delivery.

Several scholars have attributed construction projects' failure to the stakeholders involved and the construction industry practices and regulations. Other studies have suggested clients, designers, sponsors or contractors as being responsible. Also, factors such as the procurement systems, the historical development of the industry and the part of regulatory bodies have been cited as having played a role in construction project failure. This discussion will examine the view of two internationally recognised project management bodies, namely; the Project Management Institute (PMI) and the Association of Project Managers (APM). It will further emphasise the SM process employed in Finland, Australia, Hong Kong and the United Kingdom.

4.1 The Construction Industry and Project Delivery

Projects are the responses of specific needs. The construction sector is responsible for the physical realisation of a nations' infrastructure development for socio-economic growth. The industry is large and comprises supply chain members including designers, main contractors, sub-contractors, material suppliers and the construction product industries. Several factors influence project delivery, including the procurement systems, the external environment factors, project planning and implementation, communication, and stakeholder co-operation (Diallo and Thuillier, 2005). The diverse participants have different interests, work culture and expectations (Mok et al., 2015). Meeting stakeholder needs and satisfaction requires careful consideration and coordination of all activities related to individuals and organisations for the project success.

4.1.1 Project Success

Eskerod and Jepsen (2013) argue that project success is the sum of project product success and project management success. Identifying, managing and engaging stakeholders can ensure project success (Walker et al., 2008). Thus, project delivery calls for an understanding of the criteria for success among stakeholders. Criteria for success are not stagnant and may change as the project progresses, hence the need for both hard and soft rules. For a project to be successful, certain expectations for a given participant should be met (Alias et al., 2014)

4.1.2 Critical Success Factors

Critical success factors (CSFs) are the project management practice efforts which when considered can lead directly or indirectly to project success. They encompass many essentials which have to be harmonised to ensure project delivery on time (Alias et al., 2014). Research on project success and critical success factors (CSFs) is imperative for improving the effectiveness of project delivery (Chan et al., 2004). According to Alias et al. (2014), management action, project procedures, human factors, external issues and project related factors are critical success factors. Research has identified the following as constituting key success factors as well:

- Clearly stated objective,
- Rightly considered project requirements,
- Relationship based on trust,
- Top management support,
- Sufficient funds and other resources,
- Technical competence of the project team, and
- Excellent communication.

4.2 Procurement and Project Delivery

According to Von Meding et al. (2013), current procurement methods have resulted in an increase in construction projects stakeholders. Also, stakeholder identification, classification, procurement type and culture have been identified as determinants of stakeholder management success. Traditionally, the architects' role as the project designer have made them the team leaders. Consequently, the design and preparation of project documents were separated from tendering and project execution by a contractor (Holt et al., 1995). Many public projects' development employ the traditional or separated system. The traditional or separated system has tendering methods such as competitive, selective and negotiated (Fewings, 2005).

However, with developments in the construction industry (Eghan, 1988; Latham, 1994), other forms of procurement systems have evolved that are stakeholder focused. Construction procurement systems practised in the developed nations include the separated, integrated and management-oriented systems (Fewings, 2005; Rwelamila, 2010). The separated is considered as the traditional method while the integrated consist of design and build, design and build variants. Also, the management oriented has management contracting, construction management, design and management and construction management (Fewings, 2005; Rwelamila, 2010).

Partnering agreement is another form of contracting that has evolved following Egan's (1998) commendation on the use of partnering agreements among the supply chain members in the UK for improved project delivery. Different studies equally assert the use of partnering for public sector projects for change implementation (Morton, 2002; Fortune and Setiawan, 2005). Partnering as a procurement approach has caused a shift in the values of the UK construction sector. Ng et al. (2002) identified key factors related to successful partnering as identifying, commitment, trust, and stakeholder authorization in the project delivery process. Partnering is used widely in socially-owned housing projects (Fortune and Setiawan, 2005). According to Rwelamila (2010), construction project systems have a significant impact on stakeholder participation and stakeholder management.

Similar to Ghana, public organisations in developed countries such as the UK are required to accept the lowest valid tender. However, many construction clients have opted for the alternatives such as design and build or management contracting as these methods offer owner satisfaction (Holt et al., 2000). Choice of procurement method for a particular project should aim at delivering stakeholder satisfaction and project success. While the characteristics of a selected procurement system may achieve project success, the same system may be inappropriate for another project. Therefore, project managers must have both kinds of knowledge on stakeholder management and the characteristics of the procurement types to make the right decision.

4.3 Developed Institutions and Stakeholder Management

Every project involves several participants with diverse interests in the project activities or outcome (Nguyen et al., 2009). These paricipants who affect or are affected by the project are project stakeholders (Freeman, 1984). According to Bourne (2005), stakeholders are individuals and groups who have an interest in or some aspects of right in the project. Also, they contribute, can impact or are impacted by the project. Similarly, a project interrelates with its environment and location, hence the need to consider the competing demands by the project, stakeholders and the environment (Aapaoja and Haapasalo, 2014). Moreover, traditionally, stakeholders are determined by their role in project development.

Therefore, stakeholders may include the client, contractor, designer, end-user, sponsor, resident in the vicinity, non-governmental organization (NGO), media, lobbying organization, and government (Cova and Salle, 2005). Also, studies have identified the construction project stakeholders as clients, users, suppliers, owners, employees, customers, project manager, designer, legal authority, subcontractors, banks, insurance companies, media, the general public, civic institutions and the local community (Newcombe, 2003; Smith and Love, 2004).

Furthermore, Aapaoja and Haapasalo (2014) identified the client, end-users, main contractor, subcontractor, side contractors, main designer (architect), and other designers as stakeholders.

Also, identified as stakeholders are: public authorities, material suppliers, local residents, and the municipality council and statutory boards. Thus, the stakeholder relationship must have trust, commitment, transparency and active engagement. Stakeholder management success is about managing all the activities related to the diverse stakeholders for project success (Eskerod and Jepsen, 2013).

According to the UK Doughty Centre Cranfield School of Management Study (2009), SM has been used for over 500 NGO projects to enhance NGO community relationship on projects. The study outlined SM benefits as being proactive, anticipative, regular and defensive over crisis management which is reactive, vulnerable, episodic and hostile in the absence of SM. According to Aaltonen and Sivonen (2009), SM has documented more successes than failures in the area of project management. The Doughty Centre states seven stages of a systematic, logical and practical approach: plan, understand, conduct internal preparation and align, build trust, consult, respond and implement, monitor, evaluate and document.

According to Sutterfield et al. (2006), a project manager‘s view of the stakeholder management framework is the identification of project vision and mission, preparation of project SWOT analysis, formal identification of project stakeholders and goals, strategies, criteria on stakeholders management, and alternative management strategies. While each participant requires a management plan, the project manager must acquire resources to manage project members, implement agreed policies, appraise the implemented strategies and include continuous feedback. Similarly, Griffiths et al. (2007) state stakeholder commitment, collaboration and engagement as steps to ensure successful World Health Organisation/ World Economic Forum health projects. An empirical study by Rotomskienė (2011) in England and Wales on EU countries' national e-health action plan implementation revealed that practical application poses an even greater challenge and rather suggested the use of upper stakeholder engagement as recommended by Friedman and Miles (2006).

4.4 International Bodies View on Stakeholder Management

This study also consulted the stance of world organisations as the construction industry and government continue to depend on the World Bank, IFC and ADB for project funding. The IFC defines a stakeholder as a person or group directly or indirectly affected by a project as well as those who may have interests in a project and have the ability to influence its outcome either positively or negatively. The IFC's stakeholder lists are locally affected communities or individuals, their formal and informal representatives, national or local government authorities and politicians. Also included are religious leaders, civil society organisations, groups with special interests, the academic community, or other businesses, potential environmental or social impacts of the project.

4.4.1 The International Finance Corporation (IFC) Perspective

The IFC believes that early engagement with the interested parties enables a proactive cultivation of relationships. Also, the IFC has noted that organisations prefer to interact with stakeholders currently at the project initial stages. Likewise, it identifies stakeholder engagement as entailing activities and interactions over the life of a project. The IFC engagement plan for projects is in five stages. The stages are stakeholder identification, analysis, disclosing of information, stakeholder consultation and negotiating and partnering. The remaining steps are managing conflicts, monitoring the project together with the parties concerned, reporting to the project members and carrying out the stakeholder management functions.

4.4.2 The African Development Board (ADB) Perspective

The African Development Board (ADB), for instance, advocates for stakeholder participation in project development, a process through which people with interest and influence, share control over development initiatives, decisions and resources that affect their participation in project development. The African Development Board suggests stakeholder management must consider the following:

- Documentation of key interested parties,
- Discussing project material,
- Paying attention to their views,
- Having them participate in the development planning, and
- Participation in the decisions (www.afdb.org/fileadm).

The ADB outlines the first three levels as constituting consultation and key to project success and the final two for active stakeholder engagement. The ADB considers all interested parties who will affect the project directly or indirectly as stakeholders. In their opinion, the principal factor for successful participatory development is having the competence to identify all the stakeholders and documenting their needs and interests. Also, assessing the level of power to influence is crucial for analysing stakeholders. The ADB asserts that organisations must know who their stakeholders are when developing a project and relate to the stakeholders by considering their needs. Also, it is necessary understanding individual project members as their needs and expectations are different.

4.4.3 Other Bodies -The National Health System, (NHS) UK

The National Health System UK, established in 1948 as the public-funded health care system, has developed as a large body with several stakeholders. The NHS stakeholders include Members of Parliament, local councillors, elected representatives, media or local strategic partnerships, staff, patients, trade unions and regulators. The NHS in the UK establishes a relationship with their stakeholders while maintaining a focus on the interests of local people and communities (Gloucestershire Hospitals NHS, UK, 2012).

Stakeholder management is used extensively in the Department of Education and Health for the management of NHS project, facilities and other intervention projects. The Department of Education identifies stakeholders as people or communities that affect or are affected by the project or its outcome. Primary stakeholders are further are beneficiaries of development intervention or those directly affected (positively or negatively) by it. They include local populations (individuals and community-based organisations) in the project/programme area, in particular, poor and marginalised groups who traditionally would be excluded by the project managers from participating in development efforts. The NHS's view of secondary stakeholders is those with influence on development policies and indirectly affected by their project activities. The list includes borrowing government, project staff, implementing bodies, civil society and organisations. Also, included are the private sector firms, the bank and its shareholders and other development organisations.

A major factor in participatory development is the ability to identify stakeholders, their needs, interests, relative power and potential impact on project outcomes. It further advocates for greater engagement with stakeholder interests; ensuring services are delivered in collaboration with the interested parties and providing results which meet community needs; more significant opportunities to contribute directly to policy and programme development; and early identification of synergies between stakeholder and government work, encouraging integrated and comprehensive solutions to complex policy issues.

4.5 Developed Nations and Stakeholder Management

The United Nations unfortunately do not have any established convention for classifying countries as ‘developed’ or ‘developing’ hence countries’ classification according to their development status does not have an institutional basis (Lopes et al., 2016). However, the World Bank classifies countries based on income levels per capita, gross national product (GNP), or gross domestic product (GDP). Nations with US$12,276 per capita or over are identified as high-income countries or developed countries (World Bank, ADB, 2013). The International Monetary Fund (IMF) refers to them as ‘advanced countries’.

This section of the research reviews SM in three selected developed nations, namely Finland, Australia and the United Kingdom. The nations were selected after carefully considering the following:

(i) Stakeholder practice in those developed countries. In the UK, the executive structure has been used for over five decades, with an established professional body that regulates the practice;

(ii) Ties between the nations and West African countries, Ghana and Nigeria as former British colonies have many of their construction industry development fashioned after these developed nations;

(iii) Additionally, the availability of SM literature and scholars (McElroy and Mills, 2000). These include Lynda Bourne, Eskerod and Jepsen, Chinyio and Olomolaiye;

(iv) The use of their project procurement systems and contracts (Finnish and World Bank contract procedures); and

(v) The contrast in SM processes, the established best practices and the need for developing countries to learn from the developed (Ekundayo et al., 2013).

Ye et al. (2009) opine that the construction industry is a significant industrial contributor to the European economy regarding the gross national product and employment. The success of building projects is thus a fundamental issue to most governments, users and communities. This study explores the stakeholder management and projects’ development in the selected nations.

4.5.1 Finland

This subdivision of the study looks into stakeholder management (SM) and the construction delivery in Finland. It discusses the strategies and recognised agencies that support and impact on SM implementation, construction industry practices and project delivery. Further explored in this section are the critical success factors and challenges to stakeholder management implementation. Also presented is the role of principal factors including pre-stakeholder identification, implementation, monitoring and feedback strategies in successful SM process.

4.5.1.1 Background

Finland, once a province in Sweden, gained its complete independence in 1917. Though it lost a portion of its territory during World War II, Finland has successfully changed from a known farm/forest economy to become a diversified modern industrial economy with its per capita income stated as among the highest in Western Europe. Finland has been an EU member since 1995 and the only Nordic country as a member of the euro single currency since January 1999. Located in Northern Europe, Finland borders between Sweden and Russia, Norway in the north and the rest of the Gulf and Baltic Sea. According to CIA Factbook (assessed in 2017) with a total land of 303, 815 sq km, it manifests abundant natural resources. Most of the about 5.5 million population resides in the southern part of the nation with a sparse north location, a characteristic which is similar to Ghana except for the small geographical area and the population size. Finland is a democratic country with Helsinki as the capital.

Figure 4.1: Map of Finland

(Source: CIA World Factbook, 2016)

4.5.1 Historical Overview

Infrastructure provision contributes to the socio-economic development of the nation. Finland construction industry accounts for about 7% of the national labour force. A mutual interest organisation of building, select contractors and the construction product industry has been established as a Confederation of Finnish Construction Industries (CFCI). With, over 55,000 employees, CFCI promotes healthy development and strengthens the supervision of the interests and reputation of the construction industry in Finland as well as the vibrant and internationally-oriented business environment. The positive business environment enhanced the industry turnover and growth.

According to Statistics Finland (2016), the growth in building construction was high in 2016, registering 11.5% more turnover accrued than in the third quarter of one year in 2015: civil engineering produced 8.4% and specific construction activities 8.3% growth. The government's growth and competitiveness agenda aid the industry's growth. The period between 2009 and 2013 recorded a 2.34% Compound Annual Growth Rate (CAGR). A positive growth rate is suggested for 2014 to 2018 (Statistics Finnish, 2016). Literature also states the role of the Finish Association of Building Owners and Construction Clients (RAKLI) in addressing concerns related to legislation, taxation and other government policies (RAKLI, 2006). The outlook of the Finnish construction industry is positive, implying that

CFCI, the government and industry players all together resolve challenges and contribute to the successful project delivery

4.5.1.3 Historical Development of Stakeholder Management

According to Oyegoke (2006), Finland's construction approach serves as a convenient learning opportunity for stakeholder management development. Barrie and Paulson (1992) assert that the building industry is custom oriented, incentive driven and human factors centred, leading to a fragmented industry. The Finnish typical project development has five phases as identification, programming, appraisal, implementation, and facility management (Chinyio and Olomolaiye, 2010). A case studied by Aapaoja and Haapasalo (2014) indicate the use of the traditional system.

Though the construction industry share increased to 5% GDP in 2004, there is a stakeholder management concern related to ageing workers and declining skilled domestic labour force. Moreover, product development, value chain production and management are also part of the industry's concern. One of the industry's strengths is the involvement of the stakeholder community: the public, semi-public organisations and its private-public partnerships. This development has a positive influence on stakeholder management development. The construction project delivery includes residential, industrial and agricultural buildings. Together with the re-works and the comprehensive supply-chain, the industry consists of various stakeholder groups with varying interests.

4.5.1.4 Finnish Construction Stakeholders

As mentioned, there are several groups actively involved in the construction industry and project delivery. Oyegoke (2006) states that the Finnish construction industry has stakeholders similar to other industry practices in developed nations. These are construction clients, project users, supply chain members, financial supporters and the community/public. The project client is the owner who sources funding and contracts with the supply chain. The project users include the client, the public, groups or individuals. Meeting the needs and satisfaction of the end-user and the clients' targets constitutes project success. The nature of the project development also decides the end users.

The projects are for the residential, industrial, commercial, civic and agricultural purposes. The supply chain entails all stakeholders in the delivery network as project managers, design consultants, contractors, subcontractors, suppliers and specialist suppliers. Project sponsors in the Finnish construction industry include the financial institutions and insurance and security companies. Finally, the community and the public play a significant role in the industry. The local community and environmental groups also are stakeholders in project development.

In the development of stakeholder identification and classification for Finland, Aapaoja and Haapasalo (2014) also identified the stakeholders on two projects. The stakeholders are the client, the contractor, subcontractors, principal designer (architect) other designers, public authorities, construction consultant, sponsor, property management group, material suppliers, residents, the council and the board of the municipality. All these stakeholders fit into the broader classification of stakeholder groups in Finland (Oyegoke, 2006). However, absent were politicians, the traditional leaders, media and environmental groups as stakeholders influencing SM success.

4.5.1.5 Stakeholder Management in Finland

The SM in Finland is well integrated into the construction industry. According to Oyegoke (2006), SM is carried out

(i) by evaluating the needs and expectations of stakeholders about the project objectives and

(ii) by designing project management processes which enables active stakeholder interaction throughout project life cycle.

Stakeholder management is influenced by the procurement system used, the source of funding, the beneficiary group and environment impact. There are several approaches to managing stakeholders in Finland. That assertion is supported by other studies (Yang, 2010). However, there is a stakeholder management model which considers the following factors in the different phases of project delivery:

1. Early identification of stakeholders,
2. Identification of potential conflict areas,
3. Stakeholder education on project gains and harms,
4. Stakeholder engagement,
5. Involvement of other entities and following of due process, and
6. Management of the process (Oyegoke, 2010).

Aapaoja and Haapasalo (2014) identified the key factors in Finland influencing stakeholder management success. These are defining the project purpose and customer constraints; identifying project stakeholders according to their functional role, and assessing the stakeholder salience and the probability of their impact and ability to contribute. Stakeholders are also classified and prioritised according to four groups. While the Finland stakeholder considers a set of six principles at all project phases, Aapaoja and Haapasalo (2014) support the suggestion but argues for the consideration of stakeholder influence at the project's early stages.

4.5.1.6 Challenges and Critical Success Factors

While challenges refer to the key factors that impede or act negatively on project delivery, critical success factors refer to primary factors that, when carefully employed, will lead to project success. In the Finnish implementation of stakeholder management, the key elements are the management principles considered at every project phase. The principles are the early identification of stakeholders, conflict analysis, stakeholder education and engagement following due process. Also included are engaging the right government entities and carefully managing the entire SM factors. The critical challenges are meeting economic, social and environment requirements.

4.5.2 The United Kingdom

This section of the study discusses SM and the influence on successful construction project delivery in the UK. It examines the historical developments in the construction industry and the established bodies that support and impact on SM process implementation, construction industry practices and project delivery. Also considered in this section of the study are the critical success factors, challenges and the procurement systems' role in SM development in the UK. It identifies the major factors that are responsible for SM adoption in the UK construction industry. The conclusion of the chapter outlines lessons learnt from the UK case study.

4.5.2.1 Background

The United Kingdom is found in Western Europe, between the North Atlantic Ocean, the North Sea and north-west of France with a land area of about 241,930 sq km. With a population of 64,430,428 and as one of the fastest growing economies in the G7, UK has a

GDP per capita (PPP) of $42,500 (2016) and a GDP real growth rate of 1.8% (2016). Ghana as a former colony of the United Kingdom has adopted the UK's political administrative, education, construction, project management and procurement systems. The UK's role and support as a sponsor of some infrastructure development have influenced project development process hence stakeholder management in Ghana (Eyiah-Botwe et al., 2016).

Figure 4.2: Map of the United Kingdom (Source: CIA World Factbook, 2016)

4.5.2.2 Construction Industry Historical Overview

The UK's construction sector, nature and outlook, like that of other countries, are important to the nation for several reasons, including the sector's influence on the socio-economic, and physical infrastructure for increased productivity, housing for shelter, education, health and civic responsibilities (Ofori, 2012). Also, the industry contributes significantly to the gross domestic product of the nation. According to Chinyio and Olomolaiye (2010), between 8 to 10% of the GDP and the relatively small growth output is a constant attraction to the UK government. Bal et al. (2013) quote the Strategic Forum for Construction (Strategic Forum) as stating that the UK construction industry records an annual turnover of more than £100 billion and accounts for almost 10% of the country's GDP. According to UKCG (2009) the UK construction sector remains a driver of growth in other areas because of the dependence on a comprehensive and diverse supply chain". However, it is fragmented with 80% of projects involving one-off clients (Chinyio and Olomolaiye, 2010)

According to Newcombe (2003), in the last 50 years the United Kingdom has seen the role and nature of the construction client change dramatically. According to McGrath and Horton (2011), the two most extensively referred construction industry reports into the UK construction (Latham, 1994; Egan, 1998) emphasised the need to improve areas of efficiency, quality and customer satisfaction in the construction industry. Global statistics indicate an estimated 7 to 10% of the global workforce works in the construction industry (Mwanaumo; 2012, Murie, 2007; ILO, 2005). The building sector therefore affects the growth of the economy owing to its labour employment. The global recession influences the UK construction industry like prevailing economic conditions in other developed nations, and the industry depends mainly on public sector capital investment (South African Construction, 2014). The industry affects all other areas of the economy and vice versa.

According to the UK Office of Government Commerce (OGC) (2009), the construction industry is a driver of growth of other sectors. As a vital area of every economy and depending on the government, the sector can be an economic regulator (Ofori, 2012; Hillebrandt, 2000). As stated, the Latham (1994) and Egan (1998) reports suggested a construction approach which is stakeholder focus. The UK government recognised the use of modern methods of construction (MMC) as a mean of addressing some of the highlights in the Latham (1994) and Egan (1998) report (McGrath and Horton, 2011). One area identified with production shortage but which stakeholder involvement and satisfaction were critical is housing. The government of UK resolved that effective in 2004 a quarter of new publicly funded social housing need would use MMC (Lovell, 2003). The adoption of this trend which depended on supply chain and had to meet stakeholder satisfaction enhanced stakeholder management in the UK.

Also, the public concern about the new approach required public education on the perception and involvement. Designers' understanding about the delivered project was different from the end-users. Stakeholder management was inevitable as an attempt to evaluate building from the end-users' perspective. There was the need for monitoring and feedback as that was useful for appraising design skills more efficiently; improving user requirements; improving management procedures; and knowledge of design guides and regulatory processes; (Whyte and Gann, 2001; Hadjri and Crozier, 2009; McGrath and Horton 2011). There was the need for a single point procurement route; and relatability (Rogan et al., 2000).

According to Harris (2010), the formal historical appraisals have ensued in the different forms of contract development and stakeholder interactions: separated, management, integrated and discretionary. The newly established procurement methods are more stakeholder focused, and major players such as the client, project manager, designers, contractors and supply chain are brought into a formal contract. The trend was aimed at enhancing stakeholder management and attaining stakeholder satisfaction. Rwelamilla and Savile (1994) state that construction projects must be considered in terms of the environment, country, location and the project type. There is a relationship and impact of procurement system on SM process as the different contracts place dissimilar stakeholder responsibilities (Harris, 2010; Rwelamila, 2010).

Projects cannot be established, accomplished and benefits gained without considering stakeholders (Eskerod and Jepsen, 2013). The new developments in the sector regarding stakeholder focus and procurement, among others, influenced the construction industry. Stakeholder engagement is increasingly becoming an aspect of construction project management to deliver excellent project outcomes (Bal et al., 2013). Also, SM and corporate culture are two related and important considerations for the UK construction industry project success (von Meding et al., 2013). In addition, Fewings (2005) states that top management support, detailed programmes, project objectives clearly defined, communication monitoring and feedback are some of the top ten major success factors for project delivery in the UK.

4.5.2. Historical Development of Stakeholder Management

This change can be attributed to the emergence of the project 'stakeholders' concept which defines clients to include users of the facility and the local community (Newcombe 2003). Construction sector reforms also have emphasised a stakeholder focus in project delivery. Stakeholder management (SM) evolved as an outcome of formal construction industry reviews. One such result are the different forms of contract, a trend depicting active stakeholder involvement, more successful project delivery, enhanced stakeholder satisfaction, and appropriate contractual arrangements for stakeholder management. The five-stage project planning approach also is stakeholder focused. Verification of the needs stage suggests the need to identify all stakeholders and the project sponsor or client.

It is important to appoint a project manager to lead the assessment of project options stage. The project manager and the client play an essential role during the development of the procurement strategy. This planning stage ends by choosing the appropriate approach. The stakeholder management approach is influenced by the position and identification of stakeholders, the selection of the right project manager, and choice of an appropriate procurement strategy, integrated and innovative solutions.

Newcombe (1996) investigated the view of projects as a coalition of powerful individuals and interest groups. The outcome was that stakeholders interact with the project from a cultural and political arena. In the area of culture project participants with shared values and ideology cooperate to promote or force a project change. On the other hand, stakeholders with power and interest may exercise their power to achieve their objectives as against the benefit of other project participants (Newcombe, 2003).

Harris (2010) presents the chronology of stakeholder management as follows:

- Early reports consider placing, management of contracts, the construction industry problems, communication, interdependence and uncertainty as stakeholder issues;
- There was clients' dissatisfaction and mistrust among client's, consultants, contractors and subcontractors (Latham 1,1993);
- The potential for productivity improvements existed in better procurement practices which advocate for teamwork (Latham 2, 1994);
- Improving procurement and management requires better communication and negotiation of deals (Levene, 1995);
- The existing inefficiency, unpredictability and customer dissatisfaction demands best practice and innovation for increased delivery and a reduction in project completion times (Egan 1,1998);
- There is a need for collaboration among members of the supply team. Partners and stakeholders are crucial for project success (Egan 2, 2002);
- The National Audit Office between 2003 and 2005 reported adversarial relationships, benefits of partnering, modernising construction, PFI, PPP, prime contracting or design and build adoption; and
- Greater strategic leadership, more integrated and innovative solution (DCLG, 2007).

The most significant deduction from this development is a proposal or reform centred on stakeholders and a change in the procurement system which encouraged early identification and involvement of all project participants and, if necessary, retaining project teams.

4.5.2.4 The United Kingdom and Stakeholder Management (SM)

As mentioned, the reforms encouraging stakeholder consideration in project delivery and success initiated a process of SM adoption in the UK. Reeds (2008) states that where relevant, project participation should be considered early and throughout the process, representing relevant stakeholders systematically. Also, the process needs to have clear objectives at the outset and mostly highly skilled facilitation. Stakeholder management should be a central competence in construction (Chinyio and Olomolaiye, 2010).

Also, SM is about managing relationships and must be managed proactively. Meding et al. (2013) in developing a framework for SM and corporate culture, identified SM and organisational culture as the main areas of an organisation's success, with its importance increasing in future. Zabid and Rashid (2003) also assert leadership and not simply management as key to establishing a resilient and positive culture. Stakeholder management emphasises understanding the nature of relationships and project participants needs to be managed (von Meding et al., 2013). Project SM is employed in different sectors such as education, health and the construction industries. Key among the research findings are the early participation of stakeholders, consideration of stakeholders' culture, identifying project vision and objectives before formal identification and the role of leadership in ensuring successful stakeholder management process. The study identifies the following factors (Table 4.1):

Table 4.1: Stakeholder Management Models Developed in the UK

	Developer/s (Year)	Theme/area	Stakeholder management factor
1	Sutterfield et al.(2006)	Project management	Identify project vision and mission, conduct SWOT analysis; determine the stakeholders and their need; identify both selection criteria for stakeholder management strategies and alternative; choose PSM strategy for each stakeholder; acquire and allocate resources for stakeholders management; implement the selected PSM strategies; evaluate the implemented PSM strategies; seek and incorporate continuous feedback
2	Reeds (2008)	Environmental	Stakeholder participation needs to be underpinned

		management	by philosophy as early as possible and throughout the process; analysed and represented systematically; clear objectives agreed at the outset; decision-making and appropriate level of engagement; highly skilled facilitation is essential and must be institutionalised
3	UK Doughty Centre Cranfield SMS (2009)	Project management	Logical and practical approach; plan; understand; conduct internal preparation and align; build trust; consult; respond and implement; monitor, evaluate and document.
4	Chinyio and Olomolaiye (2010)	Construction projects stakeholders	Involves identifying and classifying stakeholders for initial and subsequent engagements with stakeholders; timely, planned and in a coordinated manner
5	Bal et.al (2013)	Sustainability	Identify all key stakeholders; relate the stakeholders with sustainability targets; prioritise the stakeholder; manage stakeholder; measure performance; put goals into action

It that on a construction project, different stakeholders' types are involved must be mentioned in various phases such as pre-design, design, bidding and construction. Researchers have always suggested a formal identification to be considered as a means of defining parties to include all stakeholders (Andersson et al., 2006).

4.5.2.5 Challenges and Critical Success Factors

The study explored significant barriers and success factors regarding successful stakeholder management process in the UK. The research considered both project management and SM key factors. According to Hardcastle et al. (2005), efficient procurement, project implementation, government guarantee, and favourable economic conditions are some major success factors for project delivery. The Doughty Centre for Management emphasises stakeholder engagement, a proactive, anticipative approach and planning regular activities. Likewise, Reeds (2008) mentions stakeholder participation based on trust and education, clear objectives, real and systematic analysis of stakeholders. Also, von Meding et al. (2013) mention corporate culture, the client and project manager factor in addition to established factors. Similarly, mention is made of a lack of communication and clear purpose, leadership behaviour organisation culture and hidden stakeholder intention as significant challenges.

4.5.3 Australia

This research further discusses Australia as a developed western nation with leading scholars in the stakeholder management discipline. Also, it can be considered as a hub of the project management profession next to the US. The study examines the background as a nation, historical overview of the construction industry, and project stakeholders with emphasis on building stakeholders, the evolution of stakeholder management SM, the various SM processes and frameworks, barriers to and critical success factors for successful SM process. Lessons learnt will be incorporated in the development of stakeholder management for Ghana.

4.5.3.1 Background

Figure 4.3: Map of Australia

(Source: CIA World Factbook, 2016)

Australia, though a country, is also an island continent between the South Pacific and Indian Oceans. It has an estimated population of nearly 23 million and a land area of slightly less than 7, 700,000 sq. km in 2016. The country has a large ageing population with most the people living in the urban centres. The large service centre accounts for 70% of the GDP. The twenty years of continuous growth record has resulted in a stable and robust economy with a per capita of $48,800 (The World Factbook, 2017).

4.5.3.2 Overview of Australian Construction Industry

Although Australia's construction industry has prospects, these are countered with challenges. The industry perceives innovation as the way forward for the sector, and the government remains committed to developing the industry and strengthening competition for improved output. The area is identified as having the potential to enhance the economic growth by way of employment and impact on the service industry. The industry's current labour force is over a million representing and accounting for 8% of the nation's GDP. There is increased infrastructure investment, and the introduction of legislation and innovative policies to make the sector more significant. The industry's activity and growth are indicators of the national economic performance; hence it requires government support.

There are also barriers to the growth of the industry. One such challenge is government's interference arising from the perception that the sector is not well managed in the absence of a regulator. The Australian Building and Construction Commission (ABCC) is the regulatory body and was ended in 2012. Though the ABCC has in a way been re-established through a new Building and Construction Bill, the challenge faced is the urgent need to increase competitiveness, output and improvement in work relationships. The ABCC also has an additional problem of protecting trade unions while introducing innovative ideas. The existence of these challenges implies there are stakeholder challenges relating to manager-employee relations, trade unions and low industry regulation.

Another challenge is the ageing population which is not peculiar to the industry alone. The ageing population has affected employment as there is a demand for both skilled and under-training labour force: making the situation worse is the differences in the school of thought on experience and hard work on one side and education and technology on the other hand. The sector has little choice as there is a need for reconciliation of both stands to ensure that the required infrastructure, namely schools, hospitals, industries, roads and rails lines needed are built, and the needed value is created.

Project success and failure depend on stakeholders' view of the project value and the type of relationship developed within the project team (Bourne, 2005). Project managers (PMs) are challenged in identifying opportunities to innovate. They have to meet the needs created by construction site difficulties and stakeholders involved due to the difficulty in implementing the innovation at other project sites owing to different site conditions and stakeholders. PMs should play and exercise leadership authority (Eskerod and Jepsen, 2013).

Though challenges persist, construction projects' unique nature, design, environment factors and stakeholders involved demand daily adaptations. According to Bourne (2005) project managers must consider project development and stakeholder relationships for projects to succeed. The sector must resort to the constant generation of project management new ideas, addressing clients' challenges, improving competitiveness and delivering value. Adaptation to innovation calls for standardisation within the sector to ensure that benefits are transferable. Stakeholder management is a soft skill innovation aimed at enhancing project relationship management, delivering value and reducing the risk for project success. PMs must conceptualise broadly how to manage project stakeholders (Eskerod and Jepsen, 2013).

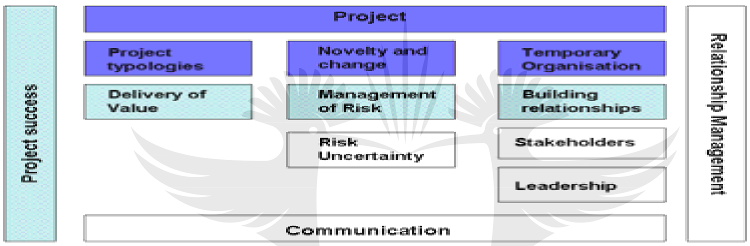


Figure 4.4: Project success and Stakeholder Management

(Source: Bourne, 2005)

4.5.3.3 Stakeholders and Stakeholder Management

The study explores those who constitute stakeholders in the Australia construction industry by critically examination stakeholder definition by two leading Australians SM scholars, Lynda Bourne and Derick Walker. According to Bourne and Walker (2006), stakeholders are individuals or groups with interest, some aspect of right or ownership in the project. Stakeholders may also add to the project development by way of contributing knowledge or support, can impact or be impacted by the project (Bourne, 2005). Walker (2003) states that stakeholders' support and cooperation should be vital for the project success. Stakeholders, therefore, include client organisations, project sponsors, project leaders, project core team members, end users, external team members, suppliers, sub-contractors, the community and concerned groups. It is worth noting that those interested can include invisible team members (Walker, 2003)

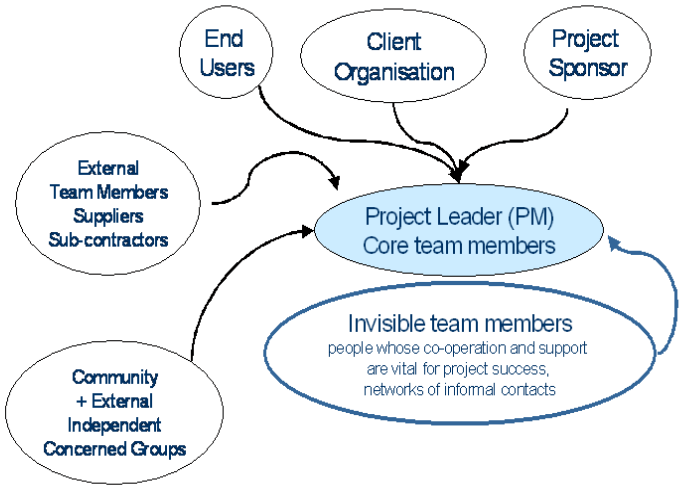


Figure 4.5: Stakeholder model

(Source: Bourne and Walker, 2005)

Stakeholder management is a soft skill innovation evolved out of project management. The 'hard skill' was developed out of the traditional approach to project management and emphasises managing and controlling time, cost and scope to achieve project quality (Morris, 1994; Bourne and Walker, 2004). The development of SM is necessary because of the persistent project failure attributed to stakeholders' behaviour and attitude in project development. SM is essential as project participants may change in supporting project objectives, power and commitment, leading to project failure. It is therefore not enough to identify interested parties at the project beginning, but also, project managers must establish a relationship to sustain their commitment and support through effective engagement. Maintaining relationship implies that there is a need to manage the stakeholders throughout the project process. The SM success requires that stakeholder identification is repeated at different project stages, stakeholders are prioritised, and that PMs devise an engagement strategy for a long-term relationship with each stakeholder as needs and expectations are different. Project management education by institutions and the project management professional bodies have aided SM development in Australia.

4.5.3.4 Historical development of SM in Australia

Stakeholder management is influenced by the historical development and documentation of Australia's project management. Leading members, Bourne, Walker and Weaver double as scholars in SM and are prominent members of the Australian Institute of Project Management (AIPM). Bourne and Walker (2006) propose an SM process of identifying stakeholders, gathering information about interested project parties, prioritising, and analysing the influence of stakeholder for project management in Australia.

According to Stretton (2016) the 1950s established a PM development need but this only materialised in the 1960s. Historical records suggest that project management development began with NASA's adoption of PM for the Apollo programme development, then the formation of International Project Management Association (IPMA), the creation of the Project Management Institute in North America and more importantly, for Australia. Also, Civic and Civic (a construction firm) began to establish processes to manage project design and build. By the 1970s the finance, law and government sectors had adopted PM. The PM as a discipline expanded, leading to the formation of the Project Managers' Forum (PMF) and subsequently the AIPM. In the 1980s, networking commenced and mega projects started using PM. There was a need to develop standards and also certify project managers as a discipline. Also, the Australian Capital Territory released a Microsoft Project software programme in 1987 followed with the development of the PRINCE project management methodology. In 2008, PMBOK Guide introduced SM as part of project communication knowledge area (PMI, 2008) and as a substantive knowledge area and PM soft skill in 2013 (PMI, 2013). The PM skills, knowledge and experience are vital for project success. Stakeholder management is an innovation, a new strategy that has been used to engage stakeholders to achieve stakeholder satisfaction and project success (Bourne and Walker, 2006).

4.5.3.5 Critical Challenges and Success Factors

The literature has revealed that there are challenges to the SM development and practice in Australia. The barriers include the external environment factors such as government legislation and dissolution of the Australian Building and Construction Commission (ABCC) leading to the absence of a regulator. Stakeholders are reluctant to embrace innovation. Additional barriers are project managers' knowledge, skill and experience in the SM discipline, the presence of invisible stakeholders, changing positions of interested parties and inability to identify all stakeholders and needs at the project planning stage.

The critical success factors include strong PM knowledge, the influence of practitioners, historical documentation of the process, and the dire need for innovation to address industry's challenges. Bourne and Walker mention establishing a good relationship through active engagements.

4.6 Stakeholder Management in the UK, Finland and Australia

The three developed countries mentioned in the study have identified projects development and the construction industry as having the potential to improve the economy. That is through employment, influence on the service and the manufacturing industry. Thus it is essential to consider stakeholder management success for successful project delivery. Industry practitioners must make every effort to reduce project failure while enhancing the achievement of stakeholder needs and satisfaction. Well-thought policies were necessary for the development of the construction sector to ensure project success. These include the following:

- Documentation of the construction industry processes and impact on project management and success;
- Introduction of innovative ideas to make the building sector more competitive and sustainable;
- Addressing the issue of ageing labour force and misconception on innovation;
- Changes targeted at improved stakeholder relationships, meeting needs and expectations;
- Establishment of healthy industry regulatory body to manage the activities of the sector;
- Well considered project development with clearly defined project goals that meet stakeholders' needs and expectations;
- A procurement system which is stakeholder-focused such as design and build, partnering and management systems; and
- Development of stakeholder management processes for improved construction project delivery as employed in other sectors.

4.7 Lessons Learnt

The chapter sought to identify the construction industry practices in selected developed nations and explore SM models, key factors, challenges and critical success factors. Moreover, government policies, education and professional bodies' role in stakeholder management success were discussed. The innovation to develop SM to enhance construction project success is justified as the discussion revealed the following:

- Over 500 projects have been successfully delivered by employing SM;
- Projects that adopted SM recorded success than failed in meeting stakeholders' satisfaction, reducing project cost and time;
- Early identification and participation of stakeholders enhanced identification of the needs and expectation of project participants, reducing project conflicts;
- International bodies such as the IFC, ADB and national agencies such as the NHS in the UK encourage and use SM for their projects; and
- The emphasis is on proper project planning and stakeholder engagement.

Also, the literature revealed that all the developed nations had a documented chronology of construction industry practices and development. The documentation and reviews led to the change towards stakeholder focus in project delivery and improvement in project success. For projects' successful development there is the need for clear project objectives and planning at the initial stages of the project. The clearly stated goals are achieved through early identification of stakeholders, needs, expectations, power and influence on the project.

Innovation in project management is a key to project success. The nations examined have developed SM processes to assist project managers to manage stakeholder relationships throughout the project delivery. No single SM framework is used. However, there are clear suggested principles which include proper project planning, early identification of stakeholders, stakeholder classification and prioritisation, analysis, engagement, monitoring and feedback. Top management support and the project manager's experience, competence and leadership are critical. Also, it was revealed that no single procurement system is used though the system used impacts on SM success and project delivery. The innovation is the adoption of procurement policies that ensure early stakeholder participation in the project process. The next chapter will focus on developing nations.

4.8 Conclusion

The study discussed the construction industries, project delivery and stakeholder management (SM) by recognised world bodies and developed nations with best practices in SM in the construction industry. The IFC, ADB and NHS in the UK were examined. Also, the UK, Finland and Australia were noted for best practices in SM with Finland having a SM model for the Finnish construction industry.

The chapter concludes that project stakeholders have influence, affect and are affected by project outcomes. Likewise, the construction industry, project planning and development influence SM success and project delivery. Also, SM is employed as an innovative approach to enhance stakeholder participation in project development and success. Stakeholder types in the construction industry do not vary but there are different approaches to stakeholder management, hence the different models, frameworks and processes. However, the study found that the key factors for stakeholder management success are good project planning, early stakeholder identification, and good stakeholder assessment of needs, roles and interests. Also included are engagement, communication, resolution of conflicts, monitoring, and evaluation. Studies, however, suggest the need for a formal stakeholder management model.

Lastly, the study found out that stakeholder management success has led to enhanced project success rather than failure. The success is measured by the achievement of project set targets of time, cost and performance. Also included is the achievement of stakeholder needs, satisfaction, relationship, collaboration and project gains.

CHAPTER FIVE

STAKEHOLDER MANAGEMENT AND PROJECT DELIVERY IN DEVELOPING COUNTRIES

5 Introduction

Developing a sustainable stakeholder management (SM) framework for construction projects in a developing nation needs an understanding of the construction industry's historical development, current practices, the influence of its output and the industry players. It is worth mentioning that the construction industry practices in developed countries are different from those in developing countries. This chapter will emphasise the global view of the construction sector, the role of the industry in the development of infrastructure in a nation and successful project delivery.

For an in-depth understanding of the role of the industry in project implementation, three selected developing countries, namely Malaysia, South Africa and Nigeria, will be examined. The chapter will present the background of the nations, discuss the construction industry, project success and the stakeholders involved. Also, it will look into the project management practice with a focus on SM process, the impact of procurement systems used and industry practices on successful management of the stakeholders for project success. It further considers critical challenges and success factors and concludes by comparing the three countries and outlining the lessons learnt.

5.1 Global View of the Construction Industry

Globally the construction sector has a significant role in the achievement of socio-economic growth in developing countries. According to the World Bank Development Report for 2015, the present world population of 7.3 billion is projected to reach 8.5 billion by 2030. The expected increase in population demands growth in physical infrastructure development. According to the World Bank, the International Bank for Reconstruction and Development and the International Development Association (World Bank IBRD-IDA, 2014), developing countries are encountering huge infrastructure deficits. Despite the significant progress in the past decade, many people lack consistent and essential services. The report states that 1.2 billion individuals are living without electricity, 1 billion people live more than 2 km from good roads (rain or shine) and 748 million lack access to potable drinking water (World Bank

IBRD-IDA, 2014). The World Bank's projection suggests that infrastructure investment needs to be doubled to 30 billion US dollars to achieve the Millennium Development Goal aimed at poverty reduction (Van Wyk, 2003; Agumba, 2013). The lending commitment of the IBRD in the fiscal year of 2017 amounted to $22.6 billion (World Bank Report, 2017).

Studies suggest that approximately 85.4% of the total world's population live in developing nations (Othman, 2013). Governments of developing countries undertake major infrastructure projects to meet the socio-economic sustainable growth objectives (Zeybek and Kaynak, 2006; Cohen, 2006). The sustainable growth is realised through the development of educational, residential, recreational, cultural, health and industrial facilities. Also, there is the need to develop roads, sanitation, drainage system, telecommunication, electricity and water supply as services infrastructure.

According to Van Wyk (2003), again, globally the sector is responsible for 28% of all industrial workers with 25% in the construction area. In developing countries, micro construction firms, including non-formal registered groups, are responsible for 90% of construction workers while 97% of these construction companies are small and medium enterprises. Only 3% are big firms which means that the building sector has a very low percentage of large companies globally. Furthermore, the construction methods and types vary between the developed and developing countries. Many construction projects in the developed countries are aimed at the maintenance, renovation and expansion of existing infrastructure. On the other hand, and as a result of inadequate infrastructure, most projects in developing countries are new projects and labour intensive.

Developing these infrastructures requires massive capital investment which may constitute about half the total of the nation's investment (Van Wyk, 2003; Agumba, 2013; Othman, 2013). While the government makes budgetary allocations, and arranges for the finances, the construction industry is responsible for the successful implementation and delivery. These projects mentioned have socio-economic goals but also impact on several other sectors of the economy. The importance is the reason why projects managers must deliver successful projects.

5.1.1 Importance of the Construction Industry in Developing Countries

The construction sector contributes to the economic development and activities, hence has significance in the development of a nation globally (Ofori, 2012: Durdyev and Ismail, 2012). The importance of the industry includes the following:

- The outputs and outcomes which are development contributions to socio-economic development. The realisation of physical infrastructures such as schools, housing and hospitals addresses social and basic needs;
- The area's input to the gross domestic product (GDP) of the nation. Literature suggests that the sector contributes between 5 and10% of the GDP of most developing countries;
- Assisting a government to achieve its planned direction of economic growth. Since infrastructure investment is huge and has an effect on other areas, the government will invest in that sector such as education, manufacturing, agriculture;
- The many complex linkages. Investment in the manufacturing infrastructure can increase production which will impact on commerce, the financing sector, employment and eventually affecting livelihoods; and
- Large and responsive. The sector has several participants and supply chain units.

Also, infrastructure development has played a significant role in political governance. Infrastructure development performance is perceived as a fulfilment of campaign promises and a measure of political success. It is common in developing countries for political parties and ruling governments to refer to school buildings, hospitals, housing projects, and electricity expansion as a measure of achievements or development intentions aimed at improving the well-being of the people. Nevertheless, there is a persistent report of construction projects' failure in developing countries. Studies attribute failure to several challenges. Othman (2013) opines the categories of problems as: engineering; human development; managerial and political; sustainability challenges. Except for the engineering problems which are both capital and human, the remaining challenges are mainly social and stakeholder problems associated with mega construction projects undertaken by developing countries for accelerated development.

Furthermore, Othman (2013) identified 45 challenges related to the development of mega construction projects by developing nations. Interestingly, 40 of the challenges are related to the project development approach, participants and especially the project management process. The findings suggest the need to reconsider the role of project participants and the project planning approach in developing countries. This chapter reviews the role of the construction industry and participants on SM success and project delivery of three selected developing countries, namely South Africa and Nigeria. The discussion further considers the critical challenges and success factors for the successful management of stakeholders and the impact of the procurement methods adopted. It finally examines Malaysia as a non-African developing country.

5.2 South Africa

The following section discusses the concept of stakeholder management SM as practised in South Africa. Though the discussion is on project SM, the emphasis will be on the construction stakeholder management process and its impact on successful project delivery. Since SM is a project management soft skill, the discussion looks into the project management practices, the policies, legislations and the bodies involved in construction project delivery. Again, government legislations, interventions, construction industry development and the influence on SM are presented. The study shows interested project parties are considered as stakeholders in South Africa. The annual report of the Construction Industry Development Board, CIDB (2016) is extensively reviewed regarding project procurement, construction industry performance and stakeholders. Also, critical success and barrier factors to SM success and construction project delivery related to stakeholders are explored.

5.2.1 Background

South Africa lies at the southern end of the African continent. According to the World Factbook (2016), South Africa has a total land area of 1,214, 470 sq km and shares boundaries with six African countries. The countries are Botswana, Lesotho, Namibia, Mozambique, Swaziland and Zimbabwe, implying that people are living in South Africa from these neighbouring countries whose cultures will impact on the South African culture. The construction industry is likely to be influenced by the work culture of these several neighbouring nations. The population is estimated at 54,300,704 million (World Factbook, July 2016 established) with the majority of the people as black African (80.2%) and a minority, namely 8.4% coloured. Though not the most populous nation in Africa, the high population has an attendant demand on infrastructure provision, varying needs and expectations.

There is a high unemployment rate and as such a large dependency group which is attributed to the apartheid regime and the large immigrant population in South Africa. A large number of immigrants are the results of the struggle for freedom which brought support from the neighbouring countries and the relatively better economy of South Africa compared to the surrounding nations. The multi-ethnicity and religious affiliations have an impact on attitudes and work culture which impacts on all sectors, including the construction industry and stakeholder management. The cultural issue raises problems related to official communication, needs and expectations of the people. Also, there is a challenge of the ageing population and high mortality rates which can have an impact on the effectiveness and replacement of the present labour force.

Figure 5.1: Map of South Africa.

(Source: CIA World Factbook, 2016)

South Africa's history dates back to 1652 when Cape Town was founded by the Dutch as a stopover city. Following the invasion in 1806, the Dutch who had settled in South Africa (*Boers*, Afrikaners) as farmers moved up north of the country and established their homelands after possessing the lands of the native blacks. History records that the British and the Afrikaners governed together after 1910, first as the Union of South Africa and then as the Republic of South Africa in 1961 after an all-white referendum. The long reign of the white minority had an influence on infrastructure development and the construction industry. Though considered as a developing country, the major cities in South Africa can boast of infrastructure development such as roads, electricity, water and good education infrastructure that matches most developed nations.

The policy of apartheid was introduced in 1948 after the election to power of the Afrikaner-majority National Party (NP). The NP's apartheid policy was opposed by the African National Congress (ANC). In 1994, the first multi-racial election was conducted which ended the apartheid regime and ushered in the majority democratic rule of the ANC under the leadership of the late Nelson Mandela. This development had a significant impact on infrastructure delivery, distribution and the construction industry. The government and the construction sector have since been confronted with challenges and the urgent need for the provision of adequate and decent housing, education, health and social infrastructure for the deprived indigenous black South Africans and the rural communities. The situation is compounded by the existence of several political parties who have opposing views on the governance of the nation. The contrasting views raise the presence of political stakeholders in the construction industry and like many African and developing countries, infrastructure development is used to assess the performance of ruling governments.

Unlike many developing countries where the administrative, legislative and judicial capital is the same, South Africa has Pretoria, Cape Town and Bloemfontein as administrative, parliamentary and judicial capitals respectively. Also, there are nine central provinces, namely Eastern Cape, Free State, Gauteng, KwaZulu-Natal, Limpopo, Mpumalanga, Northern Cape, North West and the Western Cape. The decentralised administrative system has an impact on infrastructure development and hence the construction industry. There is the need for good roads to link the three capitals of the arms of government, the nine provincial administrative capitals and public infrastructure provision.

South Africa is a recognised as a middle-income nation with well-developed financial, legal, communications, energy, and transport sections which primarily impact on the building industry (World Factbook, 2016). In addition, there is a common power supply, sewage and good water-supply challenges (Meyer, 2014). However, there is a high level of unemployment among the black youth. Also, economic growth declined to 1.5% in 2014, an occurrence which impacts negatively on the construction sector. The nation is encountered with structural challenges which have led to a shortage of essential skills and limited economic growth. Job creation has become a major issue to the ruling government. With a GDP per capita of $13,200 in 2016 and a lower growth rate compared with the previous year, there is a negative impact on the sectors of the economy, including industry which contributes 29.2 % of the GDP and employs a labour force of 21.7 million. The government is faced with a bigger task of delivering the infrastructure needs of the millions of poor South Africans regarding housing, good roads, sanitation, power, and water supply (Tissington 2011; Aigbavboa, 2013).

5.2.2 Historical Development of the Construction Industry

The sector's historical development starts from the days of apartheid. As revealed by literature, the development policy by the National Party after re-elected to govern in 1948 was to ensure white minority ownership of businesses and the use of the majority black population of the labour force (Agumba, 2013). The plan reflects in business ownership in big business in South Africa (CIDB, 2016).

Following the coming to power of the African National Congress ANC in 1996, there was a change in government's macroeconomic policy direction from the Reconstruction and Development Programme (RDP) to the Growth Employment and Redistribution (GEAR) strategy in 1996. GEAR aimed at rapid growth in skilled labour, job creation through the establishment of Black South African-owned enterprises. Moreover, the restructuring of government expenditure was to focus on increased infrastructure and public-sector investment for accelerated growth (Mwangi, 2003). Also, the provision of housing and basic infrastructure is aimed at reducing poverty (Meyer, 2014).

One major South African policy that resulted in a boost in the construction area was the hosting of the 2010 FIFA World Cup. The sector recorded an increase in employment and infrastructure development, such as the Durban Stadium. The sector was hard hit when infrastructure development leading up to the World Cup was followed by a global decline and depressed growth. According to the South Africa construction publication (SA Construction, 2013) which highlighted events in the sector, public sector spending on infrastructure rose significantly between 2009 and 2011. However, there was a market share decline of the top ten construction companies after 2011. The setting up of the Presidential Infrastructure Coordinating Commission (PICC) to coordinate infrastructure expenditure among the three different scopes of government was a positive signal for the future development in the industry. The South Africa National Roads Agency(SANRAL) and the mining sectors have contributed as sources of employment.

Another industry development was the establishment by an Act in 2000 of the Construction Industry Board (CIB), now the Construction Industry Development Board (CIDB). The several small and medium scale enterprises (stakeholders) in the construction sector supply chain are managed by the CIDB. The study looks into the role of the CIDB as a regulator of the building industry to facilitate the construction industry development through engagement and regular monitoring of stakeholders and managing procurement reforms which impact on successful project delivery.

5.2.3 The Construction Industry and Project Delivery

The sector and its infrastructure development have an impact on several sectors of the economy. It is the foundation for national and socio-economic development (Brown-Luthango, 2011). Government policy and socio-economic development goals influence the construction area in South Africa. The plans include the accelerated provision of education, health, housing, sanitation, water, and electricity for reduced poverty using the industry as the vehicle for improved quality of life, job and wealth creation (Otero et al., 2014). That includes social, cultural and recreational infrastructure development (Brown-Luthango, 2011).

According to the Minister of Public Works (2007), the government has resolved to increase public sector capital budgets from 10 to 15% rate per annum and raise the gross domestic fixed investment (GDFI) from 15% to 25% of the GDP. Therefore, there was an expectation that the sector would enhance its output for the projected infrastructure investment levels to be achieved by 2014. The industry directly employs directly over 420, 000 people whose employment depends on the construction sector activities (Stats SA, 2013). Also, the state benefits from 5% of value created as direct taxes, excluding tax on employees' income, and the creation of wealth from building and infrastructure projects.

The construction industry has its challenges, including end-users' dissatisfaction and apparently not esteeming the value of delivered housing projects (Olukemi and Goulding, 2013). The problems relate to historical development, fragmented supply chain, unique project environment, diverse individual stakeholders and firms (SMEs) involved, and the project procurement approach. The past decades have records of the construction industry singled out with a poor record of stakeholder satisfaction due to its fragmented nature (Egan, 1998; Loosemore, 2006). Again, no two construction projects are the same but vary regarding requirements, nature, and the associated uncertainties, making it difficult to manage and meet stakeholder needs and satisfaction (Loosemore, 2006).

Research suggests that the construction industry in South Africa was fashioned after race philosophies during the apartheid regime to have the whites to own and run the sector and manipulate the blacks as a human resource (Agumba, 2013). Though the situation has not changed much as the few large and highly ranked construction firms continue to have white dominated ownership (CIDB, 2016), the government has made efforts since the end of apartheid to improve the lives of black South Africans through construction initiatives.

In 2007, the South African Minister of Public Works at the closing session of the World Building Conference organised by the Construction Industry Board (CIB) mentioned a backlog of infrastructure needs faced by the government. The urgent need to balance the support resources, alleviating the rural poor and providing employment for improved livelihood resulted in the creation of the CIB and the South Africa's Accelerated and Shared Growth Initiative (ASGI-SA). While the purpose of the ASGI-SA was to achieve a 6% economic growth rate, reduce poverty and unemployment, the CIDB was tasked to facilitate the construction industry development and raise the sector's contribution to the economy and society.

Construction projects are unique in nature, designed to achieve specific targets and geographically influenced (PMI, 2008). Also, there are several project participants with varying interests, especially in developing countries (Nguyen et al., 2009). Furthermore, there are different resources requirements, technologies adopted, skilled and unskilled labour needed and plant and equipment employed. To realise the set performance targets, it is necessary to manage the industry participants and activities, hence the setting up of the CIDB, South Africa.

5.2.3.1 Regulatory Bodies' Role

South Africa's construction sector has a very active regulatory agency and professional associations that manage their stakeholders. Notably among them are the South African Council for Project and Construction Management Professions (SACPCMP), established to regulate project and construction management professionals to protect the public by Act No 48 of 2000. There are also similar bodies for the architects, engineers and quantity surveyors who are key project stakeholders and can affect SM success. Then the Construction Industry Development Board (CIDB) that regulates the entire industry.

The CIDB Report for 2016 states that the Board was set up by the CIDB Act 38 of 2000, Schedule 3a. The CIDB is a public body created to lead the construction sector stakeholders in infrastructure development. As an area that plays a primary role in South Africa's economic and social development by way of infrastructure for economic activities and large-scale employment provision, the CIDB's role of facilitating and promoting improved support of the sector to the economy is critical.

The CIDB remains an agency of the Department of Public Works. The Department, therefore, has the mandate to appoint the CIDB board and has the responsibility of approving the board's policies and plans as articulated in the CIDB Strategic Plan and Annual Performance Plan (APP). The board members are nominated by the public but appointed by the Minister for at least once in every three-year period and not more than two terms of service. Experience, competence and knowledge are the key consideration factors for members' appointment. As part of the mandatory requirement, the CIDB reports on its performance to the Minister on a quarterly and annual basis and an annual report to the Parliamentary Portfolio Committee on Public Works because of its oversight responsibility.

The primary role of the CIDB is the responsibility of organising and leading the several interested parties in the construction delivery process to enhance project delivery and improve value creation and stakeholder satisfaction. According to the CIDB legislative mandate, the CIDB promotes:

- consistency in construction procurement,
- infrastructure delivery that is efficient,
- construction industry enhanced performance,
- emerging sector development and industry transformation, and
- improvement of skills.

Furthermore, clients are obliged by the Act 38, of 2000 to register construction projects on the CIDB Register of contracts. The projects include public sector projects with a value above R200, 000 and R10 million for the private sector together with state-owned entities. The board responsibility excludes home building regulated by the National Home Builders Regulatory Council (NHBRC). Therefore, contractors executing public sector projects are not obliged to be on the CIDB Register of Contractors.

5.2.3.2 Project Procurement

Project procurement forms a vital part of project development, determination of stakeholders involved and fruitful delivery (Rwelamila, 2012). As one of the five core areas, the CIDB is mandated by Act 38 of 2000 to promote uniformity in project procurement process. Also, the CIDB is to stimulate the regulation of the procurement process with regard to the construction sector within the South Africa government's policy framework. The CIDB's instituted stable structures, procedure and documentation for the public sector include:

- the process of reviewing the system to harmonise with the new National Treasury Standard for Infrastructure Procurement and Delivery Management (July 2016);
- the Register of Contractors (RoC) which rates contractors according to the ability to carry out construction projects, hence placing them in the right category;
- the i-tender demand of compulsory advertising of construction bids on the cidb website;
- the Register of Projects (ROP) requiring mandatory registration of contracts awards; and
- the Code of Conduct for all stakeholder involved in construction procurement.

South Africa has the General Procurement Guidelines (GPG) and the Preferential Procurement Policy Framework Act, 2017 (PPPF) for procuring public good and services. The PPPF introduces a procurement system that enables emerging SMMEs to obtain contracts, build the local black people capacity, create employment and reduce poverty.

5.2.4 Project Stakeholders

Both Freeman (2010) and Nguyen et al. (2009) state that projects have interested parties whose interest affect or are affected by the project or the organisation. In aiming at stakeholder satisfaction as a project objective, it is important to identify the stakeholders involved in the project and their interests, and develop plans of meeting their expectations (Nguyen et al., 2009). However, not all project stakeholders receive the needed attention, or have their interests and expectations addressed in the South Africa construction sector. The lack of engagement supports the suggestion for a change in managers' perspective of project stakeholders from a production view to a managerial view (Freeman, 2010). The need to manage stakeholders in South Africa was brought to fore by the King II Report on Corporate Governance in 2002.

Mwangi (2003) opines that stakeholder engagement has been a concern in the South African business sector due to public business scandals, advancement in information technology, growth in media, and the refusal of organisations to engage but rather violate the interest of traditional stakeholders (local community). For successful management of stakeholders, is necessary to know who these stakeholders are, what their interests, expectations, and needs are, and how they should be managed.

A large number of SMEs participating in the South Africa construction sector supply chain fit as business entity stakeholders. Stakeholders can be internal or external. Mwangi (2003) identified South African corporate community stakeholders as owners, financiers (individuals and other financial institutions), supply chain (service providers, manufacturers), customers (end-users), employees, government, media, competitors and special interest groups. The primary stakeholders in the construction sector includes the CIDB, Public Works Department, municipalities and other state institutions involved in construction project delivery.

Windapo and Qamata (2015) evaluated satisfaction metrics at four major construction sites in South Africa. They identified stakeholders as SOC management, funding organisations, project/contracts managers and project supervisors as well as contractors, site administrators, construction managers, project sponsors, and project support managers. However, only internal stakeholders were identified as the local community; statutory approval bodies and regulators were not included.

5.2.4.1 Stakeholder Management

South Africa has consistently recorded a planned housing delivery failure backlog and stakeholders' dissatisfaction (Olukemi and Goulding, 2013; Meyer, 2014). There is a significant housing shortage for the poor, but as the government introduces programmes to address the shortfall, these houses are rejected or abandoned by the beneficiaries owing to dissatisfaction (Olukemi and Goulding, 2013). Stakeholders' dissatisfaction and lack of value for delivered projects suggest the need for their participation and stakeholder management (SM). SM entails coordinating all the activities related to stakeholders aimed at project success and stakeholder satisfaction (Eskerod and Jepsen, 2013). Studies suggest that satisfaction can be viewed from two perspectives of micro and macro (Windapo and Qamata, 2015), namely the views of client and end-user on the one hand and the technical execution on the other.

Stakeholder management (SM) in the South Africa construction industry is twofold. Firstly, there is the CIDBs' SM for all interested parties in the construction industry. That is aimed at enhanced SM success, project success, value creation and meeting stakeholders' expectation. According to the CIDB Report (2016), as part of SM, the CIDB undertakes activities, organises forums and engages stakeholders for improved implementation, monitoring and evaluation of government policy, legislation and regulations. Also, it evaluates the business conditions within which emerging enterprises operate, skills availability and the market factors that inhibit the development of the industry. Thus, the CIDB (regulator) has been engaging all stakeholders on urgent issues affecting the industry such as a National Stakeholder Forum (NSF) to discuss pressing matters related to the industry regarding the sluggish pace of change in the construction sector as well as key influences that facilitate or impede growth and industry transformation (CIDB Report, 2016).

Stakeholder management is essential as several interested parties in the sector contribute significant value to the nation. The construction sector stakeholders, including employees, their families, unions, the tax regulators, investors, suppliers and customers, each receive a monetary benefit. The second aspect considers the stakeholder management process for project delivery. On stakeholder engagement for businesses in South Africa, Mwangi, (2003) proposes a three-step process to include stakeholder identification, planning for participation and implementation and monitoring. Unlike Finland, the South Africa construction industry lacks a SM model for their projects, implying that construction stakeholders are not formally managed.

5.2.4.2 Critical Success Factors

The South African Construction (2013) asserts the following as key success factors:

- Appointment of experienced project managers and project management teams;
- Keeping a complete documentation on project decisions and development to help resolve conflicts;
- Transparency of controls, high level of responsibility and effective implementation of assigned roles;

- Monitoring of communication for control of environment;
- Monitoring of risk for decision on implementation of risk mitigation plan; and
- Stakeholders' decision on working together to address the challenges, launch a more efficient plan to work together, managing and monitoring the project.

Key success factors in the construction industry include monitoring transformation, development, stakeholders performance, procurement review by the CIDB, government intervention and an increase in public sector spending on infrastructure projects (South African Construction, 2013). Pretorius et al. (2012) opine that project success depends on formal project management practices, the skills and competencies of the project manager and other team members, organisational culture, excellent communication, and support from senior management. This agrees with other studies that identified the skills and competencies of the project manager, organisational structure, measurement systems, and the organisations' management practices (Kendra & Taplin, 2004; Pretorius et al., 2012).

5.2.4.3 Critical Challenges

The biggest barriers indicated by the top ten South African construction companies post-2010 include competition thereby reducing profit margins, contraction in the sector, risks to transformation, health, safety, and environmental sustainability. These are followed by growth expectation, hence retaining large labour force, expansion, and compliance with laws and regulations. Also included are the high volatility of developing countries' economies, unresolved commercial conflicts, the complexity of contracts, suspension or termination of projects (SA Construction, 2013). Inadequate preparation of estimates during project planning and inabilities to meet deadlines are the major contributors to project failure in South Africa

Construction projects are geographically spread with some located in remote areas, hence subjecting projects to the risk of political and social unrest, which can lead to project delays, lower production and damage to equipment. Labour unrest at project sites, especially at mines, has resulted in damaged properties and cancellation of direct investment by foreigners and possible projects. Companies are entering into new markets in Africa but are challenged by the local culture. Another key challenge is the retention of skilled professionals and staff which in the absence of expertise affects companies' growth and ability to complete the project to stakeholders' satisfaction.

The scarcity of resources can be a major challenge to the construction industry. These resources include material and skilled labour. A shortage of skilled labour leads to increased fees and labour unrest. Also, it has required companies having to employ smart procurement strategies, including the reduction of overhead costs, extensive monitoring of production efficiencies and enhanced output ingenuities. The issues of procurement policies and stakeholder management as part of the project management for efficient delivery come to the fore.

According to the South African Construction (2013) in developing markets, such as Africa, project developers are encountered with challenges of language barriers in contract negotiations, varying legal standards and, more importantly, a greater likelihood of political interference. This assertion raises the issues of political stakeholders and the impact of the environment relating to socio-cultural values.

5.2.4.4 Lessons Learnt

Lessons learnt from South Africa as a selected developing country are as follows:

- There is better infrastructure development except for the huge demand for housing for the large poor black population which is associated with apartheid, unemployment and social unrest. There is a high record housing project failure in South Africa.
- The apartheid policy has influenced the historical development of the industry, hence all big businesses are white-majority owned. Government interventions such as the RDP, GEAR, PICC, ASGI-SA and hosting of the World Cup in 2010 have impacted positively on the economy of South Africa.
- The setting up of the CIB (2000) and later the CIDB has influenced the stakeholder identification process and SM mnagement greatly. Industry's participants are managed by the CIDB, thereby reducing conflicts and improving project delivery. They are supported by the South African Council for Project and Construction Management Professions (SACPCMP).
- The literature identified only one stakeholder management framework for business engagement and not for construction stakeholders. Stakeholder participation is high in infrastructure development owing to the presence of the CIDB, including external stakeholders' management.

- Critical success factors include good project planning, the appointment of good project managers, stakeholder management, proper documentation, communication, and fairness in the procurement system, among others.
- Critical challenges include organisations' internal management, poor project planning, lack and maintenance of expertise staff, social violence and the diverse work culture of different ethnic groups and cultures in South Africa.
- The absence of stakeholder management on a project to meet project targets, political and legal issues related to project development.

5.3 Nigeria

This section deliberates on the management of project stakeholders in Nigeria for successful stakeholder management (SM) processes and project delivery. To achieve this objective the construction industry practices and historical development are explored. The government policies, legislation, procurement systems and external factors that influence project management, SM and project delivery are presented. Project stakeholders, SM models, critical success factors and challenges to managing stakeholders are explored.

5.3.1 Background

Nigeria, like Ghana, is a former British colony, hence it shares some similarities in several areas of the economy. It gained independence in 1960 and Republic in I963, the second after Ghana and had an unstable government characterised by military rule and eventually civilian rule in 1998 following a peaceful transition. Though the government continues to face ethnic and religious conflicts impacting on infrastructure development and stakeholder management (SM), the democracy is well instituted.

According to the Central Intelligence Agency (CIA) World Factbook (2016), Nigeria is located in West Africa and shares boundaries with Benin to the west, Niger and Chad to the north, Cameroon in the east and the Gulf of Guinea to the south. With a total land area of 910,768 sq km, it is the 32nd biggest country compared to the rest of the world. Nigeria has a varied climatic condition across the country depicting equatorial in the south, tropical in the middle belt and an arid north, a condition which is similar to that of Ghana and has an impact on project development.

Figure 5.2: Map of Nigeria

(Source: CIA World Factbook, 2016)

The World Factbook (CIA, 2016) estimates Nigeria's population at 186,053,386, making it the most populous nation in Africa. More than seven cities have a population of over one million with Lagos City having over 2.5 million (Aigbavboa, 2012). Nigeria has a federal system of government with 36 federal states and Abuja has been the administrative capital since 1989. The large population has resulted in the quest for improved infrastructure regarding housing, schools, hospitals, roads, stadia and services such as electricity, sanitation and water supply. Public infrastructure delivery is capital intensive, affects the environment, depicts the nation's socio-economic outlook hence the need stakeholders' role for success (Dada, 2008). Nigeria's population is estimated to grow from 186 million in 2016 to 392 million in 2050, making it the world's fourth most populous country (World Factbook, 2016).

Being the most populous country in Africa, Nigeria has over 250 ethnic groups with the Hausa and the Fulani (29%), Yoruba (21%), Igbo (Ibo) (18%) and Ijaw (10%) having the most political influence. The several ethnic groups bring to bear political stakeholders in infrastructure development in Nigeria. Though English is the official language, Hausa, Yoruba, Igbo and Fulani are frequently spoken languages by the majority of Nigerians with an attending cultural diversity. Mok et al. (2015) assert that culture is a major barrier or challenge to stakeholder management. Also, the mainly Christians (40%) found in the south and Muslims (50) found at the north religious affiliation have been a major source of religious conflict in Nigeria. To control the population growth, there is a need for political will, increased women education and improved health care.

Enhancing the prospective of the youth population for socio-economic development will lessen widespread poverty, and create opportunities for the large numbers of unemployed youth. Also, job creation and increased productivity will reduce the youth involvement in the current religious and ethnic violence. There are six political parties and several pressure groups in Nigeria (CIA World Factbook, 2016). Politics can be a major source of conflict but could be an advantage for stakeholder management if well utilised (Bourne, 2005).

Nigeria has been identified as Africa's largest economy, with a projected GDP of $1.1 trillion in 2015. Oil continues to be the leading source of income and government revenues since the 1970s. Though the nation's economic growth continues to be driven by growth in agriculture, telecommunications, and services in the past five years, Nigeria is experiencing economic hardships resulting in unemployment and job losses. There is a high rate of poverty and an estimated 62% of the population are identified as extremely poor. In spite of the oil-rich economy, Nigeria lacks good infrastructure, notably good roads, inadequate power and water supply which are essential for enhanced infrastructure project development and mechanism for conflict resolution. Conflict resolution is critical for project success (Olander, 2006). According to the CIA World Factbook (2016), the current government aims at enhancing public-private partnership for enhanced roads, agriculture and power delivery.

On Nigeria's economy, the literature suggests that oil production has been shrinking since 2012 owing to social unrest, hence the perceived security risk. As a major source of revenue for the economy and infrastructure development, other sectors of the economy have also been affected negatively. Data available indicates that the gross domestic product (GDP) purchasing power is 41.089 trillion, GDP real growth is -1.7% and GDP per capita is $5,900. In Nigeria, industry contributes 19.4% of the GDP, the labour force is projected as 5.88 million by industry with an unemployment rate of 23.9 (CIA World Factbook, 2016). Dada (2012) opines that a country's construction industry has a central role in its development.

5.3.2 Historical Development of the Construction Industry

The history of Nigeria's construction industry dates back to the 1940s and continues to grow on the knowledge obtained when UK's professionals taught in Nigeria as a British colony (Isa et al., 2013). The construction industry has been largely developed to follow the British system with some further impacts from Italy, Germany and France (Aibinu & Odeyinka, 2006; Babatunde and Low, 2013). Also, the sector has been controlled by foreign players such as China firms with their cultural influence posing a challenge to the local industries. That has created systemic and structural challenge. The challenges include project delay, time and cost overrun, materials price fluctuation and industry fragmentation (Oyedele and Tham, 2005).

Post-1999 witnessed a political government that aimed at political stability, and economic reforms established on the National Economic Empowerment and Development Strategy (NEEDS) to counter the previous practice that undermined public sector infrastructural development, hence the private sector (Babatunde and Low, 2013). The new policy led to the financial sector's improved performance and construction sector growth as banks made funds available to local contractors for development. Together with anti-corruption measures that made funds available from oil proceeds, there was a construction boom which influenced a grat deal of high-value housing projects (Business, 2006). The need for more resources and the presence of oil attracted the entry of foreign firms to sectors, including construction (Gale, 2012; Babatunde and Low, 2013). Foreign construction firms became a threat to the local industry, with labour importation, the proliferation of the market with shoddy goods and the Chinese culture (Oluwakiyesi, 2011). Also, the ability of the Chinese firms to deliver projects at a cheaper rate attracted partnerships from Nigerian clients.

Post (2007) all 'oil for infrastructure' policy contracts were reviewed, leading to the cancellation and suspension of some Chinese-awarded projects which affected the industry adversely. Following 2007 was the introduction of the Petroleum Industry Bill (PIB) in 2009 which was passed into law in 2011. The PIB sought to promote local content and boost local industries in the sector. The post-2007 era also saw the Nigeria Content Bill (NCB) become law in 2010. Among others, it prescribed that contracts with a higher content of local component should be awarded the contract if within 10% higher than the project lowest bid. The NCB was ascribed by all professional bodies.

Oluwakiyesi (2011) outlines the following reasons to support the positive outlook of the construction industry:

- Increased investor interest with the over 7% population growth rate and diversification;
- Rapid urbanisation with the attendance demand for infrastructure development. Over 50% of Nigerians live in the cities now compared with 20% in the 1980s;

- Increased housing demand with about 70% of households in single rooms and slum areas in the city, hence the need for redevelopment;
- Road and transportation infrastructure deficits showing less than 30% paved roads;
- Increased local production of cement which has reduced the price of cement and cost of projects as a major construction material;
- Increased emphasis on public-private partnerships (PPPs) as a procurement approach in the last 20years resulting in the delivery of several infrastructure projects; and
- The emphasis on all stakeholders' involvement in project delivery.

5.3.3 The Construction Industry and Project Delivery

Construction projects procurement and delivery can impact on a government's popularity and the direction of national development (Dada, 2013). Developing nations usually use public sector infrastructure project delivery by the construction sector as linkages for the overall national development. Nigeria is no different, hence the need for the stakeholder participatory approach (Ogunlana, 2010). According to Concept (2007), Nigeria has a comprehensive vision of using infrastructure development to influence other sectors of the economy.

The Nigerian construction sector is characterized by several challenges, including project delay, time and cost overrun, materials' price fluctuation and fragmentation (Elinwa and Joshua, 2001; Oyedele and Tham, 2005). The team leader/project manager who is normally the architect is a key player who offers services from inception to the completion stage. The project's successful delivery pivots on the performance of all project participants (Walker, 1998; Oyedele and Tham, 2005). Oyedele and Tham (2005) asset that as a leader/project manager, the architect's decision at the project inception stage and failures during the conceptual planning and design phases will impact on subsequent stages and project success (Hartkopf and Loftness, 1986).

5.3.3.1 Regulatory Body

There is an absence of a regulatory body in the Nigeria construction industry. Project procurement and development has been managed by the public entities' Tender Boards until the establishment of the Public Procurement Act, 2007 (PPA, 2007). As part of the PPA (2007), there is the need for the establishment of a regulatory and approval body which is yet to be constituted. Dada (2013) asserts that the arrangement and organisation of stakeholders for construction procurement are very important to project delivery.

5.3.3.2 Procurement Systems

According to Ashwort and Hogg (2014), procurement method entails the management of the entire process required for construction project delivery. The need to improve project delivery and meet project set targets such as time, cost and quality have resulted in variants of procurement methods in use today. The several methods used in the Nigeria industry can be classified under traditional and conventional methods (Ashwort and Hogg, 2014). Babatunde et al. (2010) opines that in the Nigerian construction industry about 48.08% of construction projects undertaken adopt the variants of traditional procurement method; 32.69% uses variants of public private partnership (PPP); and 19.24% employ the design and build method in Nigeria. The assertion implies that both the traditional and non-conventional procurement methods are presently used in Nigeria. Also, studies show that the traditional method is mainly used as against design and build mostly used in developed nations (Babatunde et al. 2010). Interestingly, of the 16 factors evaluated on the choice of non-conventional methods, none was stakeholder focused. The several variants are used as allowed by the Procurement Act in Nigeria.

Until 2007, procurement in Nigeria was guided by financial regulations issued by the Minister of Finance which neither suggested tender procedures nor procurement regulatory functions (Udeh, 2015). The procurement system was flawed as government contracting authorities, within their award limits, could award contracts to any contractor of their choice, resulting in a lack of competition and value for money (Zhang 2007; Udeh, 2015). The Nigerian Federal Government introduced the due process which culminated in the enactment of the Public Procurement Act in 2007, officially gazetted on 19 June 2007. The Budget Monitoring and Price Intelligence Unit, BMPIU (2005) reported on a diagnostic study conducted on the state of Federal Government Public Procurement. The report revealed that Nigeria may have lost several billions of naira partly owing to inflation of contract costs, lack of transparency and competence-based competition as criteria for the award of public contractors. Since infrastructure projects, whether public or private, are part of the outputs of the construction industry, public procurement for infrastructure delivery was also susceptible to corruption, just like other services (Transparency International, 2010; Dada, 2013).

All public entities are required by law to adhere to the PPA (2007) in procuring goods and services. PPA (2007) recommends open competitive tender as first choice for goods and services. Also, it allows special and restricted procurement methods in rare cases. The public procurement system functions through regulatory institutions and management bodies, one of which is the National Council on Public Procurement (NCPP) and the other the Bureau of Public Procurement (BPP). Since 2007 when the PPA (2007) came into effect, the NCPP was yet to be established though BPP was functional (Udeh, 2015). The stated functions of the NCPP make it an approval and regulatory body over the BPP. Consequently, there is the absence of performance of its statutory regulatory role. Many factors are responsible for the poor performance of projects and these include procurement types, variations and productivity (Olanrewaju and Khairuddin, 2007; Ogunsanmi, 2013).

5.3.4 Project Stakeholder

Construction project delivery involves several individuals and organizations who have interest and expectations in the project outcome. The participation of these stakeholders in the project delivery is critical as the project success is associated with meeting their need, interests and expectations. Dada (2013) identified public sector project stakeholders in Nigeria to include ministries, departments or agencies at the federal, state or local government levels and professionals as architects, builders, engineers, town planners, estate surveyors, quantity surveyors and land surveyors. Oluwakiyesi (2011) further states the interplay of stakeholders involved in construction from the first step to completion as engineers, architects, quantity surveyors, lawyers and even financial advisors. Literature explored on Nigeria's construction industry fails to mention the external stakeholders as end-users, local community, media and others are omitted.

5.3.4.1 Stakeholder management

How are Nigeria's public projects assessed with respect to project priorities or deliverables or goals in project implementation? Stakeholder integration and management, which have been identified as necessary to the success of projects, have been lacking in the implementation of some past public projects (The Guardian, 2002). There is no formal SM model for the construction sector neither do professionals practise stakeholder management.

5.3.4.2 Critical Success Factors

Critical success factors (CSFs) are measures instituted to enhance project performance as a process or project related, at the project or organizational or both levels simultaneously (Dada, 2013). According to Russell (2008), knowledge and implementing of CSFs have the chance of improving an organization's performance. Team leaders and project managers' knowledge and implementation of CSFs will therefore enhance project success. This study explores the CSFs employed in the Nigerian construction industry for successful project and SM processes as knowledge and understanding will reduce project failure (Russell, 2008). The CSF idea has been implemented as a management measure in a number of sectors (Dada, 2013). Hartkopf and Loftness (1986) and Oyedele and Tham (2005) also identify the team manager's role, usually the architect, as critical for project success.

5.3.4.3 Critical Challenges

Nigeria's project delivery and stakeholder management challenges are both structural and systematic (Aniekwu and Okpala, 1987). Among the challenges, according to Babatunde and Low (2013), are modern construction and management techniques (Adams, 1997), inaccessibility to credit facilities (Nigeria Business, 2006), the absence of a national agency (Aibinu & Odeyinka, 2006) and the projected continued dominance by foreign players (Oluwakiyesi, 2011). Ofori (2012) stresses the urgent need for a national agency to regulate construction in developing countries. The study also identified financing, low technical expertise, corrupt governments, poor implementation of policies and projects as barriers to the development of infrastructure and growth of the Nigerian construction industry (Oluwakiyesi, 2011).

5.3.4.4 Lesson Learnt from Nigeria

Lessons learnt from the Nigeria studies, though not too different from those of South Africa, are the following:

- Infrastructure development in Nigeria impacts on the economy in terms of growth of other sectors of the economy as it creates demand for resources, provides employment and alleviates poverty;
- The Nigerian construction industry output depends on the overall economy and government policies and interventions;

- It is the vehicle used by the government to address the socio-economic needs of the nation such as roads, schools and housing;
- The construction industry was modelled after UK's construction industry as the colonial masters, characterized by fragmentation and external factors such as the oil economy;
- There is a high level of project failure, backlog of infrastructure needs, several stakeholders involved in the industry
- In the absence of a stakeholder management process for the nation, architects continue as team leaders and their role has a greater influence on project success;
- There is a lack of modern construction, innovations and management techniques, hence continuous project failure;
- There Public Procurement Act does not specify the use of one any particular system, such as traditional or design and build. It recommends open competitive bidding and assigns the NCPP with the approval and regulatory task;
- Unlike South Africa and Botswana, there is no industry regulator:
- Corrupt government practices, poor implementation of policies and absence of stakeholder engagement and management considerations; and
- Team leaders/project managers' knowledge and implementation of other CSFs which are not different from other countries will enhance project success.

5.4 The Malaysian Construction Industry

The Malaysian construction industry is similar to that of other developing countries but well regulated. There are challenges associated with project delivery: however, it has a better record than many developing countries. The Construction Industry Development Board (CIDB) was established in 1994 under the Act 1994 (Act 520) to establish, regulate, enforce and carry out other duties related to the construction industry. For enhanced performance, the Act 520 was reviewed in 2012 to ensure quality and safe construction and improve best practices in the construction industry (CIDB Act, Act 520, 2017).

5.4.1 Managing Stakeholders in Malaysia

A study was conducted on Malaysia to examine the influence of project stakeholders on stakeholder management and project success. The study found the traditional approach to construction project delivery emphasising the client, architect and the contractor as the key players (Takim, 2009). However, there were other individuals and groups actively involved, affect or are affected by the project outcome (Jergeas et al., 2000; Takim, 2009). Therefore, there are internal and external participants in the project delivery. Stakeholders in Malaysia are perceived as those who can influence, are affected by and benefit from the activities or outcome of a project (Takim, 2009). The stakeholder influence can either be positive, negative, or both. Moreover, Takim's study considered stakeholder identification, needs and expectation management and the impact of failure to manage project stakeholders on project development.

The summary of the study is:

- Pre-design stage of project delivery is the focal point;
- Decisions made in pre-design and design stages are critical success factors to achieve project performance;
- The study involved both private and public clients, consultants and contractors;
- A five-point Likert scale with 1 as 'not important' and 5 as 'extremely important' was used;
- The study employed random sampling but purposively using the Construction Industry Development Board CIDB, professional institutions and major cities to achieve sampling objectives; and
- 93 questionnaires were returned, representing a 20.9% response rate and analysed using ANOVA.

Takim (2009) outlined the study outcomes as the following:

- A formal stakeholder management model is required for stakeholder identification. A development plan and memorandum of agreement is used for stakeholder identification;
- Stakeholder interest is a major project objective, hence achieving stakeholder satisfaction and keeping stakeholders informed are critical in achieving project performance; and
- The major challenges are social obligations and political interference.

5.4.2 Lessons Learnt

This author learnt that the establishment of the CIDB Malaysia has enhanced construction project delivery through focus areas such as technology and innovation, quality and enforcement of regulation. Stakeholders in Malaysia's construction industry are not different from the selected countries studied and include the government, consultants, clients and contractors in a broad sense. A formal stakeholder model is recommended for improved project performance. Stakeholders are managed by an attempt to achieve stakeholder satisfaction and needs by keeping stakeholders informed and with an emphasis on pre-design and design stage activities.

5.5 Managing Stakeholders: South Africa, Nigeria and Malaysia

The construction industry and management of the diverse stakeholders involved have been found as influencing infrastructure project delivery and success. Since infrastructure development has also been identified as a vehicle for accelerated socio-economic growth of developing countries, it is necessary to consider policies and interventions that will influence and ensure successful SM of constructions stakeholders and the introduction of innovative policies in the construction sector for enhanced project delivery.

There is no doubt that the construction industry impacts on the GDP of a nation, employs a large portion of the labour force, provides the basic infrastructure needs for growth of other sectors, reduces in poverty, helps governments to achieve developmental goals and enhances the government's political and social outlook. Also, it has been established that there are several stakeholders who influence the output of the industry and these need to be managed. For the reasons above, a number of policy initiatives are essential for an improvement in the construction industry, improved stakeholder management, meeting stakeholder needs, satisfaction and enhanced project delivery. These are the following:

- Introduction of innovative policies in the construction industry that are sustainable and stakeholder focused. This must include training programmes for skilled labour and a work culture that permeates through different cultural backgrounds;
- Establishment of policy initiatives by the governments that will ensure equal distribution of resources, growth of SMEs by the local people and the involvement of stakeholders in policy initiatives. Legislations that will ensure economic growth and boost investor confidence must be developed;
- Development and introduction of procurement systems that will ensure early identification of all stakeholders, their needs and expectations. There must be transparency and trust in dealing with stakeholders and effective project planning;

- Setting up a regulatory body to oversee the entire construction stakeholders as well as strong professional bodies to manage the project team to deliver;
- Introduction of stakeholder management principles as a soft project management skill by developing stakeholder management processes for project managers to manage stakeholders on projects, as done in Finland; and
- The existence of the Construction Industry Development Board CIDB in South Africa and Malaysia has improved stakeholder management and project performance significantly compared with Nigeria.

5.6 Conclusion

This chapter has discussed construction project delivery, stakeholders in the industry and stakeholder management in developing countries, highlighting South Africa and Ghana. The literature revealed that construction industry development is influenced by colonial policies. Also, in South Africa, there are several migrants from neighbouring countries and Chinese firms in Nigeria's construction industries respectively. Foreign culture has had negative influence in the industry. After independence both governments have initiated policies to reduce infrastructure backlog but the situation is worse in Nigeria whereas South Africa's main challenge is housing for the poor black population and employment. South Africa has introduced more innovative policies and a regulatory body (CIDB) which has impacted on stakeholder management and the construction sector. Nigeria is yet to constitute a regulatory body. Also, the strong council for project and construction managers has enhanced project management, hence stakeholder management.

Regarding stakeholders in the industry and stakeholder management, it was revealed that South Africa construction sector stakeholders are identified by the regulatory body and managed to comply with best standards. External stakeholders are equally identified, namely the local community, end-users, service providers such as ESCOM, the statutory bodies and politicians who have stake in development projects. The Nigerian construction sector still emphasises the project team as stakeholders: architect, client, sponsor, engineer, quantity surveyor, contractors, and subcontractors with the architect as a team leader. In terms of the SM process, neither countries have designed or adopted any formal SM process. South Africa rather through CIDB manages stakeholders while project managers use project communication knowledge in managing stakeholders. The main reason why some completed housing projects are abandoned or rejected in the Western Cape Province is a lack of SM process as end users were not involved in the process. Regarding procurement systems and stakeholder management, it was established that Nigeria's PPA Act 2007 is not stakeholder focused but rather monitoring and oversight responsibility for value for money and transparency. South Africa has the PPPF Act, 2017 and the GPG (2000) for public sector procurement. The PPPF Act, 2017 is focused on SMEs mainly by local black South Africans. Both countries' construction sectors have both critical barriers and success factors.

CHAPTER SIX

OVERVIEW OF THE GHANAIAN CONSTRUCTION INDUSTRY

6 Introduction

This chapter discusses the construction industry in Ghana. It considers the background, the historical development of the construction industry, the industry's performance and project delivery. It examines the methods by which public sector projects are procured, the Public Procurement Act, the procurement systems and project participants involved and role in project delivery. It identifies the construction industry stakeholders. Also, it explores stakeholder management (SM) in Ghana by considering project management practices, as well as project managers' and teams' knowledge, understanding and roles in SM. The role of regulatory agencies including professional bodies in managing project stakeholders for successful project delivery is also considered.

The 15 critical success factors identified for construction SM success (Yang, 2010) for developed countries are reviewed. The study further examines the external environment factors (Gudiene et al., 2013), the pre-condtions identified by Yang (2010) and the stakeholder management process designed to identify the gaps. The Auditor-General's Reports on GETFund Tertiary Projects Delivery and other reports are extensively reviewed. Critical success factors and challenges in the industry are explored and outlined. The factors identified procurement and industry practices as crucial for developing a sustainable SM framework for Ghana's and other similar developing countries' development for improved projects delivery.

6.1 Background

Ghana is a developing country located in West Africa and derived from the British Gold Coast Colony. It is bordered by three French-speaking nations, namely Togo to the east, Burkina Faso to the north, Côte d'Ivoire to the west and Gulf of Guinea (CIA World Factbook, 2016). Hence there is a French culture influence on those living in the border towns and villages. Ghana gained independence on 6th March 1957 and became a republic on 1 July 1960 as the first sub-Saharan country in colonial Africa. The development probably accounts for the inadequate infrastructure provision in Ghana compared to South Africa that the extended stay of the colonial master resulted in massive infrastructure development. The total land area is estimated as 227,533 sq km, with natural resources of timber, hydro power and limestone which are essential for the construction industry activities (CIA World Factbook, 2016). Ghana has a tropical climate with the hot and dry north, warm and humid south and mainly low plains, except in parts of the Volta region, which influence infrastructure design and development.

According to the CIA World Factbook (2016), the country's population is estimated at 26,908,262, has about eight ethnic groups with the Akans as the majority (47.5%) and ten languages with Asante as the dominant language, though English is the formal language. The large dependency rate (73%), small adult population and the 2.18% growth rate have economic implications and attendant infrastructure demands compared with most developed nations. Also, research suggests that Christians are the majority (71%), followed by Muslims and the traditional minority religion (CIA World Factbook, 2016). As a stable country, Ghana has attracted a considerable labour immigrant population from neighbouring countries, especially Liberia, due to their civil war. However, many skilled Ghanaians are migrating to the developed nations. This development has an impact on the role of the skilled labour force in the construction industry.

Figure 6.1: Map of Ghana

(Source: Google Images, 2016)

6.2 The Construction Industry in Ghana

According to Ofori (2012), the construction industry in Ghana plays a primary role in the economic development, being a significant portion of the gross national product (GNP) as a developing country. Its outputs and outcomes impact on other areas of the economy and the achievement of the national goals. Firstly, the sector contributes towards the socio-economic growth of the nation (Lopes, 2011; Ofori, 2015). This is supported by Ahadzie et al. (2009) who assert that the industry provides significant employment opportunities. The industry, like in many developing countries, is responsible for the construction of infrastructural, industrial, educational, health, transportation and housing projects (Othman, 2013). The claim on infrastructure delivery is supported by Dzokoto et al. (2014). The socio-economic growth is significant for the provision of infrastructure. Infrastructure delivery is mainly realised by government through ministries, institutions, the MMDAs and GETFund initiatives. Williams (2015) states that infrastructure delivery in Ghana is a priority as the Metropolitan, Municipal, and District Assemblies (MMDAs) alone undertook 14,000 projects between 2011 and 2013. Ofori (2012) states that the importance of the industry creates the need for continuous improvement.

6.2.1 The Importance of the Ghanaian Construction Industry to the Economy

The construction industry in Ghana is vital because of the outputs and outcomes of its activities. Firstly, it makes a direct contribution to the economy by providing the physical infrastructure for the production of goods and services. The buildings for education, health, and agriculture processing, manufacturing, civic and administrative work, recreation, transport and services infrastructure are crucial for socio-economic growth. According to Ofori (2012), they are the nation's backbone as they enhance the distribution of goods and services within and outside the nation. Moreover, the quest for infrastructure for education and health buildings alone cannot be overemphasised as that led to the creation of the Ghana Education Trust Fund, GETFund Act 581, 2000. The industry's large size and its diverse activities make it attractive as a vehicle for achieving national goals. The sector is responsible for housing delivery, a basic need for human survival and improving social life. Having a good infrastructure also attracts foreign investment (Ofori, 2015).

Secondly, as a developing country, the industry creates employment by its nature and activities. Studies reveal that the construction sector creates important jobs in Ghana and globally about 7% of total employment (Ahadzie et al., 2009; Djokoto et al., 2014). Two major reasons account for the role of the sector in job provision. Projects locations are geographically spread because it is location specific and also labour intensive by nature (Ofori, 2012). Projects such as housing, schools and rural electrification create jobs in remote areas in Ghana while government deliberately specifies labour intensive projects to alleviate poverty and improve social lives.

Thirdly, researchers state that the construction industry contributes between 5 and 10% of the gross domestic product (GDP) of the nation. Ghana is not exceptional as it has a large size and a great deal of investment is made in the sector. The John Mahama administration had the construction of 200 new senior high schools, district hospitals and road infrastructure as a significant government intervention and investment area. The current Nana Akufo-Addo administration is considering the One District, One Factory and One village, One Dam initiative as a major policy direction to create employment and reduce poverty (Ghanaweb.com). The sector, therefore, contributes directly to the growth of the economy including 10% to 40% of household expenditure and 20% to 50% of accumulated wealth (Ofori, 2012).

Again, the level of investment as stated above indicates the government's policy direction. Thus, the sector appears to be regulating the economy. Successive governments have invested either in education, agriculture or the manufacturing sector by providing the needed infrastructure to achieve the desired goals. However, the sector has several linkages in that it does affect other areas, mainly through the supply chain. Growth in construction output impacts on the industries manufacturing the material such as cement, roofing, reinforcement, and wall materials. The increased employment leads to high demand for professional services, suppliers, the creation of wealth and increased purchasing power, thereby affecting commerce and the recreation sectors.

Similarly, the sector plays a very primary role in the efficient implementation of the local governments' Metropolitan, Municipal, and District Assemblies' (MMDAs) decentralised governance concept. Williams (2015) constructed a database of over 14,000 projects as including all identified infrastructure projects that MMDAs undertook between 2011 and 2013. This assertion implies that MMDAs in Ghana are actively involved in the provision of infrastructure to alleviate poverty and enhance the livelihood of the populace. This study further identifies challenges with project delivery by the sector and suggests the need for improved monitoring for project success. Eventually, lives are improved and poverty is reduced. The industry's performance is critical for the growth of a developing nation. However, the industry activities and performance are influenced by the large number of industry participants, government interventions, legislations as well as the historical development.

6.2.2 Historical Development of the Ghanaian Construction Industry

The construction industry in Ghana, like that of many developing countries, dates back to the British colonial rule when the industry professionals were trained by the colonial masters. Laryea (2010) informs of construction sector development back in 1945 when contractor development began. This study's author's knowledge from the Department of Architecture, Kwame Nkrumah University of Science and Technology (KNUST) reveals that the first batch of Ghanaian architects was trained in the UK. As designers and team leaders, their training made a significant impact on the industry. Project development was fashioned after the European concept. Similarly, the Department of Architecture at the KNUST for decades only trained architects in Ghana, remains affiliated to the Commonwealth Association of Architects and has their training influence.

Moreover, the presence of large foreign design and construction companies in Ghana as part of project development has affected the industry's culture. Foreign contractors' presence in Ghana dates back to the Gold Coast era with Thomas Cubitt in the UK as one of the early contractors in Ghana (Hughes and Hillebrandt, 2003; Ofori, 2000; Laryea, 2010). The traditional PM approach is used with the focus on 'hard' concepts of controlling scope, schedule and cost and without the 'soft' relationship aspect (Bourne and Walker, 2004).

Unlike the construction industry development board (CIDB) in South Africa and the Zambia Development Agency under the Department Public Works that act as a central regulator of the sector, the Ministry of Water Resources, Works and Housing (MWRWH) is the infrastructure sub-sector responsible for the construction industry. The case for a central regulatory body has being argued by several researchers and a proposal presented to the Ministry for consideration (Ofori, 2015). Until 2005 the then Ministry of Works and Housing had the responsibilities to initiate, formulate, implement and coordinate policies and plans for the efficient development of the country's infrastructure requirements in the areas identified by MWRWH. Similarly, MWRWH has been responsible for the promulgation of legislature and laws and the setting up of relevant bodies to regulate professionals in the sector, among others. This study explores and documents the appropriate historical development of the Ghana construction industry.

6.2.2.1 Historical Documentation of the Ghanaian Construction Industry

Literature on the construction industry in Ghana is not as well documented as in the developed countries (Laryea, 2010; Eyiah-Botwe, 2016). However, available literature suggests the role of the industry in national development and the sector development dates back to the Gold Coast era (Hughes and Hillebrandt, 2003; Ofori, 2000) where many contractors were foreigners (Laryea, 2010).

Some of these large foreign construction firms, for example, De Simone, Micheletti, J. Monta and M. Barbisotti (with whom the researcher has worked) were Italians who had settled in Ghana (Hughes and Hillebrandt, 2003). Moreover, other contractor firms such as A-Lang and Taylor Woodrow had subsidiaries operating in Ghana (Laryea, 2010). These were master craftsmen who employed and trained the Ghanaian artisans. Additionally, the government set up technical schools for the training of construction professionals. With the strong leadership role of architects in the building industry, the Architects Act, 1969 (NLCD, 357) which regulates architectural practices was among the first to be enacted. Similar to Nigeria, architects in Ghana act as team leaders and project managers of project teams though challenged by the fast-growing project management profession. Then there was the formation of the Association of Building and Civil Engineering Contractors of Ghana (ABCECG) in the 1980s. With the limitations of local contractors manifesting in low project delivery, the mission of the ABCECG included developing a code of ethics and organising workshops and training for enhanced quality of workmanship on projects. Also, it aimed at liaising contractors with suppliers and manufacturers of building materials for improved quality. In 1992, Ghana returned to democratic rule, necessitating the creation of the Ministry of Works and Housing (MWH) to oversee infrastructure development by the government.

However, contractor classification by the MWH was very poor, general, and obsolete without regular updates, hence its negative impact on the sector's performance (World Bank, 1996; Eyiah and Cook, 2003; Anvuur et al., 2006). There are two contractor classifications in Ghana. The building and civil engineering contractors are classified as financial class D1, D2, D3, D4 and the civil engineering contractors as K1, K2, K3, K4 based on their financial, technical and managerial capacity (Eyiah and Cook, 2003). Moreover, there has been the establishment of government construction firms and departments for improved national infrastructure delivery.

The Public Works Department has been the oldest government set up to manage and maintain government infrastructure. Following that has been the State Construction Company (SCC), the State Housing Company (SHC) and the Architectural and Engineering Services of Ghana (AESC) all aimed at enhancing construction project delivery and performance. Then in 1993, the Local Government Act 462, 1993 the Town and Country Planning Department was established. The Department was tasked with the overall planning and development control.

Furthermore, there was the Building Regulation Legislative Instrument, 1996 (LI 1630) which outlined building development regulations within the sector. Though there was an association for building contractors set up as far back in the 1980s, building construction had to be regulated. Also, following the Local Government Act 467, 1993 the Metropolitan, Municipal and District Assemblies (MMDAs) were up together with the physical planning legislation to regulate physical development. Prospective clients will need a development planning permit before the commencement of their project except for institutions that are exempted by the law. It implies that projects should conform to building codes and established planning layouts. Also, it must be approved by the statutory body which includes stakeholders from different disciplines, namely architectural, engineering, health, planning, lands and the chief executive officer of the MMDA concerned.

Furthermore, there was the Ghana Vision 2020 policy document in 1995 which emphasised the efficient use of resources for accelerated economic growth. The policy stressed the use of local building materials and sustainable principles in project development. The implementation of Free Compulsory Universal Basic Education and the expansion of tertiary education by the John Rawlings government resulted in the unprecedented demand for education infrastructure. The GETFund Act 581, 2000 was established to address the backlog of infrastructure projects. The GETFund administration greatly improved infrastructure delivery but is challenged (GETFund Administrator, 2010). Following the GETfund Act was the Public Procurement Act 663 of 2003 which had the objective of enhancing and regulating the public project procurement process in the industry.

The setting up of the Procurement Act was as a result of malpractices that prevailed in the sector characterised by the same contractor firms selected for World Bank projects (World Bank, 1996). Moreover, the same contractors were buying and bidding for lots under different names (Crown Agents 1998; Anvuur et al., 2006). Likewise, project delivery performance was poor and it appeared that the public-sector procurement delivery oversight was lacking (Anvuur et al., 2006). The Act stresses transparency, fairness and competitive tendering. The aim is to achieve value for money; it advocates for the least competitive evaluated tender price as successful and is not aimed at stakeholder focus and satisfaction as recommended by Egan (1998). In real cases, selective tendering and sole sourcing can be applied by the procurement body after approval. There is no emphasis on the system of acquisition though it encourages the traditional system. While the developed countries are employing innovative stakeholder focus non-conventional methods, the PPA, Act 663 seems to favour the traditional approach.

The challenges became evident at the 3rd GETFund Consultative meeting (2010) at Sogakope in Ghana attended by the researcher and all the industry stakeholders. A Report titled "The GETFund Review and Outlook (2001-2009)" presented as a working document highlighted challenges in the operations, including considerable abuse and offending impropriety about some construction projects in the tertiary sub-sector. It is evident that GETFund projects had failed to meet the set targets, stakeholders were dissatisfied, and there was evidence of poor stakeholder management consideration.

It was stated that the GETFund was unable to meet its delivery targets, a situation which affected institutional planning. The causes for the failure were outlined as follows: a lack of involvement in the entire project delivery; acting only as a processing and payment agency merely on the presentation of certificates; not part of the contract award process and remaining ignorant of project development and the dysfunctional nature affecting the efficient operations of the fund.

Then followed the establishment of the Engineering Council Act 819 of 2011 to regulate the practices and operations of engineers as major stakeholders and project managers in some cases. In 2012, the National Urban Policy Framework and Action was developed. It aimed at the participation of all relevant stakeholders to ensure better transparency and accountability. Also, zonal stakeholders' consultation workshops were recommended to review and validate action plans.

Similarly, the National Housing Policy (NHP) was considered in 2015. The aim was to have all the stakeholders to participate in decision-making related to housing development in Ghana. The NHP framework considered the role of all stakeholders, including the local community and non-traditional interest groups. Gradually policies have begun focusing on stakeholder participation for the successful delivery of projects.

The last major advocate which occurred in 2015 argues for the proposed Construction Industry Development Authority Bill. Ofori et al. (2015) stress the need to provide strategic leadership in the building industry to stimulate sustainable growth and reform, and to improve and monitor standards in the construction sector. This is the case of South Africa and Zambia which has successfully managed the industry stakeholders. An innovative approach, for successful delivery is urgently required, not only for the management of industry players alone but also for stakeholders on individual projects. In line with stakeholder management, the ABCECG in 2016 stressed commitment to partnership for economic growth in the sector acknowledging reports of Latham (1994) and Egan (1998).

6.2.2.2 The Ghanaian Construction Industry Challenges

The construction industry includes parties and resources directly involved, the products of the development process and operations (Hillebrant, 1984). Nguyen et al. (2009) assert that projects can include a broad range of stakeholders and state the need to identify them, their interests and expectations for project delivery. Also, Othman (2013) claims that the industry challenges are engineering, human development, managerial, political challenges and sustainability challenges. Ghana is equally challenged by the above-mentioned challenges in project delivery.

Regarding literature related to Ghana, Fugar and Agyakwah-Baah (2010) grouped the causes of project delays to include scheduling and controlling, contractual relationship, changes and government action. These four out of nine factors are stakeholder related. William (2015) identified challenges in the sector as a lack of monitoring of the physical implementation of projects, time and cost overruns, mid-project interruptions and a shift in policies by implementation agencies. Also, Djokoto et al. (2014) classified challenges to sustainable development as cultural, financial, capacity and management. The cultural, capability and management are stakeholder related. Furthermore, Osei-Tutu et al. (2010) claim conflict of interest, bribery, embezzlement, kickbacks, tender manipulation and fraud as observed corruption practices in the Ghanaian infrastructure projects delivery system.

6.2.3 Project Delivery

The government of Ghana continues to use infrastructure development to achieve its socio-economic development intervention. The construction sector is responsible for the physical realisation of the infrastructure projects after the development of the policy document. Projects are not delivered by executing and handing over to the client but must include project closure (Ajam, 2014). Similarly, projects are not delivered until given to the owner with closing documentation (Fewings, 2005). Thus, a project delivery entails a process of initiating, planning, coordinating, designing, procuring resources, constructing, testing and handing over of a project to the project owner or users (Lock, 2007)

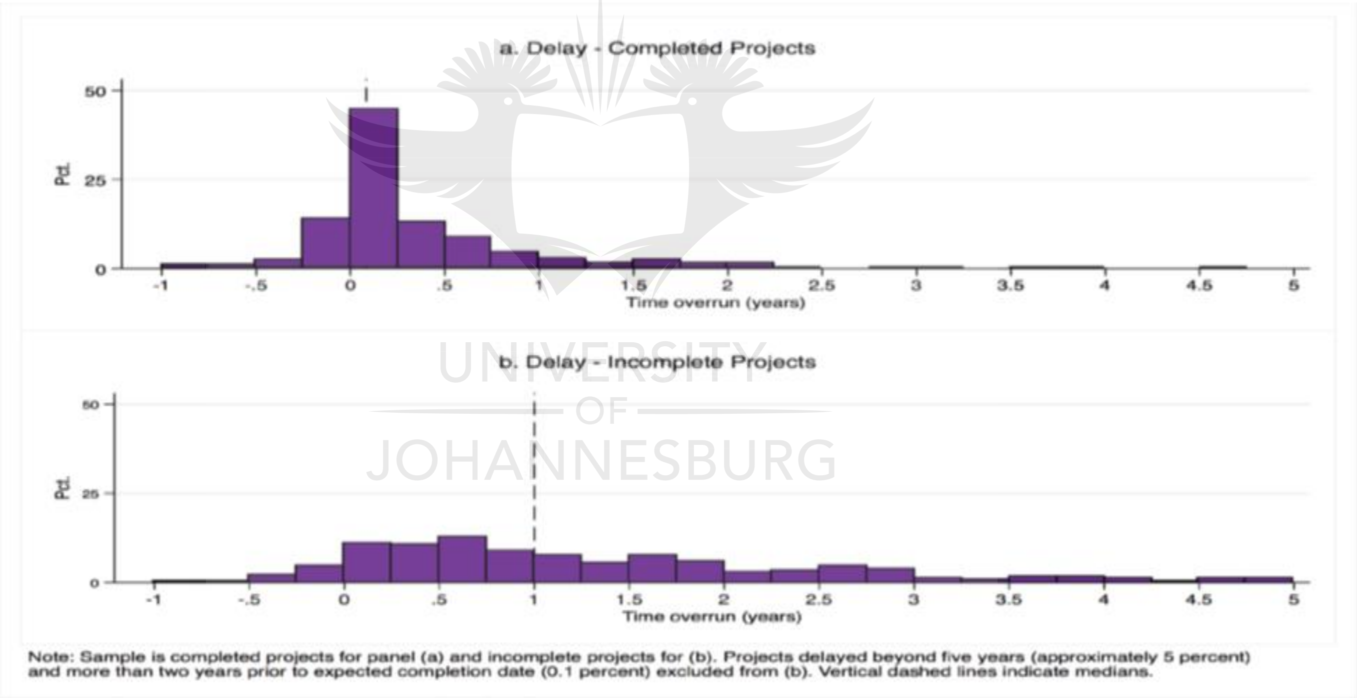


Figure: 6.2: Delays by Project Completion Status

(Source: William, 2015)

Furthermore, Newton (2009) states that a project is delivered when completed, and the defined terms of specific tangible deliverables are met. Going by this definition, many projects in Ghana (Figure 6.2) can be considered as not delivered and having failed according to studies (Ofori, 2012; William, 2015). Also, a procurement system irresponsibly employed can be an impediment to the achievement of certain planned benefits and eventually leads to project failure (Rwelamila and Meyer; 1999; Luu et al., 2003; Noor et al., 2013).

Each procurement system is implemented to produce a level of project success. Also, each type – traditional system, design and build, management contracting and the public-private partnership – has its respective strengths and weaknesses and impacts on project delivery (Tookey et al., 2001; Noor et al., 2013). For an efficient project implementation, it is necessary to look at project procurement systems as employed in Ghana.

6.2.3.1 The Ghanaian Construction Industry and Public-Sector Projects

The construction industry clients are from both the formal and informal sector, public and private as may be described. Public sector projects are initiated by the government or its body/institution typically through the civil service as the client and are meant for the society's benefit. According to the Republic of Ghana Constitution (1992), the public service is made up of the civil service, public organisations, and public services set up by the constitution or parliament of Ghana by an Act. The Civil Service alone has thirteen areas, namely the Judicial, Audit, Education, Prisons, Parliamentary, Health Service, Statistical, National Fire, Customs, Excise and Preventive, Internal Revenue, Police, Immigration and Legal Services, giving an idea of the magnitude of public sector projects in Ghana. Another major area is the local government service including the Metropolitan, Municipal, and District Assemblies (MMDAs) set up by the Local Government Act 462. Most MMDAs undertake social infrastructure development projects to alleviate poverty and improve living standards in the areas under their jurisdiction. Public sector projects have a high rate of reported failure in Ghana, suggesting the need for intervention (Auditor General's Report, 2013; William, 2015).

6.2.3.2 Public Sector Projects and Framework Necessity

Public sector projects are characterised by complexity, delays, difficulty in management and having several parties involved or conducting. According to Klakegg et al. (2009), the governance of public projects depicts two parallel subsystems, namely the political and administrative. The systems coupled with 'soft' and 'hard' skills adopted can influence project outcomes. Studies from developed countries have shown the need for frameworks for public sector projects as interventions for enhanced project delivery.

A study of the UK, Netherlands and Norway by Klakegg et al. (2009) revealed the three countries as having introduced the OGC Gateway in 2000; 'Faster and Better', the MIRT programme; and the Norwegian State Project Model respectively. Similarly, Oyekoge (2010) identified a stakeholder management model for Finland. These frameworks, according to the study, have led to cost savings, increased project value, revised project schedule, benefits realisation, and overall delivery. Also, common among these frameworks is the active role of stakeholders in their implementation. The OGC, for instance, requires that stakeholders sign at the end of each phase before the next phase commences. The CIDB in South Africa holds regular stakeholder conferences to discuss issues related to project delivery in the construction sector as they introduce innovations in the industry.

Anvuur et al. (2006) state that performance of construction in Ghana was poor. Also, there were no broad guidelines for public construction procurement as tender boards used different conditions of contract and procedures for the award of the project (Anvuur et al., 2006). This necessitated the need for a framework. In Ghana, the establishment of the Public Procurement Act, 2003 (Act 663) is the government's intervention on project realisation in the public sector. This study, therefore, discusses procurement in Ghana's public-sector construction delivery.

6.2.3.3 Project Procurement

Procurement is considered as means of purchasing goods and services. Cartlidge (2009) asserts that procurement in the construction industry entails acquiring the entire goods, materials, plant and services needed for all the phases of the project to get best possible value for money for the client over the project's life cycle. Similarly, procurement can be referred to as the process adopted for the delivering of construction projects (Ashworth and Hogg, 2014). Ghana, like many developing nations, adopted procurement systems from the UK. However, the public sector's challenges in its procurement method, malpractices and benefits facilitated the need for alternative approaches to address project procurement (Ofori, 2007; Osei Tutu et al., 2010).

The need to regulate the activities related to procurement in the public sector in Ghana led to the establishment of the Public Procurement Act, 2003 (Act 663). As part of the Act 663 and for the full implementation and realisation of the desired benefits of sound procurement practices in Ghana, the Public Procurement Authority (PPA) formerly the Public Procurement

Board (PPB) was formed. Public sector project development is now governed by the PPA and Act 663 (Osei Tutu et al., 2010).

Public sector institutions are required by the Procurement Act to establish an entity responsible for approvals and awards of contracts within set thresholds. According to the Public Procurement Act, 2003 (Act 663), contract sums above the set thresholds are forwarded to the next higher entity with the Central Tender Board as the highest. The winning bidder by the Act 663 is the lowest evaluated tender, and any decision to offer the project to another contractor requires excellent justification. Technical, financial, plant, staff holding and previous works executed are used, among others, to evaluate tenders. The PPA aimed at creating the five top interest areas of public procurement: detail; clear legal and institutional framework; standard procurement procedures and tender documents. Also included are an autonomous control system; expert procurement staff; and anti-corruption measures rather than the project achieving stakeholder needs (World Bank 2003; Anvuur et al., 2006). Therefore, missing are health and safety, sustainability, stakeholder, and risk management plans which are recommended by the PMI (2008) as impacting on project goals. The PPA and the Act 663 do not specify any particular procurement system/route.

Given that, any of the procurement systems can be employed; the traditional, design and build and the management contracts with all the known non-conventional methods. However, the procurement method used for public works is the traditional method, with design split from construction (Anvuur et al., 2006). Studies have established that for project success to be achieved about SM, the appropriate procurement system should be carefully selected (Rwelamila, 2010).

6.2.3.4 Public Procurement Act, 2003 and Stakeholder Management

The PPA, 2003 (Act 663) is silent on which procurement system should be used. It specifies the method of procurement as competitive, two-staged, restricted tendering, single sourced and request for quotation (RFQ). This implies that tender boards can choose any of the three core systems; traditional (separated), design and build and the management-oriented contracts as the prescribed method can be applied to all. However, it appears that the PPA relies solely on traditional contracting and price-based selection (Anvuur et al., 2006). The reason may be the preparation of designs by in-house staff leaving and separating design from construction.

Moreover, the PPA Act, 2003 is partially implemented by tender boards as the PPA fails to provide training and supervision for full compliance (Ameyaw, et al. 2012).

With this method, it is required that the project documentation ought to be fully completed before tender (mostly not the case), hence no scope changes. It then suggests that project managers have ample time to identify stakeholders. Nevertheless, there are three inherent problems. These are the lack of contractor collaboration in the design process, client involvement and late identification and involvement of some key stakeholders such as the contractor, subcontractors, suppliers and the local community (Rwelamilla, 2010; Eyiah-Botwe, 2015). Rwelamila (2010) opines that project managers' have two options of selecting a non-conventional method or implementing an additional mechanism for a positive impact on SM and project success. The problem compounds with a lack of detail and full designs at tender stage.

Harris (2010) suggests that formal historical reviews have resulted in the various forms of contracts and stakeholder interactions: variants of design and build, management, integrated and discretionary. These non-conventional arrangements are more stakeholder focused with key players, namely clients, project manager, designers, contractors and supply chain, tied in by formal contract at early stages of the project. This approach enhances the SM process and achieves stakeholder satisfaction. Design and Build (D&B) is mostly used for smaller and maintenance projects where the design and construction are undertaken by an in-house team. In D&B projects it is easy to identify stakeholders and at early stages of the project planning because of the single point responsibility. The contractor, designer and client working together as a team means that challenges with stakeholder needs, team formation and environmental impact can be identified early and addressed (Rwelamilla, 2010).

Management-oriented contracts are rarely used in the Ghanaian public service except where the design is part of a package for the funding, and local agents are required to implement the contract. The inbuilt flexibility framework with this system has a positive impact on SM. In most management contracts there is a better relationship between the client and the contractor which enhances SM success. The advantages of this system are hardly realised as the PPA, 2003 advocates open competitive tendering, hence the likelihood of a management contractor working with a client on a series of the project is very slim.

The PPA Act, 2003 focuses on setting out the guidelines for a legal, institutional and regulatory framework aimed at reducing corruption. Also, it provides standards for fiscal transparency and public accountability (Anvuur et al., 2006). It fails to consider the relationship among the stakeholders involved in the project implementation. Furthermore, it is silent on project management and relationships for successful project delivery beyond the tender stage. Thus, it only focuses on the contract award for the project delivery. As a "hard skill," its focus is on project cost, time and value for money. The low capacity of procurement professionals and the interaction between procurement entities and the PPA affirms the assertion (Ameyaw, et al., 2012)

6.2.3.5 Negative Impacts of the Public Procurement Act, 2003 (Act 663)

Rwelamilla and Savile (1994) state that construction projects must consider the environment; country, location and project type but the full implementation of the PPA, 2003 leaves no room for applying an individual procurement method. There are different relationships and impacts of procurement methods on SM as separate contracts offer dissimilar stakeholder responsibilities (Harris, 2010; Rwelamila, 2010). Diverse projects require different project responsibilities and stakeholder approaches, hence different procurement methods. Therefore, using the traditional method for all project types impacts negatively on SM. The PPA, 2003 is silent on SM consideration though studies suggest that projects cannot be established or accomplished and benefits gained in the absence of SM (Eskerod and Jepsen, 2013).

There is evidence of political interference with the procurement process, hence posing a challenge to the project implementation and SM. Some politicians believe that they have the right to interfere in the process, eventually influencing project development, decisions and stakeholder satisfaction (World Bank, 2004). Political interference affects stakeholder participation, roles, responsibilities and project outcomes. The PPA, 2003 has failed to introduce an innovation in project delivery which is stakeholder focused; neither has it helped in managing stakeholders as the focus is on the transparency and competitive nature of the contract award considering value for money and using the three traditional targets of cost, time and quality only. Project success is mainly about meeting stakeholder needs and satisfaction and not only time, cost and quality (PMI, 2008).

6.3 Project Stakeholder Management in Ghana

Every project has individuals and organisations that affect or are affected by its outcome. Several factors determine the stakeholders involved in a project as identified by SM studies. This research did not identify an established SM framework for construction projects in Ghana, any African nation or developing country, except the Gaza Strip. Project management has focused on hard skills using a project communication management approach. Mainly stakeholder meetings in the form of stakeholder conference/workshop or site meetings are used to discuss issues related to project development but with an emphasis on achieving client goals (Eyiah-Botwe, 2015). This study explores project stakeholders in the Ghanaian construction industry.

6.4 The Ghanaian Construction Industry Project Stakeholders

There are several participants involved in a construction project delivery. These members in many cases are interested individuals or parties who have stakes in the project process or outcome and are to referred as stakeholders. Anvuur et al. (2006) identified suppliers, contractors, consultants, and Metropolitan, Municipal and District Assemblies MMDAs. Gyadu-Asiedu (2009) states that key stakeholders are clients, professionals, consultants and contractors. Fugar and Agyakwah-Baah (2010) mention 15 key players including clients, contractors, subcontractors, suppliers, the Civil Engineering Building Contractors Association of Ghana (CEBCAG), and the Ministry of Water Resources Works and Housing responsible for contractors' registration. Eyiah-Botwe (2015) asserts heads of educational institutions, clients (Works Department, development officers), client representatives, consultants, project managers, contractors, subcontractors, media, material suppliers, sponsors, artisans, the general public, the local community, chiefs and politicians. Also included are members of Parliament, statutory approval bodies (Regional and Town Planning, MMDAs Works Department), the fire service, the Environmental Planning Agency (EPA), the Ghana Tourist Board and end-users.

Consultants refer to professionals engaged by the government and other clients in the sector and include architects, engineers, quantity surveyors and planners. Professional bodies in Ghana considered as stakeholders include the Ghana, Institute of Architects GIA, Ghana Institution of Surveyors GhIS, Ghana Institution of Engineers GhIE and the Ghana Institution of Planners GIP (Gyadu-Asiedu, 2009). The stakeholders can be considered as internal and external. The project team constitutes the internal stakeholders while the others who may not be involved throughout the project and without a formal contract with the client are considered as external. The project stakeholders are determined by the project nature, objectives and procurement method adopted. The class of key stakeholders to be satisfied are referred to as key stakeholders. This thesis identifies the client, consultants, contractors, subcontractors, sponsors, project managers, end-users, the local community, and political representatives as key to successful stakeholder management and project delivery in Ghana.

6.4.1.1 Stakeholder Management

Projects have several participants with needs and expectations, whose interest affect or are affected by the project development or outcome, requiring that they are well managed. Again, the project success depends to a large extent on meeting their satisfaction in addition to the clients' goals. Therefore, their participation in the project development process is necessary. Activities related to the stakeholders should be well coordinated for project success.

However, the literature review suggests that there are no SM processes, models or frameworks related to construction projects for Ghana or any African nations. Even if the practice exists, there is no formal documentation. However, aspects of SM process are likely to be practised such as identification of the project team (not the entire stakeholders) and engagement with the interested parties through project and site meetings. Because of the lack of formal stakeholder management, it has been identified by studies that SM impacts on project success regarding scope changes, increased cost and time, poor project delivery and low stakeholder satisfaction. It is not surprising that project failure rate is very high in Ghana. In summary, the absence of a stakeholder management process has led to project failures.

As an attempt to develop the industry and enhance industry players' management, Ofori (2015) has argued for the establishment of a construction sector agency as there are CIDB in both South Africa and Zambia. The argument is substantiated considering the negative stakeholder influence on several public-sector projects in Ghana, including the STX housing and the Gas Project in Takoradi, which suffered negative stakeholder impacts (The Report Ghana, 2011). Innovations in the construction industry development which are stakeholder focused have impacted positively on stakeholder participation, management and project delivery (Egan, 1998: CIDB Report, 2016).

6.4.1.2 Project Managers' Knowledge of Stakeholder Management

The construction project is required to be managed for the successful delivery and the benefits realised. According to PMI (2008), project management entails initiating, planning, executing, monitoring and controlling and closing. Jepsen and Eskerod (2013) opine that construction projects cannot be delivered and the benefits realised without carefully managing the stakeholders involved.

Project managers (PMs) are assigned the role of planning using knowledge, tools, skills and techniques to coordinate all project activities and those related to stakeholders to complete and achieve the project objectives of (Lock, 2007; PMI, 2008). Their role requires that PM should have knowledge of the needs and expectations of stakeholders and what constitutes their satisfaction. Also, a PM should be experienced, equipped with skills and tools.

In Ghana, many project managers are team leaders by being the designers (architects) or cost experts (quantity surveyors) but not professional project managers. A study conducted by this researcher revealed that many PMs are not trained in stakeholder management except those with formal education in project management. Emphasis is laid on the 'hard skills' and tools used to achieve the project "golden triangle" objectives of cost, time and quality. Also, is the clients' satisfaction (Newcombe, 1996). Newton (2009) argues that project management is not about the mechanical and methodological approaches; rather it is about effective communication and people management.

6.4.1.3 Project Managers' Consideration of Stakeholder Management

This study explores the level of SM consideration by project managers/team leaders during project development and delivery. Team leaders/PMs in Ghana acknowledge the impact on and interest of project members and other participants in the project outcome. There is a lack of documentation on each stakeholder; rather mental pictures are kept of the primary stakeholders and their role in project delivery. Key stakeholders – the client, sponsor, design team members and the contractor – are considered as their role and responsibility directly impact project progress. Team leaders/PMs do not implement the entire stages of the SM process recommended and used by the developed nations. Site meeting minutes and progress and status reports which are part of project management are the only formal documentation kept.

Reasons offered for the non-practice of the SM process are attributed to the following:

- lack of education and knowledge in the SM process,
- project planning and development approach,
- procurement methods used,
- the absence of formal processes, and
- the fact that SM implementation is not a project delivery requirement neither will PMs be paid for any such additional responsibility.

Studies also revealed that the Development Officers at the clients' institution keeps documentation on project core stakeholders. While they consider key stakeholders at the project initiation stage, team leaders/PM usually consider stakeholder participation after the award of contract and the commencement of project execution at the site when almost all stakeholders are identified at the project handing over meeting. The reason is mainly attributed to the traditional method of project procurement. Team leaders/PMs are not part of the project initiating and planning process and only undertake specific roles assigned.

6.4.2 Stakeholder Management for Public Funded Projects

In Ghana, construction clients include the government, estate developers, investors and owner occupied (Gyadu-Asiedu, 2009). Public sector projects are, however, initiated by the government or its agency. Considering that a significant portion of a nation's resources is invested in the construction industry for economic transformation suggests the need for a SM to ensure project success. Also, projects untaken by the public sector have more interested parties than the private sector. Infrastructure delivery is Ghana government's priority and the fact that projects are either completed or never all for its benefits to be realised suggests the need for innovation in the sector that looks at the implementation stages (Williams, 2015).

6.4.2.1 Need for Stakeholder Management in the Construction Industry

The quest for intervention in the construction sector for its development and improvement in project delivery has been the recommendation of many scholars (Ofori, 2012). The Auditor General's Report on GETFund Tertiary Projects (AGRGTP) in 2013 on the audited project indicates a high rate of project failure. There is a recorded over one hundred percent of time and cost overruns, low quality and variations in project scope. Consequently, project benefits are not realised as planned, thereby affecting mostly academic work at tertiary institutions.

Williams (2015) also mentions a similar problem with projects' implementation by the MMDAs in Ghana. He asserts that one-third of all MMDAs projects are not completed, less than fifty per cent of all projects are completed after twice the project initial duration. The reasons are attributed to mid-project disruptions and shifts in policy direction which are stakeholder challenges. The shifts can also be attributed to low stakeholder participation in the project definition stage and monitoring of stakeholder positions at the implementation stage.

Stakeholders in the industry are not satisfied with the rate of project delivery nor with the completed projects. The GETFund Outlook Report (2010) states that key stakeholders are not involved in the project planning and development process. The non-involvement can be the reason for mid-project disruptions as stakeholders become involved and the project team are compelled to consider stakeholders needs and concerns. Constructed projects are also unsatisfactory regarding maintainability and durability (Ofori, 2012).

There is the need for restructuring the sector, the introduction of innovative approaches as done by the developed countries. The literature review on construction industries in the UK, Finland and Australia has indicated a major improvement in project delivery as projects focused on soft skills, stakeholder participation and management (Chinyio and Olomolaiye, 2010). Ofori, (2012) refers to the major review of Australia, Hong Kong and Malaysia construction industries and mentions Latham (1994) and Egan (1998). The construction industry in Ghana is yet to have a major review that will enhance stakeholder participation to facilitate project delivery.

6.4.3 Project Management and Critical Success Factors

As a means to achieve project requirements, project managers are required to apply the relevant tools, skills, techniques and knowledge to the project activities (PMI, 2008). In Ghana, like many developing countries, project management is applied as a rule by funding agencies or project managers for public construction projects meant for socio-economic interventions to achieve project success. Ofori (2013) points out that project management practice in the Ghanaian construction industry dates back to the 1960s, the post-colonial rule when enhanced infrastructure provision became a necessity.

Though the practice was not sustained as other approaches emerged, the 1980s witnessed the re-emergence of project management practice as a drive by donor stakeholders (Ofori and

Sakyi, 2006). Project management is a process and applied through the five stages of a project namely: initiating; planning; executing; monitoring and controlling; and closing. This implies that for a project to be successfully executed, every phase needs careful consideration. Each stage requires that project manager must get stakeholders involved and carefully consider the provision of detailed information and proper documentation for project success. Also, a clear project plan, stakeholder commitment and support are the critical success factors for project management (Ofori, 2013).

Critical success factors refer to the set of factors which, when carefully considered and maximized, lead to project success. However, there appears not to be consensus on what critical success factors are relating to public sector project in the midst of the low delivery. (Amoa-Mensah, 2011; Adinyira et al., 2012). Ahadzie (2010) asserts the central theme should focus on project needs, the client or end users. Also, other research suggests top management support, effective communication, clarity of project purpose and goal, and stakeholder involvement (Ofori, 2013). Client satisfaction appears to be main success factor (Newcombe 2003: Adinyira et al., 2012). If project success is measured by meeting stakeholders' needs and satisfaction (PMI, 2013), then CSFs must consider these objectives. Though stakeholders have different views of project success, the client and end-users have in common the achieving of stakeholder satisfaction, communication, and cost and time budgets (Davis, 2014). That calls for the need to evaluate and understand the complexities of the stakeholders involved which is critical for project success.

6.4.3.1 Project Management and Critical Challenges

As a means to achieve project requirements, project managers have a responsibility to achieve project targets (PMI, 2008). Gudiene et al. (2013) inform that with the good performance of project managers, project objectives can be achieved. Project delivery requires the management of both human and non-human resources (Kerzner, 1985; Gyadu, 2013). The project management challenge in Ghana is that all efforts have been on non-human resources (hard skills) to achieve project success (Davis, 2014). The uncertainty of project, the need for a new integration and the urgency of delivery influence the achievement of objectives (Turner 1999; Gyadu, 2013). Moreover, until recently Ghana had no school teaching project management as a degree programme, hence skills were only gained through experience or practice. There is no formal stakeholder management model or industry practitioners' knowledge and stakeholder consideration is unsatisfactory.

6.4.3.2 Lessons Learnt

According to OGC (2007), the main success criterion of a construction project is the value of the facility to the organisation. Likewise, the PMI (2013) asserts that stakeholder satisfaction and need for achievement are the criteria for project success. Successful delivery requires an integrated process in which design, construction, operation and maintenance are considered as a whole (OGC, 2007). That requires effective use of project management techniques.

The construction industry in Ghana is an important sector that contributes to GDP growth, employment, infrastructure delivery and socio-economic growth. The historical development informs that there is a lack of documentation when compared to the developed countries. However, the industry development and practices impact on project delivery. Though the construction project delivery was fashioned after the practices of developed countries owing to colonisation and the presence of large foreigner-owned firms, the industry has failed to adopt stakeholder management and stakeholder-focused practices as in the developed countries.

The Procurement Act was established to enhance public sector oversight for value for money and enhanced project delivery. However, that has not been achieved as there is evidence of and increasing public, sponsor and the users concern about project failure. Project planning and development remains a major challenge as stakeholders are not involved in the projects' definition and planning stages. The project stakeholder factor has not been addressed as the government actions, capacity and disruption continues. Examples are the MMDAs projects and the Atuabo gas pipeline construction.

6.5 Conclusion

The construction industry plays a vital role in the infrastructure delivery and socio-economic growth in Ghana. There is evidence of a high rate of project failure in the public sector, notably in the MMDAs and educational institutions. The construction industry is not properly managed, stakeholder focused or innovative and continues to use project performance as a success factor.

The historical development of SM has been documented. Project delivery is fashioned after the traditional (separated) system with architects as team leaders. Project managers' knowledge, implementation, and efforts to achieve SM success are unsatisfactorily. Failure is attributed to poor SM, undefined project stakeholder roles, poor project planning and development, conflicts and the procurement approach used.

CHAPTER SEVEN

RESEARCH METHODOLOGY

7 Introduction

This chapter discusses the research methodology and methods adopted for the development of a sustainable stakeholder management framework for the Ghana. Also, it includes a systematic investigation to establish facts for new conclusions. The overall steps considered to achieve the enhanced stakeholder management (SM) success are discussed. As stated in the introduction, the study aims at identifying factors and their influences on SM success for the development of a sustainable stakeholder management framework (SSMF) for enhanced project delivery. Stakeholder identification, classification, prioritisation, communication and engagement are factors derived from other studies while pre-stakeholder identification, conflict resolution and implementation, monitoring and feedback (IMF) are the new factors validated by this study. Also, most of the variables have been tested by previous theoretical and empirical models in developed countries and are being examined.

This chapter entails the research process, methods and methodology, theory and the philosophical approach, as well as quantitative, qualitative and mixed methods. The design and methodology focus on the procedure, choice of research method, ethics and values as well as factors leading to the choice of the multiple methods approach adopted. The choice of the mixed-method approach is derived from both a philosophical stance and experience in the field and justified in detail in the mixed-method design section. Also, the use of the literature review, Delphi study, questionnaire survey and the structural equation modelling for the analysis is explained. Finally, the ethical consideration, sampling frame, means of data collection and research scope and limitations are stated.

7.1 Methodology and Methods

"Facts do not simply lie around waiting to be picked. Facts must be carved out of the continuous web of ongoing reality, observed within a specified frame of reference, measured with precision and related to other relevant facts" (Rose and Peterson, 1965 in Ghauri and Grounhaug, 2010). Similarly, Gupta and Awasthy (2015) posit that research has a philosophical assumption regarding the nature of reality (ontology) and the researcher's relationship with the study (epistemology) and this determines the methodology employed. A coherent research methodology and method are essential for a research study. Thus, the study adopted a sound methodology, data collection and analysis methods which are discussed subsequently.

While the methodology examines the overall approach and the researcher's theoretical basis, the method considers the data collection, analysis and interpretation (Hussey and Hussey, 1997; Creswell, 2013). However, they are closely related and co-dependent (Neuman, 2014). Neuman (2014) further argues that methodology means understanding the entire research process while method refers to a collection of specific techniques used to observe, gather, analyse and report on results of the study. Methodology entails the philosophical approach and ethical considerations. The methodology and methods adopted together are conceived as a system of philosophical underpinnings and rules underlying the particular techniques used to achieve the pre-set research objectives (Ghauri and Gronhaug, 2005; Saunders et al. 2007).

According to Ghauri and Gronhaug (2005), research methodology and methods consist of a system of rules and procedures necessary for research purposes. It entails a specific logic and reasoning to acquire insight, supporting inter subjectivity, enabling others to evaluate the research findings and enhance knowledge. Thus, either by supporting replication or criticism of the rules and procedures used in the research to arrive at conclusions.

Leedy and Ormrod (2010) also opine that methodology is an operational framework which enables facts to be seen. A choice of methodology must as such consider certain appropriateness in data collection, presentation, analysis, findings and conclusion for the research to be credible (Mwanaumo, 2014). It must be noted that underpinning the methodology, by necessity, is a philosophical stance. That should relate to the purpose and place of research in general, including the differences between positivism and interpretivism (Bryman and Bell, 2007). Adding two distinct philosophies, approaches, strategies and choices should be coherently implemented (Saunders et al., 2007).

Crotty (1998) states that the choice of a method is influenced by the set of assumptions underlying the research methodology. Epistemology and ontology are fundamental facets, positions and foundations of research work, hence the need for philosophical consideration (Gupta and Awasthy, 2015).

7.2 Philosophical Consideration in Research

As mentioned, a philosophical stance influences the methodology and choice of method. A philosophical consideration in social research justifies why the need for the research, relates moral-political values and guides ethical research behaviour (Neuman, 2014). Alternative approaches serve as broad frameworks for conducting a study. Thus, research methodology tends to be influenced by the two broad philosophical approaches, namely epistemology and ontology (Neuman, 2014; Flick, 2014). Moreover, studies show that assumptions may vary, but they tend to fall into the two philosophical areas of ontology and epistemology (Crotty, 1998; Aigbavboa, 2013). This study, therefore, investigates the epistemological and ontological stances as alternative approaches.

7.2.1 Epistemological Consideration

Epistemology examines what is regarded as acceptable knowledge in a discipline and whether social world and natural sciences should be considered using the same principle and procedures (Bryman, 2003). Also, it is concerned with the creation of knowledge, focuses on how and what we know, and the most valid ways to reach the truth (Neuman, 2014). It believes in the existence of an empirical world, arguing that gathering empirical evidence leads to some of the ideas about reality being verified. Others are discarded owing to non-supportive empirical evidence.

There are two major distinctions associated with epistemology: positivism which emphasises the empirical social world and interpretivism that deals with human beings' relationship to the world and subjective form of knowledge (Gupta and Awasthy, 2015). Researchers who believe in this epistemological position associate with 'positivism' with the so-called 'standard view' of science derived directly from this philosophical approach.

Positivism establishes a value-free model and so discovers casual law. That is embraced by many social scientists (Robson, 2011). Outhwaite (1987) suggests three generation thoughts associated with positivism: Auguste Comte's (1798-1857) stance implying progress, Hebert Spencer's logical positivism and Carl Hempel's value-free evidence and hard fact. Studies suggest that research reflecting the philosophy of positivism is likely to adopt the philosophical stance of the natural scientist. Researchers will prefer working with an observable social reality and generalise their findings as similar to those produced by the physical and natural scientists (Remenyi et al., 1998:32; Bryman, 2003).

Robson (2011) states that objective knowledge (facts) can be gained only from direct experience or observation and that science separates facts from values. Positivism argues that science must be conducted objectively. Knowledge arrives through the gathering of facts (Bryman, 2003). Supporting that, positivism seeks for the existence of a constant relationship between two variables or factors, facts devoid of researchers' and participants' values. This approach was found to be useful for investigating the relationship between sustainable stakeholder management and the identified factors.

However, this methodological perspective has philosophical critiques. The critiques believe that facts and values cannot be separated and that direct experience as a basis for scientific knowledge is questionable and rejected, hence the need to consider another approach (Blaikie, 2009). That confirms Gupta and Awasthy's (2015) assertion that researchers can take different philosophical positions which dictate their methodology. The study thus considers the alternative approach.

7.2.2 Ontological Consideration

This study considers ontology as a post-positivism stance. The philosophical position that deals with the nature of being, or what exists and the fundamental nature of reality was examined (Neuman, 2014). The study identifies objectivism as a position which portrays the social entities as existing in reality external to social actors and subjectivism as social phenomena that are created by the perceptions and consequent actions of those social actors concerned with their existence (Saunders, 2011). The above implies that the social phenomenon has an existence which is independent of its actors (Bryman, 2003). This objectivist perception of reality is closer to the positivist theoretical position (Crotty, 1998; Aigbavboa, 2013). Thus, the world exists as a system of variables waiting to be revealed.

Bryman (2003) mentions constructionism as another ontological position whereby researchers believe that social phenomena are achieved by their actors. Neuman (2014) rather assets that the two positions within ontology be considered are the realist and nominalist. While the realists see the world as being out there and getting what one sees, the nominalist assumes that humans never directly experience a reality out there. Bryman (2003) mentions objectivism and constructionism. The philosophical approach recognises the criticisms and proposes the following:

- The theories, hypotheses, background knowledge and values of the researcher can influence what is observed;
- There is a commitment to objectivity which is, however, approached by recognising the possible effects of these likely biases; and
- Though a reality does exist, it can be known only imperfectly and probabilistically owing to the researcher's limitation.

This study seeks factors and relationships for successful stakeholder management and project delivery but acknowledges that a researcher's values and background can influence a research outcome. However, the author is committed to objectivity, value-free and independence of actors involved.

Bryman (2004) suggests the quantitative and qualitative research represents different research methods with striking differences based on the theory and epistemological issues. The study explores both research approaches.

7.3 Quantitative vs Qualitative Methodology

The debate on whether social research should consider quantitative or qualitative research has been debated by many scholars. Layder (1993) opines that the distinction is ambiguous and that which is considered as the primary difference between the two approaches is not used again. Similarly, Trochim (2004) suggest that the extreme positions are unproductive. Trochim (2004) further states that the complex issue requires more attention than trivialising. He disputes the assertion that the quantitative approach is deductive and confirmatory in theory as against qualitative which is inductive and exploratory. Many research problems can be examined using the qualitative or quantitative method. Rather, both methods have elements of inductive, deductive, confirmatory and exploratory approaches. Similarly, Blumberg et al. (2014) posit that there are not pre-determinates for the appropriateness of either of the two approaches.

However, Bryman (2003) asserts that many writers find it useful to distinguish between the two. He further claims that evidence available rather indicates that the distinction is growing rather than abating. The increase in the discussion is attributed to the useful means of classifying the different methods and practice of social research. Bryman (2003) argues that quantitative research emphasises quantification in data collection and analysis, while qualitative research emphasises words and is different regarding inclination to theory.

According to Creswell (2009), in using a quantitative approach, investigators primarily use post-positivist claims for evolving knowledge. Researchers thus adopt experiments and surveys for data collection using the predetermined instrument for statistical data. On the other hand, researchers tend to make knowledge claims based on constructive perspectives. The assertion is supported by researchers suggesting that the quantitative method is deductive and positivism oriented while the qualitative is seen as inductive and constructionism. Though there are differences regarding the research strategy, there is research going beyond the differences to combine the two distinct strategies (Bryman, 2003).

On strategies, Creswell (2009) opines that the qualitative approach adopts strategies of inquiry including narratives, phenomenology and case studies. The quantitative approach also uses strategies such as experiments and surveys for statistical data using pre-set instruments. In exploring methodological options, researchers are influenced by the aims of the study and the type of data needed and that research study may adopt one of the two broad methodologies or combine them the two as influenced by the research paradigm (Aigbavboa, 2013). A paradigm aids in organizing the conceptual framework for theory, making basic assumptions, stating key issues, and choosing methods for answers sought (Neuman, 2014). The choice of a research methodology is thus influenced by the research paradigm and raises the issue of philosophical consideration.

Research methodology is influenced by researcher's orientation towards epistemology or ontology considerations. However, both approaches consider epistemological assumptions regarding the nature of knowledge and how it is obtained and ontological consideration of the nature of reality and the phenomenon investigated (Jean, 1992; Aigbavboa, 2013). Bryman (2003) agrees with the philosophical orientation but states that the two differ in epistemological foundations.

Mwanaumo (2014) quotes Seymour and Rooke (1995) in their assertion that many things have gone wrong in the construction field because knowledge has been dominated by rigid methodological paradigms prescribing a quantification and statistical approach. Further, they state that the rigid approach negatively affected relevant issues needed to be addressed for the industry's progress. That suggests the need to consider both approaches to curtail the narrowed opinion from one approach. Therefore, the tension and debate in the epistemological, ontological, methodological, quantitative and qualitative research are overcome using mixed methods (Tashakkori and Creswell, 2007).

While qualitative data offers a detailed understanding of a research problem, quantitative data affords a more general understanding (Creswell and Plano Clark, 2011; Ngulube and Ngulube, 2015). Researchers are opting for a multiple research strategy as methodological pluralism provides better quality data than a single approach (Creswell & Garrett, 2008; Ngulube and Ngulube, 2015). It employs strategies of inquiry that involve collecting data either simultaneously or sequentially to understand research problems best (Creswell, 2009). Teddlie and Tashakkori (2012) advocate for mixed-method research using qualitative and quantitative approaches in a single study. This study, therefore, adopts a mixed-method approach, employing both qualitative and quantitative methods as considered the best to address the research question and offer the right data and analysis. The mixed method is explained in detail under Research Methods.

7.3.1 Qualitative Analysis

A research approach must entail plan, procedures, assumptions, methods of data collection, analysis, and interpretation (Creswell, 2013). Studies have identified the quantitative, qualitative and mixed method as the three main approaches. Creswell (2013) posits that the philosophical assumptions, procedures of inquiry, methods of data collection, analysis and interpretation should determine the choice of research approach.

A research objective may seek the subjective meaning of occurrence from participants' perspectives, social practices and experience, and hence adopt a qualitative approach (Flick, 2011). Such research is not aimed at generalization but rather explores using a small number of cases and per relevance uses open questions in the study. Similarly, Gupta and Awasthy (2015) posit that research may seek the understanding of the subjective world of groups and individuals but complete objectivity and neutrality are impossible. Such research aims to develop concepts and theory through the collection and analysis of data (Bryman and Bell, 2007). Exploring and conceptual clarity are of essence (Gupta and Awasthy, 2015).

Such research with the constructivist or interpretive philosophy is inclined towards a qualitative approach (Creswell, 2013). Also, the research rejects the positivist epistemology and embraces an inductive approach to research with the constant shifting of a social reality stance (Bryman and Bell, 2007). Gupta and Awasthy (2015) further state that research relying on participants' lived experience for understanding will adopt a phenomenological qualitative approach to the study. In the absence of any formal stakeholder management framework for Ghana as a developing country, participants' lived experiences are essential.

Furthermore, research with constructivism or social constructivism is inclined towards a qualitative approach (Crotty, 1998; Creswell, 2013). Researchers seek for individuals developed subjective meaning of their experiences towards things by looking for varied views rather than narrow ideas. Thus, participants' opinions are very much relied upon as a research goal. Bryman and Bell (2007) state that the qualitative approach adopts a more open-ended strategy while theory and concepts are evolved as an outcome. Also, there is a collaboration between the researcher and participants in developing a solution.

Researchers who are quantitatively biased criticize the qualitative approach as subjective, difficult to replicate, lacking transparency and restricted, hence cannot be generalized (Bryman and Bell, 2007). Similarly, reliability and validity are criticized. Flick (2011) also asserts that the research situation is not standardized and involves studying only a few cases.

According to Kumar (2005), the main focus is to understand, explain, explore, and clarify the perceptions and experiences of industry participants on SM. Thus, a qualitative approach is adopted when participants are required to contribute their experiences and views based on life situations and social life practices (Flick, 2011). This is also the case when the study aims at developing concepts, theory and hypotheses for testing. Furthermore, the approach is useful for emerging approaches focusing on single concepts and aims at creating an agenda for change through a development of theory.

7.3.2 Quantitative Approach

A researcher with a deterministic philosophical stance believes that causes determine the outcome, hence is inclined to the positivist/post positivist stance. Thus, the researcher is interested in the exploring the possible causes that influence the outcomes. That calls for the identification of variables and the need for hypotheses and research questions to investigate causal effects. It is a search for the objective reality as exist in the 'world'.

According to Bryman (2007), such a researcher will advocate for a deductive approach between research and theory. Also, will formulate a hypothesis and conduct a test of the theory. The research approach is positivist in nature and views social reality as objective reality. To achieve that, the research needs to employ measurements as a basis for estimation. Thus, a quantitative approach is employed. However, of importance are measurements to estimate the degree of relationship (Bryman, 2007). Quantitative methods deal with measures, quantities and indicators. According to Creswell (2013) the post-positivist develops knowledge through careful observation and measurement of the existing objective reality out there.

Bryman and Bell (2007) posit that there are four main preoccupations for adopting a quantitative approach: measurement, causality, generalization, and replication. The study seeks reliability and validity of measurement, for dependent and independent variables, and examines the causes of 'how' and 'why' in causal relationships. Furthermore, the researcher seeks for generalization beyond the study's confines and the possibility to replicate. Similarly, Flick (2011) agrees with the assertion of causalities, reliability, validity and objectivity. He further states the use of standardized data collection tools such as the Likert scale and the use of specific group and testing instruments for consistency.

The positivist accepted approach is that research must begin with theory and through data collection must be verified, refined or refuted (Creswell, 2013). Similarly, Phillips and Burbules (2000) and Creswell (2013) assert that the positivist researcher believes that knowledge is conjectural, data and evidence shape knowledge, research pursues to explain the causal relationship, and objectivity is an essential aspect of expert inquiry.

Bryman and Bell (2007) summarise quantitative research as a linear series of steps moving from theory to conclusion; having a measurement process which entails a search for indicators; establishing reliabilities and validity of measures as important for assessing the quality; and aiming at exhibiting measurements, causality, generalisation and replication.
Social constructivists' critics such as Mertens (2010) and Crotty (1998) posit that individuals seek understanding of the world in which they live and work. Bryman and Bell (2007) further suggest the natural science model as inappropriate for social world studies, having a static view, and failing to distinguish between social institutions and life from the world of nature.

In summary, the quantitative researcher believes that it offers objective knowledge, gained from direct experience, it is value-free and can be used to develop universal causal laws when strict rules and procedures are adhered to (Robson, 2011). Moreover, there is the need for theory, hypothesis, research design, measures of concept, research site selection, respondents, administering, processing data, analysing data, and formulating findings and conclusion

(Bryman and Bell, 2007). Measurement and classification demand that study designs are more structured, rigid, fixed and predetermined for accuracy (Kumar, 2005). Criticisms are addressed by employing a qualitative approach in support (Tashakkori and Teddlie, 1998).

7.3.3 Combining Qualitative and Quantitative Approaches

Many studies support the combination of quantitative and qualitative approaches in research studies (Tashakkori and Teddlie, 1998; Greene & Caracelli, 1997; Creswell et al., 2003; Flick, 2011). Tashakkori and Teddlie (1998), for instance, argue that the two approaches can be complementary rather than distinctive and opposing. Creswell et al. (2003) also assert that combining both methods can address the limitations of methods used in data collection. Also, combining the two approaches strengthens the study (Greene & Caracelli, 1997). There are, however, writers who are critics of the concept of combining qualitative and quantitative approaches (Smith 1983; Smith and Heshusius 1986) with a purist view (Cameron, 2009). They argue that the approaches are linked with different ontology, epistemology stances and separate paradigms (Bryman and Bell, 2007; Blumberg et al., 2014).

Nevertheless, many scholars favour combining the two approaches (Tashakkori and Teddlie 1998; Creswell et al., 2003; Bryman and Bell, 2007). They refute the argument of a conflict but rather suggest that employing the different types of methods can strengthen and complement the study (Greene & Caracelli, 1997; Tashakkori and Teddlie, 1998). Also, pragmatist scholars argue against a false dichotomy between the qualitative and quantitative approaches and support the efficient use of both approaches (Cameron, 2009).

Creswell (2009), for instance, posits that details of qualitative data can provide insights absent in quantitative data. Similarly, Blumberg et al. (2014) suggest adopting a two-step qualitative and quantitative approach for formulating and testing hypothesis respectively which this study considers as very useful. Also. Hammersley (2002) claims the combination collaborates, facilitates and complements one another as is the aim of this research.

Bryman and Bell (2007) state that research which considers both quantitative and qualitative in a single project is referred to as mixed methods. Similarly, Creswell et al. (2003) opine that a mixed methods study involves the collection or analysis of both quantitative and qualitative data in a single study. Furthermore, Flick (2011) perceives the combination as combining the methods within either the qualitative or quantitative research or combining both methods in one study. This study adopts a mixed method which combines qualitative and quantitative approaches in the study. This is discussed in the next section.

7.3.4 Mixed-Method Approach

A mixed-method (MM) study involves the collection or analysis of both quantitative and qualitative data in a single study (Creswell et al., 2003; Bryman and Bell, 2007). Similarly, Tashakkori and Teddlie (2003) define MM research as one that combines the qualitative and quantitative approaches to the research methodology of a single study or multi-phased study. Data are collected concurrently, sequentially or by conversion and are given priority, and involve the integration of the data at one or more stages in the process of research (Tashakkori and Teddlie, 2003: 687; Creswell and Plano Clark, 2007: 85). According to Flick (2011) Tashakkori and Teddlie (2003) postulate MM as a third methodological movement with quantitative and qualitative as first and second respectively.

Several factors have influenced the collection and combination of both quantitative and qualitative data in research. Unquestionably, combining both quantitative and qualitative data is increasingly available for use for social science studies. Also, because all separate methods of data collection have limitations, the use of MM can neutralize or cancel out some of the disadvantages of certain methods (e.g. the detail of qualitative data can provide insights not available through general quantitative surveys) (Jick, 1979). Thus, there is wide consensus that mixing different types of methods can strengthen a study (Greene and Caracelli, 1997). Qualitative research has become an accepted legitimate form of inquiry in the social sciences with researchers of all methodological persuasions recognizing its value. Also, because social phenomena are so complex, different kinds of methods are needed to best understand their complexities (Greene and Caracelli, 1997; Creswell et al., 2003).

Nevertheless, not all writers support MM research in spite of its growth. Scholars who object to the MM approach refer to epistemological, ontological and separate paradigm impediments (Bryman and Bell, 2007). According to Guba (1985), the separate paradigms, values and methods are incompatible. However, those in support argue that MM is pragmatic and productive, offering an immediate and valuable middle position philosophically and methodologically (Johnson and Onwuegbuzie, 2004: 17). Also, it offers both practical and outcome-orientated method of inquiry based on action and leads, iteratively, to further action and full conviction. Similarly, the technical strength of data collection and analysis methods of each can be merged. The different methodological mixes aids researchers better answer many of their research questions (Johnson and Onwuegbuzie, 2004:17).

There are many ways of combining and presenting mixed method research (MMR) (Bryman and Bell, 2007). Hammersley (1996) posits three combination approaches as triangulation, facilitation and complementary. Bryman and Bell (2007) explain that in facilitation, an open-ended or semi-structured qualitative tool is used to collect data, provide themes, concept, and hypothesis and then tested using a quantitative method with the structured survey tool. Also, MM is used to aid measurement as an in-depth qualitative knowledge of social context is used to design quantitative survey questions. However, based on priority and sequence of the decision on the lead method and main data collection tool, Morgan (1998b) suggests four approaches. Flick (2011) states that there are two main approaches: combining methods within qualitative and quantitative research and also qualitative and quantitative study within the same study. Triangulation within the separate approaches and both qualitative and quantitative are thus considered. Mention is made of data, investigator, theory and methodological triangulation (Denzin 1989 in Flick, 2011). Furthermore, Bryman (1988; 1992) identifies eleven ways of MM research approaches, emphasizing the pragmatics of research rather than theoretical consideration. Thus, the use of MMR is preferred for combining qualitative and quantitative approaches to triangulation as the emphasis is on pragmatics.

According to Edwards et al. (1998) in Bryman and Bell (2007), the qualitative method is used to inform quantitative approach. It allows for access to research participants' perspective and meanings on issues while variables and themes are explored. Using a qualitative approach, relationships between variables are explored regarding cause and effects. Thus, the researcher can identify independent, dependent and intervening variables. That is very useful for the current study as it seeks the variable mentioned above which is responsible for sustainable stakeholder management success. An SSM process also influences the SM output. Having determined the themes and variables, the quantitative method is used to evaluate the generality of the qualitative findings. In management studies, many scholars support the use of MMR (Bryman and Bell, 2007).

Researchers who support MMR associate with the pragmatic paradigm (Cameron, 2009). A review of MMR by scholars identifies several typologies (Caracelli and Greene, 1997; Tashakkori and Teddlie, 2003: 687; Mertens, 2005; Creswell and Plano Clark, 2007: 85).

Caracelli and Greene (1997) argue that different methods can be used to assess the same phenomenon for increased validity. Mertens (2005) opines the parallel and sequential forms of using qualitative and quantitative approaches in MM design. To achieve research validity, MMR has been advocated by many scholars.

Similarly, MMR is considered as the most innovative and widely used research method which can answer questions that others are unable to (Tashakkori and Teddlie, 2003; Cameron, 2009). Also, it is useful in addressing both exploratory and confirmatory questions which this thesis seeks to achieve. According to Tashakkori and Teddlie (2003), inquiry decision and conceptual theory are the most essential and relevant issues. They further suggest that in MMR both quantitative and qualitative approaches are considered either parallel/concurrent or sequential; data mixing occurs in the method section of the study; and data collection and analysis are not only marginally mixed. Following a comprehensive typology studies, Tashakkori and Teddlie (2003) posit six different types of multi-strand designs as follows:

Table 7.1: Mixed-Method Approaches

Procedure	Mixed Method	Mixed Model Study
Concurrent	Concurrent mixed method design	Concurrent mixed model design
Sequential	Sequential mixed method design	Sequential mixed model design
Conversion	Conversion mixed method design	Conversion mixed model design

(Source: Tashakkori and Teddlie, 2003: 687; Cameron, 2009)

The six multi-strand types are developed from mixing both research approaches using three dimensions, single or multiple approaches. Also, the typology considers the stages of integration of both data mix occurring: concurrently, sequentially or by conversion. This study considers the sequential procedure in exploring and confirming variables, concept and theory relating to SSM success for improved project success in Ghana. Similarly, Creswell and Plano Clark (2007) postulate four different types based on the timing, data mix and weighting of each approach employed. This research found the exploratory MMR approach as more appropriate with data connection between the two phases.

Table 7.2: Mixed-Method Process

Design Type	Timing	Mix	Weighting/ Notation
Triangulation	Concurrent: quantitative and qualitative at the same time	Merge the data during interpretation or analysis	QUAN + QUAL
Embedded	Concurrent and sequential	Embed one type of data within a larger design using the other type of data	QUAN(qual) or QUAL(quan)
Explanatory	Sequential: Quantitative followed by qualitative	Connect the data between the two phases	QUAN qual
Exploratory	Sequential: Qualitative followed by quantitative	Connect the data between the two phases	QUAL quan

(Adapted from Creswell and Plano Clark, 2007: 85)

7.3.5 Justification of the Mixed-Method Approach

Scholars assert that both the qualitative and quantitative methods used separately have weaknesses. These weaknesses are associated with theory, hypothesis and concept development, case selection, data collection and analysis, generalisation and replication of research study (Bryman and Bell, 2007: Flick, 2011). Tashakkori and Teddlie (2003) assert that single data collection methods have limitations. Combining research methods neutralizes and cancels the weakness of one another. The qualitative approach provides details of insight not available in the quantitative survey (Jick, 1979). Furthermore, Jick (1979) posits that more than a method is used in validation to reflect a “trait” rather than a method. Also, convergence of method enhances the credibility of research results. Mixing of the data collection methods in a single study is recognised by many authors (Tashakkori and Teddlie, 2003).

In developing a SSM framework for Ghana as a developing country, details of insight into variables that influence its success were critical. A qualitative approach was used to explore variables from experts in the field from research questions developed (Bryman 2003).

Previous studies on SM have been in developed countries (Yang, 2010), hence existing theories are developed nations oriented. The study set out to explore and not to confirm (Flick, 2011). Thus, it was necessary to explore for both variables and themes peculiar to the study area. Using an open-ended strategy enabled theories and concepts to be evolved (Bryman and Bell, 2007). The approach enabled the exploration of variables in the absence of existing theory for Ghana (Flick, 2011).

Also critical was the development of themes and theory for the study. Researchers aimed at developing theories adopt qualitative approach (Bryman and Bell, 2007). This study required the use of a small number of cases to explore and obtain conceptual clarity. Through data collected, themes and theory were developed for testing. That is supported by Bryman (2003) who posits that research questions, selection of study site and collection of relevant data evolve concept and theories. Open-ended questions were thus used to obtain variables and group them into themes for the development of a hypothesis.

This study also adopts the constructivist philosophy which is inclined towards a qualitative approach (Creswell, 2013). Also, it embraces an inductive approach to research, believing there is a constant shifting of the stance of people on social reality (Bryman and Bell, 2007). Subjective meanings of issues are derived from expert participants on the phenomenon of stakeholder management using triangulation of investigators of different professional backgrounds (Jick, 1979). Experts' experience is used to understand the phenomenon (Gupta and Awasthy, 2015) Similarly, research adopts a qualitative approach when participants are required to contribute their experiences and views based on life situations and social life practices' issues (Flick, 2011). Seeking participants' knowledge and perspectives on issues relating to stakeholder management was the goal of the Delphi qualitative survey employed. Employing a qualitative approach in this study enabled the researcher to answer the objectives of research relating to identifying key factors, and critical and barrier factors impacting on a sustainable stakeholder management process in Ghana.

A researcher's epistemology, ontology and paradigm stance influence the choice of research approach. Having developed a theory, the researcher embraced a positivist and deductive approach, believing that objectivity is critical for expert inquiry, knowledge is conjectural and statistical data shapes knowledge (Creswell, 2013). Studies aimed at generalizing findings and replication employ an approach devoid of subjectivity. A large number of cases involving a particular group and "hard data" for a high degree of generalizability were measured for reliability and validity. Also, interest in causalities requires an approach that enables high criteria of validity, reliability and objectivity to be achieved. Causes for SMS success were studied. Identifying dependent and independent variables was used. That is because the independent variables influence the dependent variable which is SSM success.

Flick (2011) opines that such research requires that data collection is standardized and recommends using a Likert scale. Also, employing a quantitative approach enables a researcher to test developed theory and hypotheses for consistency of instruments through measurement. A quantitative approach to theory, hypotheses, research design, measurement, sample selection, data collection, analysis, findings and conclusion was adopted (Bryman, 2007). That allowed the theory and hypotheses developed to be tested using a systematic linear path (Neuman, 2014) for the influence of the key factors and variables on SSM success and the likely outputs. Thus measurement, causality, generalization and replication were achieved (Bryman and Bell, 2007).

Thus, considering both qualitative and quantitative approaches as having some advantages, a combination of both was adopted in the single study (Creswell, 2009). Thus, a mixed method approach was used instead of any of the two traditional approaches. The study considered timing, weighing, mixing and theorizing of both approaches (Creswell, 2003; 2009). The topic was explored (qualitative), themes generated (qualitative), then qualitative data analysis connected to the quantitative data collection phase and finally, theory validation using the quantitative data.

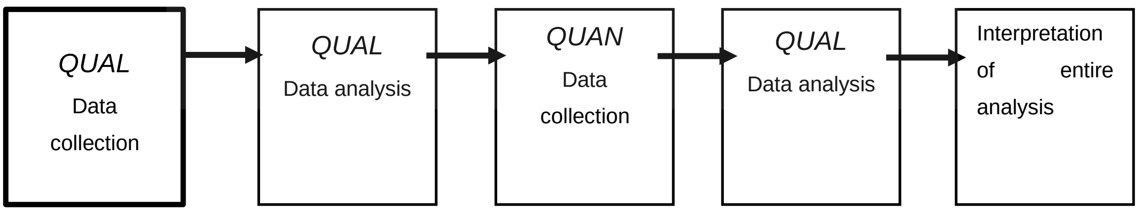


Figure 7.1: Sequential Exploratory Design

(Source: Creswell, 2009)

The advantages of the two-phase sequential exploratory strategy are outlined as follows:

- It is easy to implement, straightforward to describe and report;
- It is useful to a researcher who wants to explore a phenomenon but also wants to expand on the qualitative findings; and

- It builds a new instrument for a committee, or research community (Creswell, 2009).

Employing a quantitative research approach in this study enabled a large number of cases to be studied so that the findings had a high degree of generalisability. A large number of cases involved is best for studying the phenomenon and testing hypotheses, concepts and theory developed from the qualitative study. Again, using the multi-approach enabled the researcher to be confident of the results and to integrate stakeholder theories.

Furthermore, the structured survey and statistical measurement employed augured well for confirmatory research. The question of "what", why and how are answered using both approaches. The combination collaborated and complimented each other (Hammersley, 1996, 2002). Research validity is enhanced (Greene, 1997), both exploratory and confirmatory questions are answered. Also, inquiry decision and conceptual theory that are crucial issues are well considered (Tashakkori and Teddlie, 2003).

7.4 Importance of Research Design

The natural tendency to gain knowledge in a specific area or phenomenon raises the need for research (Mouton and Marais, 1988; Mwanaumo, 2014). Thus, having a coherent research methodology and method is important. This study considers the methods, methodology and dimensions involved in a research process to achieve the research objectives. This research design provides the framework for the collection and analysis of data (Bryman and Bell, 2007). Also, it includes designing the study structure holding the research together (Mwanaumo, 2014). In this study the research design is the plan for collection, measurement and analyses of the evidence or data (Flick, 2011; Blumberg et al., 2014) in achieving the following objectives:

- To assist the researcher to establish the key factors that influence sustainable stakeholder management (SSM) success;
- To evaluate the existing SM theories and identify gaps for its adoption in Ghana as a developing country;
- To evaluate the critical factors which will ensure SSM success;
- To evaluate the critical barriers that mitigate against SSM success; and
- To assist in the development of a SSM success framework for public sector construction projects.

7.4.1 Research Design for the study

According to Ragin (1994) in Flick (2011), research design is a plan for collecting data and analysing the evidence to address the research questions.

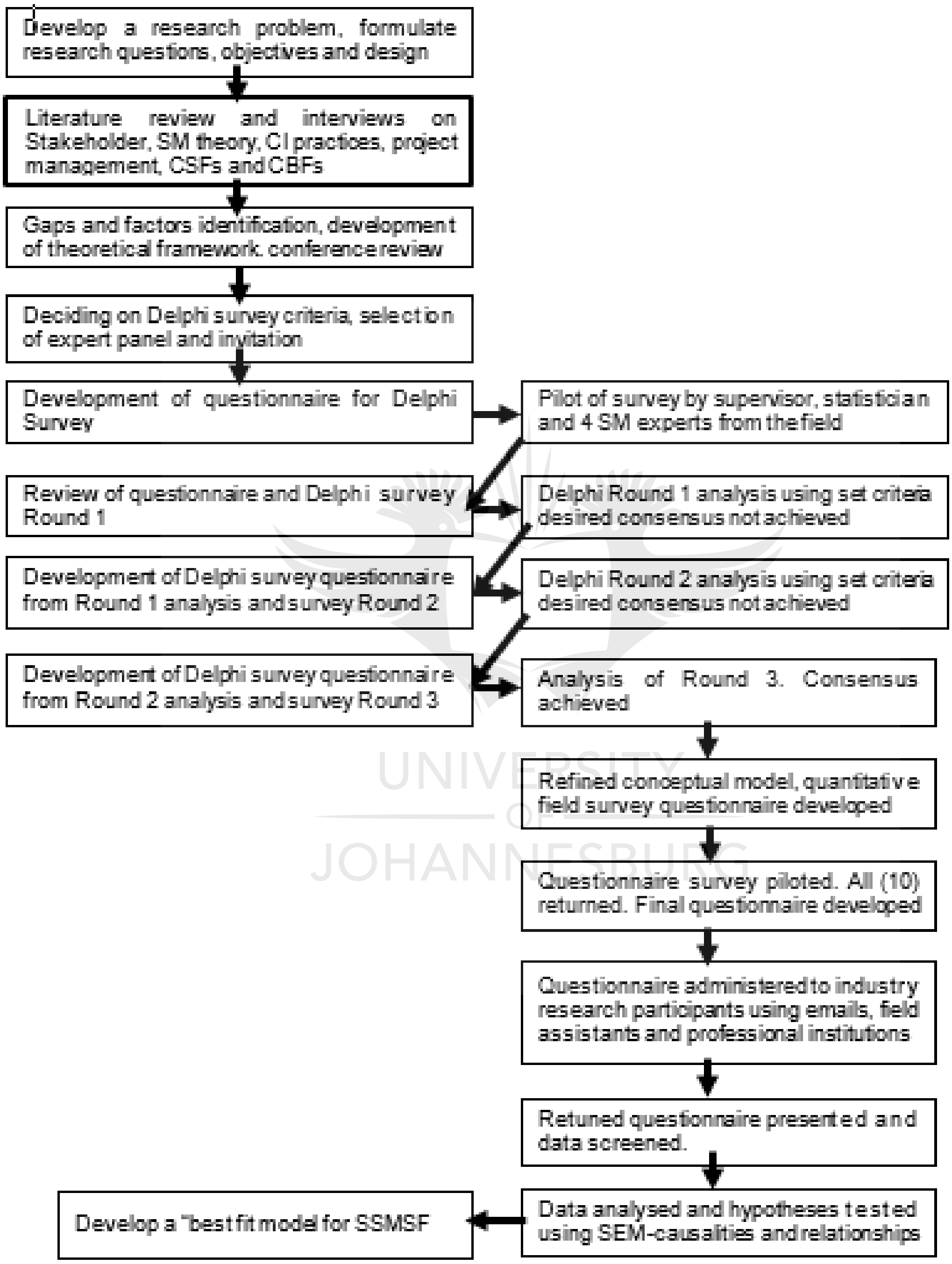


Figure 7.2: Modified Process for Sustainable SM success Framework

Appropriate methods, processes and procedures are carefully selected to conform to suitable practices. The design (Figure 7.2) reflects the decision about the priority given to a range of dimensions in the research process (Bryman, 2003). That includes the establishment of the key factors responsible for SSM success. Also included is the relationship between each factor and the extent of influence in achieving SM success. Furthermore, the study reflected on two choices of obtaining in-depth knowledge based on the experience and perception of participants and the large number of cases for validity, credibility and generalisation of findings. Thus, a model reflecting the influence of the key factors was to be developed. Based on the ontological, epistemological positions, the underpinned philosophy, the research process was planned (Figure7.2).

This study design (Table7.3) examines project management of the factors for SSM success. Accordingly, a mixed-method approach involving three phases is used to achieve the study objectives. A broad research approach is a plan involving the intersection of philosophy, research designs, and specific methods (Creswell, 2013).

Table: 7.3: Modified Research Procedure

Research stage	Research objective	Data collection method	Data analysis method	Expected output
One	1.To establish factors and related factors responsible SSM success	• Literature review • Interview	Descriptive statistics	Identify factors and variables
	2.To evaluate existing SM theories about developing country and establish gaps	Literature review		Identify key factors
Two	3.To evaluate critical success factors CSF responsible for SSM success	• Literature review • Delphi study (main)	Descriptive statistics	Identify CBF factors for field study
	4.To evaluate critical barrier factors CBFs that affect SSM success			Identify CBF factors for field study
Three	5. Develop a holistic SSM success framework for public sector construction	• Literature review • Delphi survey • Questionnaire	Theory	To be tested and confirm or otherwise

	projects	• Survey		
	6. Determine the validity of the developed SSMF.	Questionnaire survey	SEM	Confirm model developed

(Source: Aigbavboa, 2013)

Furthermore, the research design considered the research purpose, questions, methods, a theoretical framework development, and sampling (Robson, 2002). Thus, the research questions, aim, objectives and sub-objectives influenced the research design.

7.4.2 Research Methods

Collection and analysing data require a selection of the appropriate method (Flick, 2011). Techniques for data collection and analysis were selected to suit the set of criteria for answers to the research questions: validity, reliability and replicability (Bryman and Bell, 2007). According to Kumar (2005) and Agumba (2012), there are two broad approaches to data collection about a phenomenon or problem, namely primary and secondary data. The first stage involved the collection of secondary data through a literature review of institutional resources, databases, online publications, journals and the researcher's personal experience. This data is used for theoretical literature on the topic, empirical literature about earlier research and methodological research on the use of the methodology (Flick, 2009). Moreover, the primary data was collected through interviews, the Delphi and questionnaire field surveys (See Figure 7.2). Denzin and Lincoln (2011) suggest that a combination of methods provides a better understanding determining the method adopted. This study adopted a combination of methods in data collection at different stages.

7.4.2.1 Literature Review

The literature reviewed is an important part of any research process. Neuman (2014) advocates accumulating knowledge on research questions from work already done in the area. Research ideas are refined as a critical review aimed at identifying the current state of knowledge in SM study, its limitations, and place in the wider context (Saunders, 2011). As stated, the purpose of the literature review included gaining theoretical, methodological and empirical knowledge (Flick, 2009).

The absence of SM theory on developing countries necessitated familiarity with the body of knowledge in the field, issues and increased competence (Neuman, 2014). Also, the review was essential for refining the research questions, placing the research work in context and enhancing its relevance so that the developed framework would address developing countries' needs, thereby improving construction project delivery.

Similarly, relevant literature, journals, conference publications, books and dissertations from both local and international authors was reviewed. General knowledge in the area was identified. More than fifteen SM theories, models and concepts were identified and discussed in detail (Chapter 2). Major theories used in SM field included the stakeholder concept (SRI, 1963), stakeholder theory concept and dynamics of stakeholders. The scholars include Freeman (1984), Donaldson and Preston (1995), Mitchel et al. (1997), and Newcombe (2003). Also are recent scholars such as Yang (2009), Jepsen and Eskerod (2008) and Bourne (2005) models were reviewed with the literature on project stakeholder and stakeholders in construction projects.

The major issues of concern are the absence of formal stakeholder management models, and the fact that many of the empirical studies are conducted in the developed countries. The questions that remain open include the role of pre-stakeholder identification, conflict resolution and identification of critical factors peculiar to developing countries such as Ghana. Thus, the literature identified pre-stakeholder identification, conflict resolution, implementation, monitoring and feedback documentation as gaps. Also identified are several variables that influence the SM process. Many scholars in the stakeholder management area argue for stakeholder identification, classification, prioritisation, communication and engagement as a necessary consideration for a stakeholder management success. Again, a major aspect of the literature review is related to theory, hypotheses and methods used.

Though the past two decades have seen a plethora of stakeholders' management literature, there was no literature on stakeholder management in Ghana or formal documentation on the historical development of stakeholder management as in the UK, Finland and Australia. Additionally, the absence of a construction industry regulatory board in Ghana meant the lack of a central body for construction industry information, hence the need to review institutional reports and publications. Literature brings clarity and focus to research, enhances research methodology, widens the knowledge base in the research, and helps to contextualise the results (Kumar, 2005).

7.4.2.2 Interview

As part of the wider study and mainly for publications, interviews were used to elicit information. Interviews can be classified as structured, unstructured, or semi-structured (Bryman, 2003; Kumar, 2005). The author employed both semi-structured and structured interviews for the collection of data on key factors, related factors and also in the relationship between the dependent and independent variables for publications. The semi-structured approach had a series of interviews scheduled for enhanced data analysis. However, the order of questions and the additional questions asked varied depending on the interviewee. Thus, additional information was gathered from experts as part of the interview process. The method made knowledge available about practices and processes (Flick, 2011). That was deemed very necessary in the absence of data on factors and related factors for the SSM process in Ghana in answering research questions one, three and four. The data was used for conference publications. The peer-reviewed process enriched the data. Furthermore, studies suggest that the structured interview, introspective reflection and intensive interviewing is considered most appropriate (Agumba, 2012). A structured interview has the advantage of providing uniform information for data comparability (Kumar, 2005).

However, this dissertation employed both structured and semi-structured questionnaires in the Delphi survey technique for an increased degree of flexibility and data comparability. The Delphi survey was found to have advantages over the interview approach. Thus, the principal qualitative method used to collect data for this research objectives was the Delphi survey. The survey technique was part of the mixed-method sequential exploratory approach used. The Delphi survey technique is discussed in detail.

7.4.2.3 Delphi Survey Technique

The Delphi survey method was adopted for this study as a qualitative technique to explore factors responsible for stakeholder management success as well as the indicator variables. Studies state that the original Delphi method was developed in 1950 for the United States sponsored military by Norman Dalkey of the Rand Corporation (Skulmoski et al., 2007; Chan et al., 2010). It was named the Project Delphi and undertaken by the Rand Corporation for the US Air Force in the early 1950s concerning the use of expert opinions (Robinson, 1991). Moreover, it was a tool used for forecasting and solving problems of a complex nature.

According to Dalkey and Helmer (1963), the tool was used in soliciting the opinion of experts in a field on the subject matter for forecasting (Skulmoski et al., 2007). Research asserts that the Delphi method is an iterative process, implying there is a repetition of the process or some rounds involved. Moreover, the rounds involve answering questions by experts with feedback and an opportunity to know the group decision and for experts to reconsider their opinion. However, the participants remain unknown to each other.

The use of the method is also recommended when there is an absence of knowledge in the field. In this case it was the absence of a formal SM model and research peculiar to the Ghana and developing countries. The previous study on team leaders' knowledge and understanding of SM process necessitated this approach. Similarly, it is also employed when the research aims at improving the understanding or developing a forecast. In this case it was developing a postulated model for stakeholder management success.

Skulmoski et al. (2007) assert that for a Delphi technique used in research to be considered as classical, it must meet the following four conditions:

- The anonymity of Delphi participants: allows the participants to freely express their opinions without undue social pressures to conform from others in the group. Decisions are evaluated on their merit, rather than who has proposed the idea;
- Iteration: allows the participants to refine their views in light of the progress of the group's work from round to round;
- Controlled feedback: informs the participants of the other participants' perspectives, and provides the opportunity for Delphi participants to clarify or change their views; and
- Statistical aggregation of group response: allows for quantitative analysis and interpretation of data (Rowe & Wright, 1999).

That is supported by Dickey and Watts (1978) who claim that the Delphi process is characterized by anonymity, iteration with controlled feedback, and statistical response. The current study adhered to the above suggestions, ensuring that there was anonymity during the entire Delphi process. That was achieved as emails were sent to individual participants without copying another. Also, panellists were informed of the need to maintain anonymity to avoid bias and promote the credibility of the findings which they compiled.

The Delphi survey technique was adapted for this study to seek experts' consensus on the key factors and related factors in the SM field. An advantage of employing the Delphi technique is that experts have not been able to agree on the factors responsible for stakeholder management success in the absence of a formal study and model.

7.4.3.1 When to use the Delphi Technique

According to Chan et al. (2010), the Delphi technique is being used in complex areas requiring that a consensus is achieved. The areas include both construction and non-construction sectors. Furthermore, Chan et al. (2010) inform that the Delphi process is a highly formalized method of communication aimed at sourcing the maximum amount of unbiased information from the Delphi panel.

The research design for this study had a quantitative field questionnaire survey to confirm and validate the findings of this section of the study. The Delphi study approach is supported by Skulmoski et al. (2007) who state that the Delphi findings may be confirmed and generalized with another survey. Also, it is suggested that for a PhD thesis, the Delphi is usually confirmed with a follow up study and in this case the field survey. Skulmoski et al. (2007) sum up when to use the Delphi techniques as follows:

- The method can also be used as a judgment, decision-aiding or forecasting tool (Rowe and Wright, 1999), and can be applied to programme planning and administration (Delbeq, Van de Ven, and Gustafson, 1975).
- The Delphi method can be used when there is incomplete knowledge about a problem or phenomena (Adler and Ziglio, 1996; Delbeq et al., 1975). The method can be applied to problems that do not lend themselves to precise analytical techniques but rather could benefit from the subjective judgments of individuals on a collective basis (Adler and Ziglio, 1996) and focus their collective human intelligence on the problem at hand (Linstone and Turloff, 1975);
- Also, the Delphi is used to investigate what does not yet exist (Czinkota and Ronkainen, 1997; Halal, Kull and Leffmann, 1997; Skulmoski and Hartman 2002); and
- The Delphi method is a mature and a very adaptable research method used in many research arenas by researchers across the globe.

7.4.3.2 Components of the Delphi Technique

The Delphi survey is a very multifaceted technique which is robust and requires very strict adherence to achieve the desired results. Considering the choice adds rigour to the outcome. The components include designing, constructing the process, deciding on expert selection (sample composition), qualification criteria and the size of the group. Also, included are the criteria for consensus, analysis of data for each round, the number of rounds, and the methodological orientation (qualitative and quantitative). Moreover, the mode of communication, the period for each iteration computation and more importantly, the Delphi study specific objectives are also included (Skulmoski et al., 2007; Hallowell and Gambatese, 2009; Chan et al., 2010; Aigbavboa, 2013).

7.4.3.3 Designing, Constructing and Excellence

In designing a Delphi study, Skulmoski et al. (2007) suggest the following stages (See Figure 7.3):

- Constructing the research questions (from researcher's own industry experience or review of the literature to determine theoretical gaps;
- Research design (reviewing different research methods). The Delphi method is adopted when subject-matter experts' knowledge or judgement is required in a group decision-making setting;
- Sampling - Selecting research participants is a critical component of Delphi research since it is their expert opinions upon which the output of the Delphi is based;
- Developing Delphi Round One Questionnaire - Care and attention needs to be devoted to developing the initial broad question which is the focus of the Delphi because if respondents do not understand the question, they may provide inappropriate answers and become frustrated;
- Developing a Delphi Pilot Study - A pilot study is sometimes conducted with the goals of testing and adjusting the Delphi questionnaire to improve comprehension, and to work out any procedural problems; and
- Releasing and Analysing Round One Questionnaire - The questionnaires are distributed to the Delphi participants, who complete and return them to the researcher. The results of Round One are then analysed according to the research paradigm (e.g. qualitative coding

or statistical summarizing into medians plus upper and lower quartiles). To improve reliability, continuous verification is necessary.

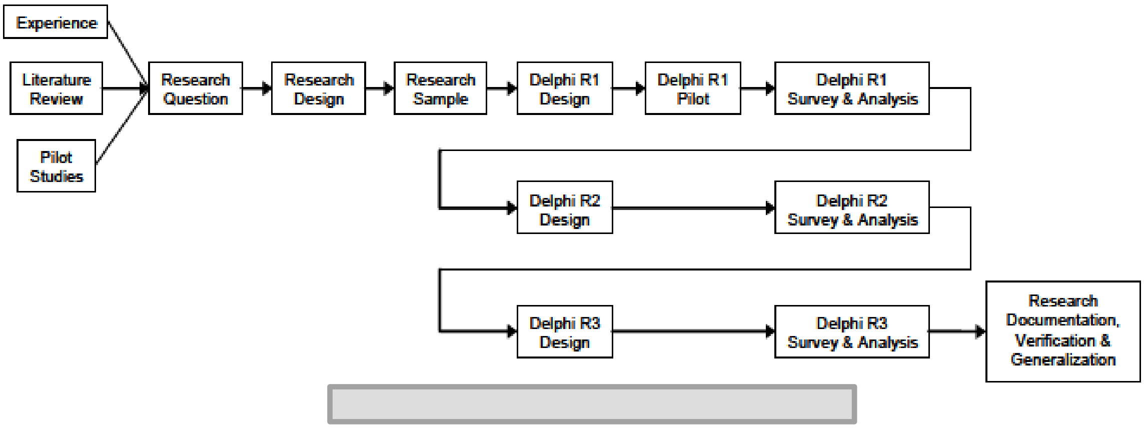


Figure 7.3: Delphi Design

(Source: Skulmoski et al., 2007)

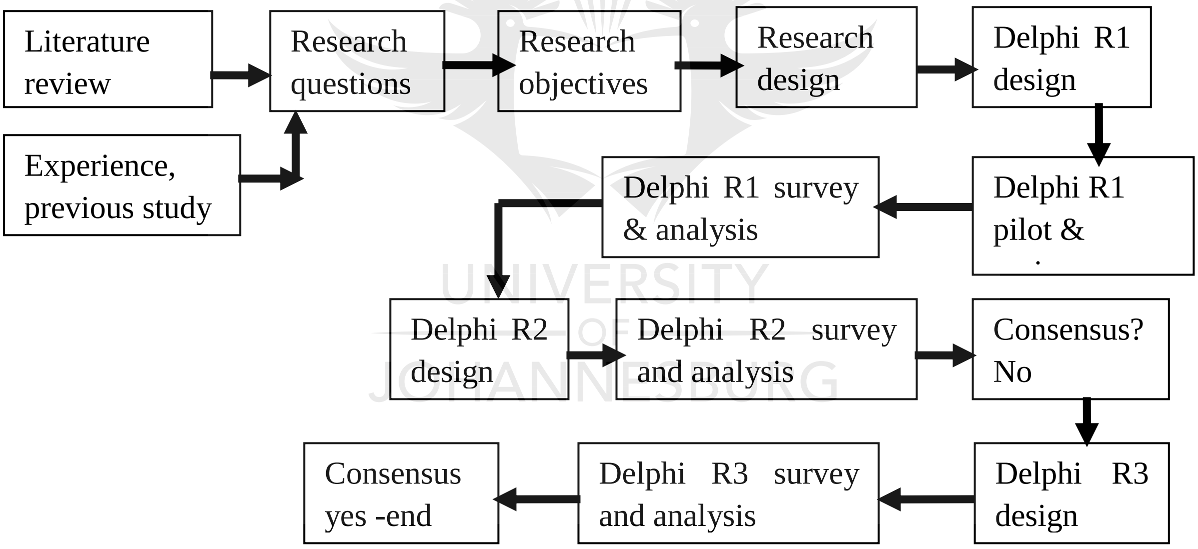


Figure7.4: Study's Delphi Design

(Source: Researcher)

- Releasing and Analysing Round Two Questionnaire - The Round Two Questionnaire is sent to the research participants and returned for analysis when completed. However, the participants must first be offered the chance to verify the Round One responses and the opportunity to change their opinions knowing the group's response after ranking and rating the results (Schmidt, 1997).

Similarly, four vital activities (Table 7.3 a) proposed for planning and executing the Delphi process, namely problem definition, panel selection, determining panel size and conducting the iterations (Loo, 2002; Aigbavboa, 2013). The study examines the following:

Table 7.3a: Delphi Process Activities

Key Delphi question	This study's consideration
Why the Delphi study?	There are reports of stakeholder dissatisfaction and high rate of project failure in the public sector in Ghana
What needs to be known that is not known?	Factors and variables responsible for stakeholder management success in a developing country
How will the results impact the study?	The identification of predictor variables will be used to postulate a model to be tested using questionnaire survey. Factors and variables influencing stakeholder management success will be established

7.4.3.4 Delphi Design Explanation

Firstly, the author conducted a literature review (See Figure 7.4) with the aim of increasing knowledge in the study area and also to explore for gaps in research (Field, 2009). Moreover, the review identified key factors posited by various scholars and indicator variables as responsible for stakeholder management success. Similarly, the research approach brought to bear the author's over twenty years' experience as an industry practitioner and a researcher.

Subsequently, the research questions were developed (Appendix ??). The overall aim of the Delphi was to seek factors and variables as there was a non-existent model to test and incomplete knowledge on the subject matter (Adler and Ziglio, 1996; Skulmoski and Hartman 2002). Therefore, the questions included both closed and open-ended questions. The panel of experts was also requested to provide factors and variables which in their opinion influenced stakeholder management success in Ghana. Based on the factors, variables and gaps identified in the literature review, the Delphi specific objectives (DSO) were formulated as follows:

The Delphi study aimed at answering the specific objectives outlined as follows:

- DSO1: To evaluate the critical barrier factors (CBF) of stakeholder management (SM) as identified in the literature. These are mainly external environment factors;

- DSO2: To determine sub-attributes and the extent of influence of pre-stakeholder identification related factors on SM success. The sub-attributes are projected definition and planning, procurement method and stakeholder factor;
- DSO3: To evaluate the influence of stakeholder identification on SM success. That has sub-attributes of stakeholder identification, stakeholder register and education;
- DSO4: To evaluate the influence of stakeholder assessment with sub-attributes of classification, prioritization and analysis on SM success;
- DSO5: To determine the extent of influence of stakeholder communication or engagement on SM success;
- DS06: To evaluate the influence of conflict resolution on implementation of sustainable stakeholder management framework;
- DSO7: To determine the extent of the impact of implementation, monitoring and feedback documentation on SM success.
- DSO8: To evaluate the SM success output attributes as a result of SM success. The sub-factors are performance, achievement of needs and satisfaction and relationship; and
- DSO9: To seek and also confirm or otherwise factors identified from the literature review and those formulated as gaps.

The research design (See Figure 7.4) considers experts' criteria, communication, consensus criteria, number of participants, number of rounds, computation, reliability and validity.

7.4.3.5 Deciding on Expertise Criteria

Again, the criteria for selection of expertise are critical as they impact on the bias and the validity of the findings. In the broad area, research asserts that experts should meet a minimum of four requirements: knowledge and experience in the study area; capacity and readiness to partake; sufficient time to participate in the Delphi; and effective communication skills (Adler and Ziglio, 1996; Keil et al., 2002).

Experts' knowledge, experience or perceptions are vital as the object of the study is to solicit opinions from the experts owing to the absence of adequate information. Similarly, studies have shown that much as participants may have the knowledge and experience, they are often busy and unable to participate fully. Hence their commitment to be involved in the rounds at the onset should be a criterion. However, the Delphi panel's participation can be encouraged by a well written and structured questionnaire.

The study reviewed similar studies to determine the criteria used and also carefully considered the objectives of this study. A Delphi survey technique had been employed for experts' views in the field for similar studies (Bourne, 2005; Chan et al., 2010). In a Delphi survey conducted in the procurement field in Hong Kong, Chan et al. (2010) devised a three-factor criterion. Experts were to meet all the following criteria for experts' qualification:

- Practitioners to have extensive working experience in the construction industry in Hong Kong;
- Experts to be currently, recently or directly involved in the management of construction projects in Hong Kong; and
- Experts to have a detailed knowledge of all the procurement options. To obtain the most valuable opinions, only practitioners who met all the sampling criteria were selected.

In another study conducted by Aigbavboa (2013), eleven-factor criteria were used. Three of the factors mentioned by authors were mandatory requirements, hence were considered as not optional for this study. These are:

- Capacity and readiness to participate in the study;
- Sufficient time to participate in the Delphi survey; and
- Effective communication skills.

The remaining eight related to residency, knowledge, academic qualification, employment, influence and recognition. The rest were authorship, research, teaching and membership of a professional body. Following this decision, this study had eight factor-criteria as the basis for selection of experts to participate in the Delphi process. That is supported by similar studies (Hallowell and Gambatese, 2009). An expert needed to meet six of the criteria, which constitutes at least 75% scoring to qualify, that is more than half of the set criteria to qualify (Chan et al., 2010; Hallowell and Gambatese, 2009). Thus, the panel members must have the following:

- Extensive professional experience as a project manager in the Ghanaian construction industry with a minimum of five years' experience (Chan et al., 2010);

- Detailed knowledge and understanding of construction project stakeholder management, procurement systems, project planning and development and project communication;
- Authorship of at least five articles in well-rated journals on project management (Roger and Lopez, 2002);
- Conference presenter: Second peer-reviewed conference and have participated in a minimum of ten conferences (Roger and Lopez, 2002);
- Been a Faculty member, Head of Department of a construction-related programme, involved in construction projects, or advanced research in the related field;
- A qualified member of a professional body such as the Ghana Institute of Architects, Institution of Surveyors or Engineers. Similarly, the member must be in good standing and have participated in professionally related forums, workshops, and demonstrated the desire to advance the discipline or a Council member of the Institute;
- Managed or is currently managing a mega construction project with diverse participants of different nationality and socio-cultural background; and
- An advanced degree in the field of project or construction management. A minimum of MSc or PG Dip in the related field.

According to Skulmoski et al. (2007, p.10), Delphi participants should meet four "expertise" requirements: i) knowledge and experience on investigating issue; ii) capacity and desire to participate; iii) sufficient time to participate in the Delphi; and 4) practical communication skills. Eighteen experts participated through email correspondence. Twelve experts in the industry initially accepted the invitation (Appendix A) to participate in the survey. However, ten finally responded to the first round of the Delphi survey conducted which was open-ended, the second-round review of summarised factors, and the third-round items and ratings summarised (Hsu and Sanford, 2007).

Table 7.4: Experts' Qualification Assessment

	Experts' eligibility criteria	E1	E2	E3	E4	E5	E6	E7	E8	E9	E10
1	Have extensive professional experience as a project manager in the Ghanaian construction industry. At	x	x	x	x	x	x	x	x	X	x

	least five years' experience in the industry (Chan et al., 2010)										
2	Detailed knowledge of construction project stakeholder management, procurement systems project planning and development and project communication	x	X	x	x	x	x	x	x	X	x
3	Authorship of at least five articles in well-rated journal in project management (Roger and Lopez, 2002)		X	x		x	x	x			
4	Conference Presenter: Second peer-reviewed conference and have participated in a minimum of 10 conferences (Roger and Lopez, 2002)	x	X	x		x	x	x		X	x
5	Have been a Faculty member, Head of Department related to construction, involved in construction projects and advanced research in the related field	x	X	x	x	x	x	x	x		
6	A qualified member of a professional body such as the Ghana Institute of Architects, Institution of Surveyors or Engineers. Participated in professionally related forums, workshops, demonstrated the desire to advance the discipline or a Council member of the Institute	x	X	x	x	x	x	x	x	X	x
7	Managed or is currently managing a mega construction project with diverse participants of different nationality and socio-cultural background	x		x	x		x		x	X	x
8	Advanced degree in the field of project management - A minimum of MSc, PG (Arc)	x	X	x	x	x	x	x	x	X	x
	Total	7	7	8	6	7	8	7	6	6	6

Following precedence, the names of the group members and their institutions were changed for the sake of anonymity. Panel members were represented as E1-E10.

7.4.3.6 Number of Participants

Deciding on the number of experts has been the challenge of this study. Though there are no thresholds for some experts to be involved in a Delphi study, research suggests certain considerations be made. The first is the nature of the sample as to whether the group is a heterogeneous or homogeneous sample. Where the group has the same or similar characteristics, then the researcher can select a fewer number of experts. Studies suggest that between ten to fifteen people offer good results. A larger sample size is required where the group is diverse (Delbeq et al., 1975; Skulmoski et al., 2007). However, research cautions the use of heterogeneous groups of a large size owing to the difficulty in data collection, analysis and building of consensus (Skulmoski et al., 2007).

Also, the size may depend on the level of required credibility regarding the quality of results. As with all research, the larger the sample size, the lower the measurement error. Nevertheless, the too large sample may be difficult to analyse and may also affect the quality of findings. Another deciding factor is the availability of experts. Where there are limited experts, there is the likelihood of small group participation in the process. In one such study, a three-member panel was involved in a homogenous sample owing to the unavailability of expertise (Lam et al., 2000).

In a similar study done, ten members of the panel were selected and represented a wide distribution of professional people, with four from public client organizations, three from private consultant groups, and three who were academics in the universities in Hong Kong (Chan et al., 2010). As a result of the composition of the panel, a balanced view for the Delphi survey was gained

7.4.3.7 Number of Rounds

Also of importance in Delphi study is the number of iterations (rounds). The purpose of the research and nature may determine the number of rounds as it varies. Two or three rounds of iteration are recommended as satisfactory for most research (Van de Ven and Gustafson, 1975; Skulmoski et al. 2007). Skulmoski et al. (2007) inform that three or more iterations are recommended if group consensus is desirable and the sample is heterogeneous. The current study had a homogenous expert panel from academia (with industry experience) and industry, quantity surveying, project management and architects who practise as a team. Therefore, as part of the criteria for the Delphi study, the researcher decided to use consensus for the determination criterion or a minimum of three rounds of iteration (Appendix B).

Moreover, that is supported by studies as forty-one graduate studies examined reveal twenty-nine studies had attained consensus at the end of round three while seven involved two rounds (Skulmoski et al., 2007). Having a maximum of three rounds was also supported by similar studies (Aigbavboa, 2013) and the fact that response rates reduce the number of iterations increases (Alexander, 2004; Aigbavboa, 2013). However, Chan et al. (2010) had employed four rounds of iteration. In the absence of any information on the study area, the first two rounds were used to collect and decide on the importance of each factor while the remaining two were used to rank and achieve consensus.

7.4.3.8 Mode of Communication

This study considered the mode of communication with the issues of anonymous, convenience and the method for analysis in mind. There are two main modes of interaction: using the electronic medium or paper-based (Silverman, 1981; Lecklitner, 1984; Cramer, 1990). While the electronic mail offers the advantage of timely and immediate communication, the paper-based method requires a period when the researcher and the expert of panels are geographically dispersed. Also, distributing information, receiving feedback and analyzing information is facilitated as the medium remains digital. Likewise, studies have found it more convenient to participants when an electronic mail is used. Another benefit of electronic mail is the immediate response and feedback that sustains the interest of the experts. The same medium is used for reminders and immediate response if the need arises.

7.4.3.9 Panel of Experts' Invitation

Though some studies consider the experts' invitation as part of round one, this study sent emails to invite eighteen participants after a thorough review of the CVs online and from their institution of work those in academia from their faculties and those in practice from their professional institutions. The letter of invitation explained the purpose of the study. Also, members were informed (Appendix A) that there would be three rounds of iteration unless without a consensus following previous studies (Chan et al., 2010). The total number of twelve experts who agreed to participate in the research was supported by previous studies (Skulmoski et al., 2007; Hallowell and Gambatese, 2009; Chan et al., 2010).

7.4.3.10 Criteria for Evaluation

The study also decided on the criteria for analysing the response from the experts at the end of each iteration. Each round of the Delphi survey required two weeks minimum. Three-factor criteria were set for consensus before the Delphi rounds. Since the first round aimed at exploring factors, experts were to indicate whether factors were important or not and provide additional factors based on their knowledge and experience (Agumba, 2012: Masounda, 2012). For a factor to qualify at the end of round one, it should have more than 50% of importance. Similarly, the frequency of a factor contributed by the experts determines its qualification for the round two.

The criteria for round two were based on ranking using a Likert scale. These were an 80-100 percentage score, 4.0-5.0 median range and a mean of 4.0 using a five-point Likert scale. The scale had 'not at all important', 'low importance', 'neutral', 'moderately important' and 'extremely important' for ranking the extent of influence for rounds two and three. A variable or factor reached consensus when the criteria were attained. Likewise, the criteria were supported by previous studies (Hallowell and Gambatese, 2009; Chan et al., 2010; Aigbavboa, 2013). Moreover, the research set a two-week period for each iteration as experts were likely to lose interest if the process took too long.

Furthermore, studies assert the usefulness in piloting the research with different experts before the main iterations (Skulmoski et al., 2007. This study followed a convention of having the Delphi questionnaire assessed by the Statistical Department of the University of Johannesburg. The goal was to test whether the objectives of the study could be achieved with the questionnaire. Moreover, the assessment improved on the comprehension and the scope. The questionnaire was refined and discussed with the researcher's supervisor before a pilot test was conducted involving two experts and fellow PhD students each.

7.4.3.11 Iterations

Iterations refer to the feedback process viewed as a series of rounds (Hsu and Sanford, 2007). Hsu and Sanford (2007) quote Ludwig (1994) as stating that in each round every participant worked through a questionnaire which was returned to the researcher who collected, edited, and returned to every participant a statement of the position of the whole group and the participant's position. Following the assessment, pre-test, final review and approval by the author's supervisor, the first round of the Delphi iterations began.

7.4.3.12 Round One

The round one questionnaire was emailed to twelve experts for their response. The questionnaire (Appendix C) outlined the aim, specific objectives, the factors identified from literature as well as the indicator variables. Respondents were asked to assess the importance of the factors and variables identified (Chan et al., 2010; Agumba, 2012). Moreover, following tradition, each question was open-ended as experts were requested to provide additional factors and variables (Scarcella and Stewart, 1999; Hsu and Sanford, 2007).

Each round of the Delphi survey was given a maximum of two weeks. Within the two weeks, ten experts emailed back their response. Two experts failed to return the responded questionnaire after an additional week, telephone calls and email correspondence. However, to sustain the interest of the ten experts who had responded, the questionnaires were evaluated using the set criteria. Microsoft Excel spreadsheet was used to enter and analyse the experts' response for the median, mean, percentile and the interquartile (Chapter 8).

7.4.3.13 Round Two

Since the objective of the round one was to identify which factors are important as well as elicit additional factors from experts, the responses were not evaluated for consensus. Rather, factors that received more than 50% results as important were used to design the round two questionnaires. Additionally, factors with similar meanings were re-phrased and presented (Chan et al., 2010). The group of experts were at this stage required to rank the extent of influence of each factor presented in the questionnaire (Appendix D).

That was achieved using a five-point Likert scale of 'not at all important', 'low importance', 'neutral', 'moderately important' and 'extremely important'. While 'not important at all' was assigned the lowest weighting (1), 'extremely important' had the highest weighting (5). In the second round, the Delphi experts were emailed a set of questionnaires and requested to review the factors summarized by the group of experts based on the information offered in the round one. Consequently, the Delphi panellists were asked to rate or rank the extent of influence of each factor based on their experience (Hsu & Sandford, 2007).

The completed and returned questionnaires were received from all the ten experts in three weeks although two weeks were assigned. The author had to send several reminders and telephone calls as a follow-up. The reason for the delay was a lack of time to answer a questionnaire, and that was supported by previous studies (Chan et al., 2010). At the end of the analysis of round two using Microsoft Excel, initial priorities among items were established. Similarly, as a result of round two of the Delphi survey, areas of difference and agreement had been identified (Ludwig, 1994; Hsu & Sandford, 2007).

Following the capturing of the responses, the criteria for consensus were employed. The median, mean, percentile and interquartile were determined. Accordingly, the third round of questionnaires was prepared and emailed to the participants. Experts were presented with factors that had achieved consensus as well as the judgement of other participants. Experts were offered the opportunity to re-assess their ranking of the factors by agreeing with the median ranking or maintaining their ranking, if different, with an explanation.

7.4.3.14 Round Three

The round three was found necessary as most factors had not achieved the desired consensus but showed a likelihood of achieving consensus during the next round. Studies suggest that three iterations are often enough to gather the information needed and to reach a consensus (Custer et al., 1999; Hsu and Sandford, 2007) and recommended where consensus is to be reached (Skulmoski et al., 2007). Similarly, the participants were given the opportunity for further clarification of their judgement during the third round of the iteration.

Contrarily, to the researcher's expectation, most of the round three responses were received at the end of the first week. However, owing to delays of two of the experts in returning their questionnaires, the analysis was finally done during the third week. A routine analysis for consensus was carried out just as for the round two. To the satisfaction of the researcher, the majority of the variables had attained the desired consensus. That indicated that the participants were more convinced about the group position on each variable of factor ranked (Hallowell and Gambatese, 2009; Chan et al., 2010). That was also supported by studies indicating that adequate consensus is reached by the end of the third round (Custer et al., 1999; Hsu and Sandford, 2007)

7.4.3.15 Computation of Data from the Delphi Study

As stated, all data were entered using Microsoft Excel 2010 software spreadsheet. The important items of information were the code, factors, the ranking of the factors represented by the weights and the experts as E1-E10. Columns were assigned for the mean, median, percentile and the interquartile. The consensus criteria was usedfor a typical computation of round analysis. Likewise, the consensus was determined by comparing the analysed round three responses with the pre-set criteria as indicated in Table 7.5:

Table 7.5: Consensus Criteria

Qualification criteria	Round One		Round Two and Three		
	Weak	**strong**	**Strong**	**Good**	**Weak**
Measurement	≤50%	≤51≤100%			
Median	N/A	N/A	4.5-5.0	3.5-4.49	≤3.49
Mean	N/A	N/A	4.0-5.0	3.0-3.99	≤3.98
IQD	N/A	N/A	≤1.0	≥1.1 ≤2.0	≥2.1

Similarly, for many studies, methodological rigour was vital in achieving reliable results for the Delphi study employed as a qualitative approach (Creswell, 1994). Hence, an audit trail was put in place to validate the reliability of the study (Skulmoski et al. 2007).

7.4.3.16 Reliability and Validity of the Delphi Study

As a qualitative approach, validity indicates that the study's approach is consistent across different studies and projects (Gibbs, 2007; Creswell, 2014). However, that is difficult to achieve in Delphi as conclusions are based on the different panels' judgement determined by their knowledge and perceptions (Aigbavboa, 2013). As validity remains the strength of the qualitative study, this research made every effort to ensure that findings were accurate from the researcher's viewpoint. Both internal and external validity were carefully considered. Hence triangulation, member check and bias approaches suggested by studies were employed (Creswell, 2014).

Consequently, the study assessed the truthfulness and consistency of the Delphi participants in their response as a measure of credibility. Moreover, reliability was enhanced through the selection of the panel members. Although all the members were from the construction industry (homogenous), their different backgrounds relating to academia, practice, and professional backgrounds (heterogeneous) enabled the study to triangulate the results (Creswell, 2014). Likewise, a background search and strict adherence to the qualification criteria improved the reliability. The external validity was checked by comparing the findings with the questionnaire survey outcome which was statistically analysed.

7.4.4 Questionnaire Survey

According to Sekaran and Bougie (2016), data collection methods are an important part of research design. A quantitative survey using a questionnaire design is just a method with its advantages and disadvantages. Creswell (2013) states that a survey design provides a quantitative description of trends and views of a population by studying a sample of that population. In this instance, the study employed a quantitative field survey to collect the opinion of industry participants on stakeholder management success factors (Appendix E). Studies suggest that a questionnaire survey can adopt personally administered, e-mail and other electronic media for the data collection (Sekaran and Bougie, 2016).

As part of the research design (See Figure 7.2), this study adopted the use of a questionnaire field survey design to collect the quantitative data. That approach aims at achieving the research objectives of evaluating the critical success factor and barrier factors that influence stakeholder management success. Moreover, the data was used in validating the sustainable stakeholder management model postulated after the Delphi survey. The model (Chapter 9) postulates that stakeholder management success is determined by pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring and feedback constructs. Additionally, variables were identified as influencing the SM success both from the literature and the Delphi study.

However, the study identified that all the models, constructs and variables identified in the literature were found in developed countries. Thus, in the absence of studies in the developing countries there is a need for empirical evidence to establish the overall impact of the factors on SM success. Therefore, specific objectives were formulated for this aspect of the study as the following:

- QSO1 to confirm project stakeholders and whether industry participants make an effort to manage project stakeholders;
- QSO2 to establish the influence of the critical success factors (CSF) on SM success in Ghana;
- QSO3 to establish the influence of the critical barrier factors (CBF) on SM success in Ghana; and

- QSO4 to evaluate the overall influence of the SM success factors on success outputs and validate the postulated model for a sustainable stakeholder management framework in Ghana.

Thus, knowing exactly what was required, using the questionnaire survey was the most efficient data collection method. As stated, all the three modes of administered personally, using email and electronic media were employed. The use of that approach had many advantages.

First was the ability to complete some questionnaire within a short period. That was achieved in this study by administering the questionnaire during the Ghana Institution of Surveyors workshop/conferences and the Ghana Institute of Architects Chapter meeting for industry participants.

Secondly, there was the advantage of motivating respondents to complete as well as clarifying issues arising. In the above instances as well as questionnaires administered to industry participants at the work sites, the researcher and the research assistants motivated and clarified aspects of the questionnaire. That was anticipated in the absence of research in the field and any formal SM model in Ghana. It also reflected in the high response rate compared with the email approach also employed.

Thirdly, both the email and the personal administered methods were less expensive as less time as well as cost were spent in collecting and analyzing the data. This approach was also advantageous as more data was collected as compared with the Delphi and interviews.

Finally, and moreover most importantly, the research aimed at validating previous in-depth data collected using a smaller sample size. The questionnaire survey allowed for generalization of results after the validation. Similarly, a large sample size statistically analysed data was required for the robust structural equation modelling SEM proposed for evaluating the direct influence of the constructs and goodness-of-fit of the structural model. According to Sekaran and Bougie (2016), the method used for this study:

- helps to create rapport with the research participants while introducing the survey,
- provides explanations sought by the research participants on the spot, and
- collects the questionnaires immediately after they are completed with about 100% response rate.

In addition, the emailed questionnaire is useful for a sample that is geographically dispersed,

7.4.5 Questionnaire Survey Instrument

According to Sekaran and Bougie (2016), a questionnaire is a pre-formulated written set of questions to which respondents record their answers, usually within rather closely defined alternatives. The same set of questions is given to all the research participants to indicate their opinions. Also, participants are informed of their participation in a research study and moreover, are provided with instructions about the objectives of the study (Creswell, 2013).

In this instance, a formally structured questionnaire was used to collect the opinions of a large group of construction industry practitioners (Appendix E and F). One of the important aspects of the questionnaire instrument is the design. Creswell (2013) suggests introducing readers first to the rationale and purpose of the study, a method which this study employed. Additionally, studies have recommended a careful consideration of three areas as the wording of the questions, planning of issues related to categorization and scales, and then the appearance (Sekaran and Bougie, 2016). On the principle of wording, Sekaran and Bougie (2016) suggest that:

- the content of the questions should be appropriate,
- questions should be worded using simple and easily understood language,
- suitable type and form be used,
- sequence of the questions, and
- the particular data sought from the participants should be well considered.

Therefore, to achieve the above principles, this study used the ordinal and categorical scale as it sought objective facts. Similarly, single line-worded sentences were formulated to match their level of understanding due to the different background. Stakeholder management terminologies were avoided as much as possible. Likewise, a closed-ended questionnaire was designed as respondents were only to rank the level of influence based on their experience and knowledge. Moreover, the researcher avoided double-barrelled questions and included negative questions to test the trustworthiness and consistency of respondents. These were the outcome of discussions with the Statistics Department and the supervisor. It is also supported by the literature.

Additionally, participants' personal information was asked. However, questions were related to gender, education, experience, workplace and qualification. The age and the names of participants were not of interest as they did not impact on the study's outcome. This was also suggested by the literature. Also, considered were guidelines for measurement in the design. That was aimed at the evaluation of the reliability and validity measures. Hence a five-point Likert scale of 'no influence', 'low influence', 'neutral', 'large influence' and 'very large influence' was used for the questionnaire survey. The study used the Likert scale for its advantages over other scales, including high-reliability coefficients.

There were three sections, namely A, B and C. Section A consisted of the ten questions covering the respondents' background data. Also, the section collected data on the demographics of respondents to assess the influence of demographics on the research findings. Likewise, it was used to answer research objective two on the consideration of project stakeholders by project managers. Section B had seven questions and was used to answer research objectives three and four. Thus, the section was used to establish the extent of influence of each of the identified constructs and the indicator variables for critical success and barrier factors (Appendix F). Each question measured some variables that influenced the latent construct which in turn directly influenced SM success. Lastly, Section C was used to measure the stakeholder management outputs. All the questions were structured and close-ended.

7.4.6 The Questionnaire Administration/Data Collection

Following the approval of the supervisor, the researcher administered the questionnaire with the assistance of research assistants. As mentioned, all the three modes were used. A sample questionnaire was sent to the administrator at the Ghana Institute of Architects who emailed it to all experienced and trustworthy architects in good standing to complete at their convenience. Similarly, the researcher also emailed the questionnaire to known and reliable industry practitioners including architects, quantity surveyors, engineers and project managers (Takim, 2009). However, the response rate from email administration was very low. Again, this was confirmed by studies as a 30% response rate has been identified with that approach.

Secondly, with the assistance of practitioners and based on purposive sampling, questionnaires were administered to groups during seminars, workshops and chapter meetings. Moreover, questionnaires were administered to research participants in their workplace and also at project sites. The social media platform was equally used to encourage colleagues to complete the questionnaire. The different approaches were used to realize the maximum number of returned and completed questionnaires as that was a pre-condition for using the SEM analysis technique. The means employed were supported by previous studies.

As mentioned, completed questionnaires were received from the three-means used for the questionnaire administration. The personally administered questionnaires were completed and collected by the researcher and research participants while the rest were emailed or collected from the professional institutes. In all, 310 completed questionnaires were collected.

7.4.7 Variables

The questionnaire instrument measured the pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring and feedback which are the latent constructs in the model postulated. These are variables (exogenous) identified as having a direct influence on SM success. Moreover, the instrument measured the influence of the indicator variables, totalling eighty-one. That consisted of 59 success indicators, eight barrier indicators and 14 output variables (See Figure 9.1)

7.4.8 Population

The population for this study refers to the entire group of people that were of interest to this research. Creswell (2013) informs of the need to identify, state the size and the means of identifying individuals in the population. The population for the study was identified as team managers, project managers and industry practitioners who are usually architects, quantity surveyors, construction and project manager professionals. Previous studies have identified that most project managers have either a first degree in architecture, quantity surveying, or engineering. However, architects are the traditional team leaders (Eyiah-Botwe, 2016). The population frame was to be identified from the professional institutes and concerned those in good standing (Takim, 2009). The 2016 list of membership in good standing when the survey was conducted are Ghana Institute of Architects (462), Ghana Institute of Surveyors (313) and Project Management (297). Thus, the total population for the study was 1072.

7.4.9 Sample

Sample refers to a subgroup or subset of the population being studied (Sekaran and Bougie, 2016). It can also be considered as a subset of the population used for collecting data (Field, 2009). Since a study cannot consider the entire population, a sample is used for the study. However, the outcome is generalised to represent the entire population. Field (2009) suggests that a bigger sample is more likely to replicate the entire population, hence data from a bigger sample was employed.

In using structural equation modelling, the common estimation method is maximum likelihood estimation (MLE). Studies suggest that the minimum sample size for MLE is 100 to 150 as MLE is sensitive to sample size (Khine, 2013).

7.5 Data Analysis

According to Creswell (2013), in analysing data, researchers should avoid disclosing only positive results, and ensure the anonymity of the respondents. To achieve that, the researcher first conducted a rigorous screening and editing of all completed questionnaires. In all, 310 completed questionnaires were received. Some respondents were contacted to complete their questionnaires in full as they were found to be incomplete and could significantly affect the findings. The study finally had 289 completed cases set for further analysis covering the critical success, barrier factors and the SM output variables. The response rate was better than that of similar studies (Takim, 2009).

Studies assert that a smaller sample size contributes to greater model fit bias. Less than 100 is considered challenging as SEM analysis should have more than 200 respondents (Kline, 2010; Aigbavboa, 2013). Comfrey and Lee (1992) support that view and further state a rough evaluation scale of 50 – very poor; 100 – poor; 200 – fair; 300 – good should be used. This study had a sample size of 289 which is close to 300 and thus can be considered as good. A descriptive statistic was carried out for normal distribution analysis.

Following that, data reduction to a small useful set of variables was achieved using SPSS 16.0 for data entry. Thus, the quantitative data was ready for statistical analysis having been carefully monitored. That enabled the researcher to measure the variables and determine the influence of the observed variables on the constructs and stakeholder management success.

A descriptive statistics test was first carried out. That enabled the researcher to present the findings on the background data. That was followed by reliability, validity and CFA tests. After the preliminary test showed that there was internal consistency and that the data was reliable, a hypothesis test using structural equation modelling SEM was performed. That is because the validity and reliability of scores on instruments result in meaningful data interpretations (Creswell, 2013). The study proceeded to use IBM SPSS AMOS version 22 SEM software to test the hypotheses. The study had postulated that stakeholder management (SM) success is directly influenced by the six latent constructs (exogenous variables) of pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback. Implementation, monitoring and feedback is combined as one construct.

7.5.1 Descriptive Statistics

The descriptive statistics of a quantitative research survey summarizes a given dataset and describes the main features of the total sample (Mann, 2006; Ko, 2015). Studies suggest the use of means, percentages, frequencies and standard deviation to describe a data set. Therefore, this study used means, percentages and frequencies to describe and summarize the background section of the data set. Thus, Section A (Q1-Q10) was analysed using descriptive analysis based on the outcome of the SPSS data output.

Though this study had conducted Delphi studies to determine the factors and variables to postulate a model, an exploratory factor analysis (EFA) was done by the Statistical Department of the University of Johannesburg to confirm the variables statistical significance before the CFA analysis. The EFA test used PC Varimax for the initial analysis and the constructs were found significant for the CFA test (Pallant, 2013).

A correlation matrix was conducted to assess the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO), Bartlett's test of sphericity approx. chi-square, df at the significance of .00 for the significance of the measured items on the construct (Field, 2009; Byrne, 2013). The EFA test performed using the PC Varimax revealed that the factors pre-stakeholder identification, stakeholder identification, assessment and engagement had KMO values of above 0.7. Likewise, the conflict resolution, implementation, monitoring and feedback, stakeholder management output and the external environment factors had similar values.

Additionally, anti-image matrices and communalities were also explored. The object of the communalities was to assess the set of interrelated measured items for factor loading in the solution. Loadings below 0.3 were dropped while values greater than 0.45 were to be retained owing to their significance. Though some studies posit that factor loadings above 0.5 should be retained (Comrey and Lee, 1992; Tabachnick and Fidell, 2007), others suggest 0.45 (Fidell 2007; Hadi et al., 2016). Moreover, total variance explained was done to assess factor loadings. It assessed the number of factors that contributed to more than 50% variance as that was statistically significant. Also, a scree plot was done to assess the number of variables above 1.0 as ensuing variables reduced in eigenvalues and before the sharp curve dropped and levelled off (Hair et al., 1998).

Finally, a pattern matrix test was done to identify the structure. Data reduction was made to obtain a smaller set of variables (components/factors) from the larger set representing the entire construct during the field survey. Having determined the components (factors), a reliability test using Cronbach's alpha was done. For a factor to be retained for the next step of the analysis, the Cronbach's alpha needed to be more than .7 (Kline, 2010, Khine, 2013, Pallant, 2013). The study presents inferential analysis (Chapter 10) showing the cause-effect relationship between variables in the six-construct stakeholder management success model. Thus, EFA, CFA and SEM analysis are presented as the inferential statistics for this study using the results of the data from the sample to generalize the study's outcome (Forzano 2008; Aigbavboa, 2013). Following the satisfactory EFA findings that confirmed the Delphi study outcome, the researcher proceeded to conduct the CFA test.

7.5.2 Confirmatory Factor Analysis (CFA) Test

According to Pallant (2013), research must go through three tests for CFA. These are an assessment of the data suitability, factor extraction, and factor rotation and interpretation. The data assessment met the conditions for the size of data. The sample size of 289 was larger than 150 cases (Pallant, 2013), close to 1:10 (Tabachnick and Fidell, 2007) although current research places emphasis on factor loadings. All variables had a correlation matrix of greater than 0.3 and KMO of above .6 for all constructs (Pallant, 2013). Moreover, factors had been extracted to components, rotated and interpreted.

Confirmatory factor analysis (CFA) is normally used in social research (Kline, 2010; Ko, 2015). The objective of CFA is to test the data fitness with the postulated theoretical model.

Subsequently, this study employed CFA to confirm the factor structure and examine the proposed relationship between the exogenous factors and the endogenous factor. The latent factors are pre-stakeholder identification, stakeholder identification, assessment and engagement, conflict resolution, implementation, monitoring and feedback and the endogenous as stakeholder management (SM) success. Similarly, the unidimensional relationship between external environment factors (critical success barrier factor) and SM success was also examined.

The study used the CFA SEM software to assess the model fit by assessing the parameter estimates and the model good-of-fit indices as discussed in the following section. From the parameter estimates, the findings were compared with standard criteria. The residual covariance matrix value which is related to the measurement invariance should not be greater than 2.58 as it has to be symmetrical and closer to zero. Also, the free parameters were used to assess whether constructs were overidentified before incorporating in the measurement model.

7.5.3 Structural Equation Modelling (SEM)

This study aimed at a robust analytical tool to help achieve the research goal. Statistical procedures for analysis such as ANOVA and MANOVA could have been used but the study required an analytical tool that allows variables with more than an indicator and measurement errors. Most path models consider each variable as having one indicator and variable measurement without error (Bentler 2005, Kline, 2010). According to Byrne (2010), SEM is a statistical procedure that takes a confirmatory (hypothesis-testing) approach to the analysis of a structural theory bearing on some phenomenon. Thus, SEM was chosen as the most appropriate and robust statistical analysis tool for the postulated model according to the following explanation.

Firstly, SEM offers path analysis and measurement models as dominant approaches for testing postulated models (Kline, 2010; Kwofie, 2015). Furthermore, SEM was suitable for taking a confirmatory approach to the analysis of structural theory, having explored variables and factors using the Delphi technique (Bentler, 1988: Byrne, 2010). SEM displays conditions best demonstrating causality (Aigbavboa, 2013) and has been the dominant analytical approach (Hair et al., 2013; Kline, 2010; Field 2009). Also, the SEM explains the degree of support for the hypotheses, unexpected findings and relates theory to the study (Kline, 2015).

Secondly, Byrne (2010) asserts that SEM has two vital aspects: (1) it represents causal processes under study by a series of structural equations, and (2) the structural relations can be modelled pictorially for a clearer understanding of the theory under study. Additionally,

- SEM takes a confirmatory approach to data analysis by specifying the relationships among variables a priori while other multivariate techniques are just descriptive;
- SEM offers precise estimates of error variance parameters. However, the multivariate techniques are not capable of either measuring or correcting for measurement error;
- While SEM procedures include both unobserved (i.e. latent) and observed variables, the others are based on observed measurements only; and
- SEM is capable of modelling multivariate relations and estimating direct and indirect effects of variables under study (Khine, 2013).

The decision to use SEM was further motivated by association, isolation and directionality as conditions for causality (Bentler, 2005; Aigbavboa, 2013). SEM was adopted being a causal inference method meeting these conditions. The research analysed a set of causal hypotheses based on theory and questions about causal relationships among variables and was non-experimental which best fit SEM input (Pearl, 2012; Kline 2015). The study on SM success had a complex model and required a robust analytical tool dealing with theoretical issues. Thus, the ability to analyse both observed and latent variables distinguishes SEM from the other standard statistical regression techniques. Moreover, Carvalho and Chima (2014) inform that SEM reflects the modelling of interactions, nonlinearities, correlated independents, measurement errors and multiple latent independents, each measured by multiple indicators.

7.5.3.1 Choosing the Appropriate Structural Equation Modelling (SEM)

A covariance-based SEM (CB-SEM) AMOS was chosen for this study. Research suggests the use of AMOS, LISREL for analysis aimed at confirming the data as fitting the model. Byrne (2010) informs that AMOS allows the user to choose from three different modes of the model specification as graphics (path diagram), tabular output and the test output. Also, AMOS is recommended for normally distributed data with constructs having at least three items and a having good sample size (Tabachnick and Fidell, 2007). Moreover, it is recommended for a study aimed at confirming variables, factors identified and the postulated model. Thus, this thesis uses SEM with IBM SPSS AMOS 22 and SPSS 16 in evaluating the measurement model adequacy and structural model goodness-of-fit. Thus, the critical success and barrier factors to SMS and SMO in the Ghanaian construction industry public sector were evaluated.

7.5.3.2 Structural Equation Modelling Analytic Strategy

The adopted SEM aims at testing the hypothesized stakeholder management (SM) success model for the public-sector construction projects in Ghana. As a statistical model, it provides an efficient means of describing the possible structure causal of a set of observed variables (Byrne, 2010). To be able to describe the model structure, research asserts that a sequence of analytical strategies is followed (Hair et al., 2013). Five steps are outlined as model specification, model identification, parameter estimation, model fit, and model re-specification (Bollen & Long, 1993: Khine, 2013). Other studies also assert model specification, model identification, data collection, model estimation, evaluation (hypothesis testing) and modification (Bentler, 2005; Kline, 2010).

While the model specification is based on theory and empirical studies, it must be explicit in independent and dependent variables, relationships, and possibly presented pictorially. Also, SEM application entails a measurement model and structured model. According to Khine (2013), a measurement model indicates how latent variables are related to indicator variables and their operationalization. Similarly, a structured model relates constructs to another, representing theory and specifying relationship among constructs (Khine, 2013). Kline (2010) also asserts that a factor model can treat a latent construct relationship with another as a sub-model, hence decomposing the main model underestimation.

Following the acceptance of the two models, the process of analysis was considered. Studies suggest that SEM application involves stages. Mueller and Hancock (2008) propose four stages of initial conceptualization of model, parameter identification and estimation, data-model fit assessment, and potential model modification. Some literature states five stages by separating identification and estimation (Hair et al., 2005: Khine, 2013).

However, Bentler (2005) and Kline (2010) state a two-stage approach as analyzing the measurement model and the constructs to be followed by the complete structural equation model for a fitting model. The two-stage approach was adopted as it entails all the other stages and having been used by other authors for similar studies in Ghana. (Kwofie, 2015). The adoption of the two-stage approach ensures that the assessment of the fit of the SEM structural model is independent of the assessment of the fit of the indicator variables to the latent constructs (measurement) model (Khine, 2013).

Furthermore, many scholars advise the use of CFA in assessing the measurement model. Mueller and Hancock (2008) mention four tests but assert that CFA considers the causal relationship among latent constructs and their measured variables. Khine (2013) opines that CFA most often is used to test measurement models as latent variables are rightly defined by the relationship strength of the observed variables. The first stage, therefore, adopted the CFA test. That is further supported by the fact that the data is based on theory and the postulated model.

Firstly, a confirmatory factor analysis (CFA) was conducted to assess the measurement equivalency of the proposed latent constructs and the SM success variables identified from the Delphi survey and hypothesized model. It established the relationship between the measured items and constructs, internal consistency and reliability. Secondly, the postulated structural model was tested for fitness. The structural model had defined the relationship between the independent variables in the model which subsequently determines the SM success as the dependent variable. By investigating internal consistency reliability and construct validity, variables with weak relationships and components of low factor loading were eliminated. Similarly, constructs and components with one indicator were discarded as variables with high Cronbach alpha values and components of high factor loading were retained.

Secondly, the full SEM structural model was tested. The import was to assess the nature and extent of the relationship between the factors and their indicator variables and among the factors (Hair et al. 2006; Khine, 2013). The test assessed the direct, indirect effects and considered the relationship between one latent construct and the other and lastly, an exogenous and endogenous variable.

SEM AMOS software was used to achieve the best results. Studies suggest the use of a combination of fit of statistics for the examination of fit of the model (Byrne, 2010; Aigbavboa: 2013). That led to the use of SEM generated to analyse the the hypothesized model and compared with that particular sample and fit of statistics used to assess the acceptability of the resulting solution.

7.5.3.3 Data Screening and Preparation

Missing data refers to a failure by a respondent to answer a particular question, hence the variable is not assigned a value in the SPSS data. That needs to be addressed if identified as more than 10% of data and in a non-random pattern (Hair et al., 2006; Khine, 2013). Missing data can lead to data inaccuracy and needs to be rectified by following procedure (Pallant, 2010). According to Kline (2005), missing values occur as missing at random (MAR) and missing completely at random (MACR). This study followed an approach to detect, deal with the missing value and identify outliers (Kline, 2015), though Khine (2013) posits that these are ignorable if missing data is not regular, occurred by chance and without effect on other variables. Also, missing data is an issue when it happens as not missing at random (NMAR), but orderly and relating to other variables (Khine, 2013).

Outliers are extreme scores of data set that can significantly influence an analysis and the outcome of a study (Hair et al., 2010). Case numbers with the greatest number of outliers were inspected and addressed for each latent construct. Pallant (2013) asserts that outliers can be sensitive, hence must be checked for extreme less value. Instead of deleting the outliers, the robust maximum likelihood (RML) method was used.

7.5.3.4 Model Identification

The concept of model identification focuses on whether there is a unique set of parameters consistent with the data or a unique solution for each parameter estimate in the model (Byrne, 2010; Carvalho and Chima, 2014). Thus, from the observed data, a unique value for each free parameter can be found (Khein, 2013). Consequently, SEM requires identifiability of a structural model. Identifying a structural model is a criterion a researcher must meet (Kline, 2010; Hair et al., 2013). Model identification allows for variables inclusion and exclusion aimed at offering best model results and test of theory (Lei and Wu, 2008; Kline, 2010). Identification is a factor of the model selected and the specifications of fixed, constrained and free parameters and not the data (Khein, 2013).

Byrne (2010) posits that a model is considered identified if a unique solution for the values of the structural parameters is found. That is supported by Kline (2010), and Kaplan (2009) advises that a model is identified if it is theoretically possible to derive a unique estimate for each contained parameter. If a model cannot be identified, then the parameters are subject to arbitrariness with different parameter values defining the same model (Byrne, 2010). As a result, there are three types of model identification, namely 'justidentified', 'overidentified' or 'underidentified' (Kline, 2010; Byrne, 2013; Khine, 2013).

According to Khine (2013), a model is 'justidentified' if parameters are determined with just enough information, and 'underidentified' if one or more parameters cannot be determined owing to inadequate information. However, a model is 'overidentified' if there is more than enough information and way of parameter estimation. Similarly, Byrne (2010) states that a 'justidentified' model has a one-to-one correspondence between data and the structural parameters whereas 'underidentified' has parameters estimated exceeding the number of variances and covariance. However, an 'overidentified' model has estimable parameters as less than variances and covariance of the observed variables in data (Byrne, 2010).

Carvalho and Chima (2014) assert that the SEM approach requires that models should be overidentified. It is crucial to have the sum of variances and covariances to be more than estimable parameters. According to (Byrne 2010), an 'overidentified' model with positive degrees of freedom has a determinate solution of parameter estimates and allows for model rejection, rendering it of scientific importance. The assertions on model estimation are supported by Kline (2010) and Hair et al. (2013). They describe a 'justidentified' model as impossible to yield a solution. The formula for model identification is (p (p+1))/2 where p represents the number of observed (measured) variables.

This study therefore aimed at an 'overidentified' model with a positive degree of freedom, the sum of variances and covariances exceeding estimable parameters (Bentler, 2005, Lei and Wu, 2008). By adopting SEM, the postulated model is graphically presented showing the relationship between the six independent and the dependent variables (Chapter 9). Specifying a 'overidentified' model is essential but may require imposition on some parameters as well (Byrne, 2010). A preliminary test to assess the parameters using the CFA analysis test, AMOS SEM revealed the models with a positive degree of freedom and overidentified.

7.5.3.5 Parameter Estimates

The study estimates both free and constrained parameters. While free parameters are estimated from the observed data as non-zero, constrained parameters are assigned specific value equals zero (Khine, 2013). Similarly, Khine (2013) posits that there are three parameters that research must consider: directional effects, variances and covariances. The directional effect is represented by the relationship between the measured variable and the latent construct, and among the latent constructs using factor loadings. Similarly, exogenous variables with a path loading of 1.0 are estimated for variances and covariances for the non-directional associations among exogenous variables. Carvalho and Chima (2014) rather state variances and covariances, direct effect and variance of disturbance. Therefore, this study assessed the directional effect between the variables and the six latent constructs among the latent constructs, variances and covariances and the measurement errors.

7.3.5.6 Model Fit Analysis

A model fit evaluation was undertaken using six recommended fit indices criteria. The goal was to compare the predicted model covariance with the sample covariance matrix of the data and assess how the model fits (Khine, 2013). Studies suggest the need for authors to indicate the fit indices (Hoyle, 1995, Martens, 2005) and that fit indices may be considered as absolute fit, model comparison (comparative fit) and parsimonious fit (Mueller and Hancock, 2004; Khine, 2013). The decision to choose an estimation method also depends on the normality of the data. Yuan and Bentler (1998; 2001) suggest an alternative use of the ADF method, but that requires a sample size of over 500. Hence the normality and MLE were rather used as that requires not more than 200 sample sizes (Khine, 2013).

In using AMOS, the critical ratio (z score) is provided in the text output. That determines the significance of the coefficient ($z \geq 1.96$ for $p \leq .05$). Also by dividing the unstandardized coefficient by the standard error, the z value is obtained. Khine (2013) informs of Schumacker and Lomax's (2004) suggestion on the three important considerations. These are the non-statistical significance of the chi-square test; the statistical significance of each parameter estimates of the path in the model and the direction and magnitude of the parameter estimate and the conformity with the substantive theory. A non-statistically significant chi-square informs that the covariance matrix and the model-implied covariance matrix are alike as well as if the critical values of t-values are more than 1.96 at *p*-value of .05 level.

Each set of fit statistics has some fit criterion measuring the three types of models. The models are hypothesized, saturated and independence models (Byrne, 2010). Moreover, each set had a number of fit criteria indices. The indices criteria used are for absolute fit indices chi-square (x^2), normed chi-square (x^2/df), the goodness-of-fit index (GFI), comparative-fit index (CFI), root mean square error of approximation (RMSEA) and root mean square residual indices. The indices are presented in chapter 7 and in the next sections. Martens (2005) advises that model modification generally produces a better fitting model.

The absolute fit indices are a measure of the specified model reproducing the data. The chi-square is the main absolute fit index which tests for the extent of misspecification (Hair et al., 2006; Khine, 2013; Byrne, 2013). A non-significant x^2 indicates that the model fits the data. Thus, the corresponding *p*-value is non-significant, null hypothesis is accepted and no significant difference exists between the postulated model and the observed variances and covariances. Owing to the sensitivity if/ of? the x^2 to sample size and increased number of observed variables, studies suggest the *p* value can increase and become non-significant, hence other criteria can be employed.

The goodness-of-fit index (GFI) used in this study examines the relative amount of the observed variances and covariances and should be > .90 to be acceptable. A GFI > .95 is good as the perfect fit value is 1.0. Similarly, the root mean square error of approximation (RMSEA) from studies corrects the likely tendency of the chi-square to reject models with the same large size at a 95% confidence level. A good model has a lower RMSEA of < .05. Moreover, the root mean square residual RMR represents the average value across all standardised residuals and has the same fit criteria as RMSEA (Hu and Bentler, 1995; Byrne, 2010).

Additionally, the comparative fit index (CFI) and the Tucker-Lewis index (TLI) are both used to evaluate the theorised model to determine whether it is better than competing models (Kline, 2010; Khine, 2013; Byrne, 2010). They are comparative model fitting assessment criteria widely used. Using a range of 0 to 1.0, both CFI and TFI values > 0.9 are acceptable and > .95 as good. Fit indices may contradict, and the researcher will have to examine the causes rather than conclude that the model is a poor fit.

Goodness of Fit Indices	Acceptable Criteria	Good criteria
x^2	N/A	N/A
Degree of freedom (df)	N/A	N/A
x^2/df	<3	<3
GFI	>0.9	>0.95
CFI	>0.9	>0.95
RMSEA	<0.08	<0.08
RMR	<0.05	<0.05
TLI	>0.9	>0.9

Figure 7.5: Goodness-of-Fit criteria

(Source: Ho, 2015)

7.5.3.7 Measurement Models

The relationship among the SSM constructs of 'pre-stakeholder identification', 'stakeholder identification', 'assessment', 'engagement', 'conflict resolution', 'implementation, monitoring, feedback' and SM success was determined using IBM SPSS AMOS 22.0 to evaluate the measurement models.

The measurement model defines the relationship between the observed and the unobserved variables (Byrne, 2010). Therefore, it refers to the part of the postulated model which considers the indicators are loading onto the latent variable, their relationship variances and error and sometimes their covariates (Khine, 2013; Carvalho and Chima, 2014). In using SEM CFA, the measurement model is validated by testing the observed variables to find out whether they are good indicators of the latent constructs and to fit the hypothesised CFA model. Thus, that requires a separate test for each of the latent constructs to examine whether the measures items define the construct (Byrne, 2010; Carvalho and Chima, 2014). Moreover, it requires examining the good fit indices by testing the latent constructs separately using SEM CFA. If the measurement model is not satisfactory, the model can be improved (Martens, 2005). Thus, the researcher may include the correlation of error covariance between the measured variables as specified and by inspection of the modified indexes. Joreskog and Sorbom (2003), according to Khine (2013), argue that testing the structural model may be meaningless without first testing the measurement model. Therefore, this research first tested the measurement model of the constructs, the postulated model and then the structural model.

7.5.3.8 Structural Models

The structural model which is the second component of the structural equation was tested after the modified measurement model was found a model fit. The structural model defines the relationship between the latent constructs (Byrne, 2010). According to Hair et al. (2006), the structural model emphasises the nature and magnitude of the relationship between constructs. The structural model includes both the latent and indicator variables and that of the independent variable. Thus, for the structural model for this study, the stakeholder management success output was included in the model test (Carvalho and Chima, 2014). Similarly, Martens (2005) posits that if the model test finding is unsatisfactory, the model modification can be considered.

7.5.3.9 Reliability and Validity

Structural equation modelling SEM has outstanding abilities to use different indicators in defining each construct which ensures the validity of the model (Carvalho and Chima, 2014). The Cronbach alpha test $\alpha > .70$ is used for measuring the internal consistency of reliability with an assumption of equal indicator loading (Hair et al., 2014). However, the use of composite reliability (CR) in SEM is known for measuring the internal consistency of reliability without assuming equal indicator loadings (Hair et al., 2014).

According to Ho (2015), composite reliability denotes the degree to which a set of heterogeneous but similar items is consistent with the latent variable they are intended to measure as well as the degree to which latent constructs can be explained by the measured items (Tseng and Tseng, 2006; Jauhar et al., 2016). This study adopts a criterion of 0.6 or greater CR as sufficient for scale reliability (Fornell and Larker, 1981; Ho, 2015). Based on the reasons stated, the consideration of standardized loadings and the measurement errors of each item by CR test, this research adopts CR for the latent variables factors. Fornell and Larker (1981) posit the use of average variance extracted (AVE) to measure convergent validity. Furthermore, they suggest that AVE higher than 0.5 shows that the scale explains more than the error term but AVE less than 0.5 with a corresponding CR greater than 0.6 is satisfactory.

7.5.3.10 Parameter Estimates

Studies suggest the importance of parameters estimates after the model test for significance (Khine, 2013). Byrne (2010) posits three criteria of interest in examining model parameter estimates as the feasibility of the estimates, the appropriateness of the standard errors, and the statistical significance of the parameter estimates. Therefore, this research examined the standardised and unstandardized regression weights (coefficients), the direct and indirect effects, correlations, residual and the squared multiple correlations.

7.6 Conclusion

This chapter discussed the methodology employed by the researcher to achieve the thesis objectives. Every aspect of the research design and the reasons for selecting an approach and a method were meticulously considered. The study adopted a mixed-method research approach beginning with a literature review, a qualitative Delphi survey and confirmed with a quantitative field survey. Though the study could have used any regression analysis technique, SEM was employed owing to its robustness and vast advantages; SEM AMOS version 22 was used to test and validate the postulated model after the measurement model was modified. Model fit criteria was used as recommended by many scholars. The study adopts modification of models through the correlation of measurement error covariances. Subsequently, a final framework validated is presented.

CHAPTER EIGHT

RESULTS FROM THE DELPHI STUDY

8 Introduction

This section of the study describes the process of obtaining information from a panel of experts in the absence of a sustainable stakeholder management (SSM) model and processes for Ghana and specifically for developing countries. The views of experts on the influence (probability) in identifying the main factors based on experience or knowledge in the industry and perception were explored and evaluated. Also, the study identified and confirmed related attributes or factors that impact on a successful sustainable SSM and impact on project delivery. Similarly, the critical barrier factors, success factors and the possible output of SSM on project implementation are examined.

The section presents the results of three rounds of the Delphi study as one to six rounds of Delphi is accepted (Skulmoski et al., 2007) and the impact of every factor's influence (probability) on SSM which affects construction project delivery in Ghana's public sector. The composition of the expert panel is discussed and the Delphi background study stated. The chapter concludes by discussing the results of the specific objectives.

8.1 Delphi Study Objectives

The Delphi study aimed at answering the specific objectives outlined as follows:

- DSO1: To evaluate the critical barrier factors (CBFs) of sustainable stakeholder management (SSM) as identified in the literature. These are mainly the external environment factors;
- DSO2: To determine sub-attributes and the extent of influence of pre-stakeholder identification-related factors on SSM. The sub-attributes are project definition and planning, procurement method and stakeholder factors;
- DSO3: To evaluate the influence of stakeholder identification on SSM;
- DSO4: To evaluate the influence of stakeholder types and prioritize them for analysis for SSM;
- DSO5: To determine the extent of influence of stakeholder communication or engagement on SSM;

- DS06: To evaluate the influence of conflict analysis on the implementation of a sustainable stakeholder management framework;
- DSO7: To determine the extent of the impact of implementation, monitoring and feedback documentation on SSM;
- DSO8: To evaluate the SSM output attributes as a result of stakeholder management; and
- DSO9: To seek and confirm or otherwise factors identified from the literature review and those formulated as gaps.

The above objectives were formulated with a philosophical stance of avoiding the likelihood of a non-coherent discussion on the stakeholder management process in the Ghanaian construction industry (Aigbavboa, 2013). By this approach the study identified the key factors and related factors (attributes) that determine SSM. Also, the SSM framework developed will be holistic in nature using this Delphi process of gathering and confirming data from round one using frequencies and refining data through rounds two and three using central tendencies (Chan et al., 2001; Hallowell and Gambatese, 2009).

Twelve experts initially accepted the invitation to participate in the Delphi study. The number involved agrees with literature (Hallowell and Gambatese, 2009). Ten experts were involved with the round one as one expert could not participate owing to ill-health and another owing to job relocation and the challenges with the Internet facility, a disadvantage of e-Delphi study (Donohoe et al., 2012). The panel was fairly represented from the academia, industry, years of experience and geographical location. The questions were rigorously designed from a critical review of the literature and the over 20 years of background experience of the researcher in both academia and industry.

There was a pilot study involving four experts. The objective was to ascertain the clarity of the questionnaire. The questionnaire was refined with minor changes after the pilot study, supervisor's review and the University of Johannesburg Statistical Department for approval. Delphi panellists were emailed with the questionnaire for round one. The round one was used to invite experts, outline objectives, and gather data on the importance of a factor in determining sustainable stakeholder management. Thus, the round assessed the key factors, related factors gathered from literature and from experts in the field for refining through subsequent rounds (Chan et al., 2010; Hallowell and Gambatese, 2009). As a result, both closed and open-ended questionnaires were sent to the panellists to provide additional factors (Chan et al., 2010). The pre-set criteria for evaluation and attainment of consensus using level of importance percentage were applied (Agumba, 2013). All factors that scored 51% and above were qualified for round two to determine the level of influence on SM (Chan et al., 2010).

The results were the basis for the second round of the Delphi process. This involved only a closed-ended set of questions which included evaluated and qualified attributes from round one. Research participants were informed of the main factors and other attributes that achieved consensus. Also, panellists were to reconsider the suggestion for combining some key factors, rate the level of importance or influence using a simple five-level scale of choice on the ones without consensus, and agree with the majority decision for an agreement or maintain their choice with an explanation.

During the round three, Delphi panellists were furnished with information on all the factors that had achieved consensus and others that could not, based on the median, mean, standard deviation and IQD values. The majority of the related factors and all the main factors had reached consensus. Panellist confirmed the results of the round two in round three, and that ended the Delphi rounds as there was no need for an additional round. As mentioned, the mean, median and standard deviations were used as measures for consensus at the commencement of the process and panellists were informed of the results at the end of round three.

8.2 The Delphi Study Findings

The current study defined the consensus reached as strong, good and weak consensus based on the experts' response calculated at the end of each round and illustrated below (Table 8.1).

Table 8.1: Consensus Criteria

Qualification criteria	**Round One**		**Round Two and Three**		
	Weak	**Strong**	**Strong**	**Good**	**Weak**
Measurement	≤50%	≤51≤100%			
Median	N/A	N/A	4.5-5.0	3.5-4.49	≤3.49
Mean	N/A	N/A	4.0-5.0	3.0-3.99	≤3.98
IQD	N/A	N/A	≤1.0	≥1.1 ≤2.0	≥2.1

The pre-determined criteria for consensus agree with a similar rating of 1-10 on an ordinal scale as used in Aigbavboa (2013). Using rating based on an ordinal scale of 1-5, 1 represented 'not at all important' while 5 represented 'extremely important or critical'. The overall level of importance equals the consensus: weak, good or strong as per the evaluation. The findings are discussed in each round of the Delphi process.

8.3 Round One

The round one Delphi survey was conducted after a pilot test of the designed questionnaire with selected experts who were not part of the Delphi panel of experts and two colleagues who were PhD students. The aim of the round one was to explore for factors and also determine the inclusion of factors identified in literature after assessing their importance.

8.3.1 Findings of Delphi Survey Round One

At the end of the Delphi round one, fifteen key factors, nineteen sub-factors and one hundred and thirty-two related factors were qualified for round two which aimed at evaluating the level of influence and importance of each key factor and the attributes categorised under the sub-factors. A panel of experts suggested combining some key factors during the round one survey. The results are illustrated in Figures 8.1 to 8.11.

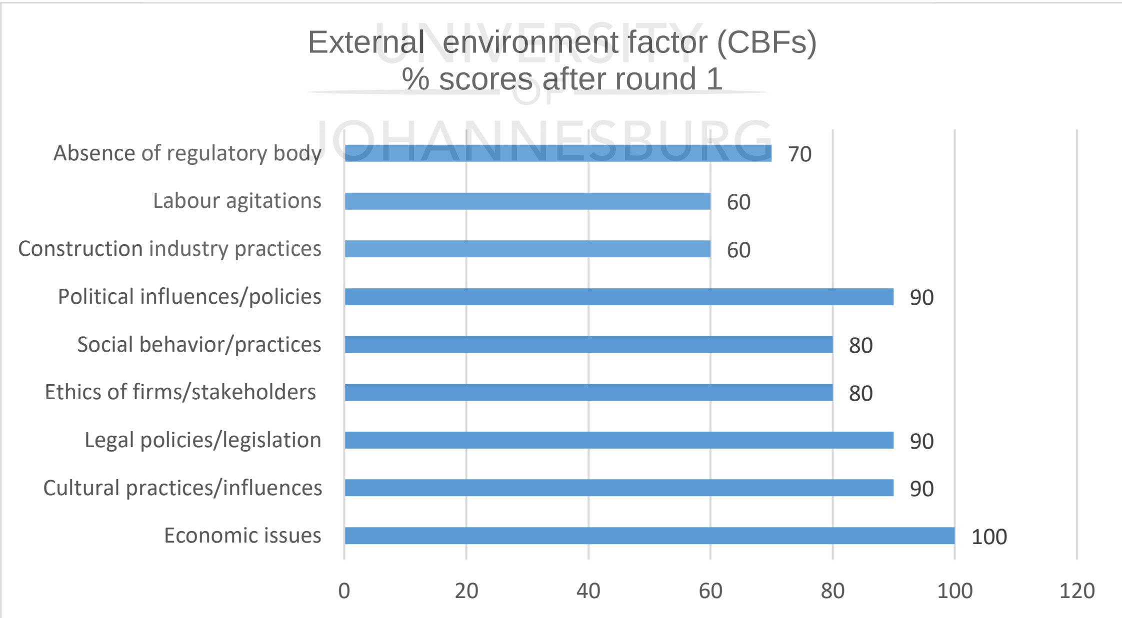


Figure 8.1: External Environment Factors (Critical Barrier Factors)

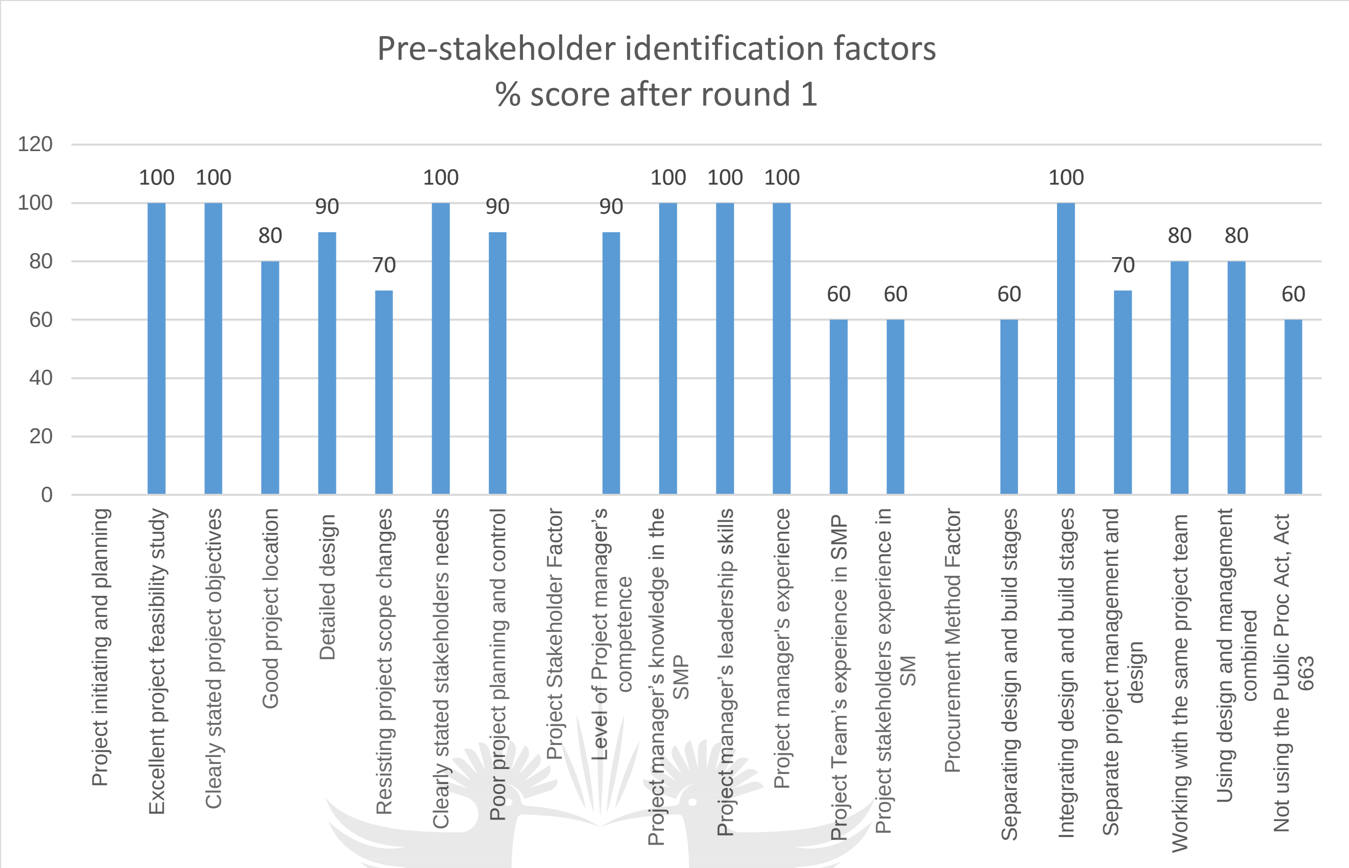


Figure 8.2: Pre-Stakeholder Identification Factors

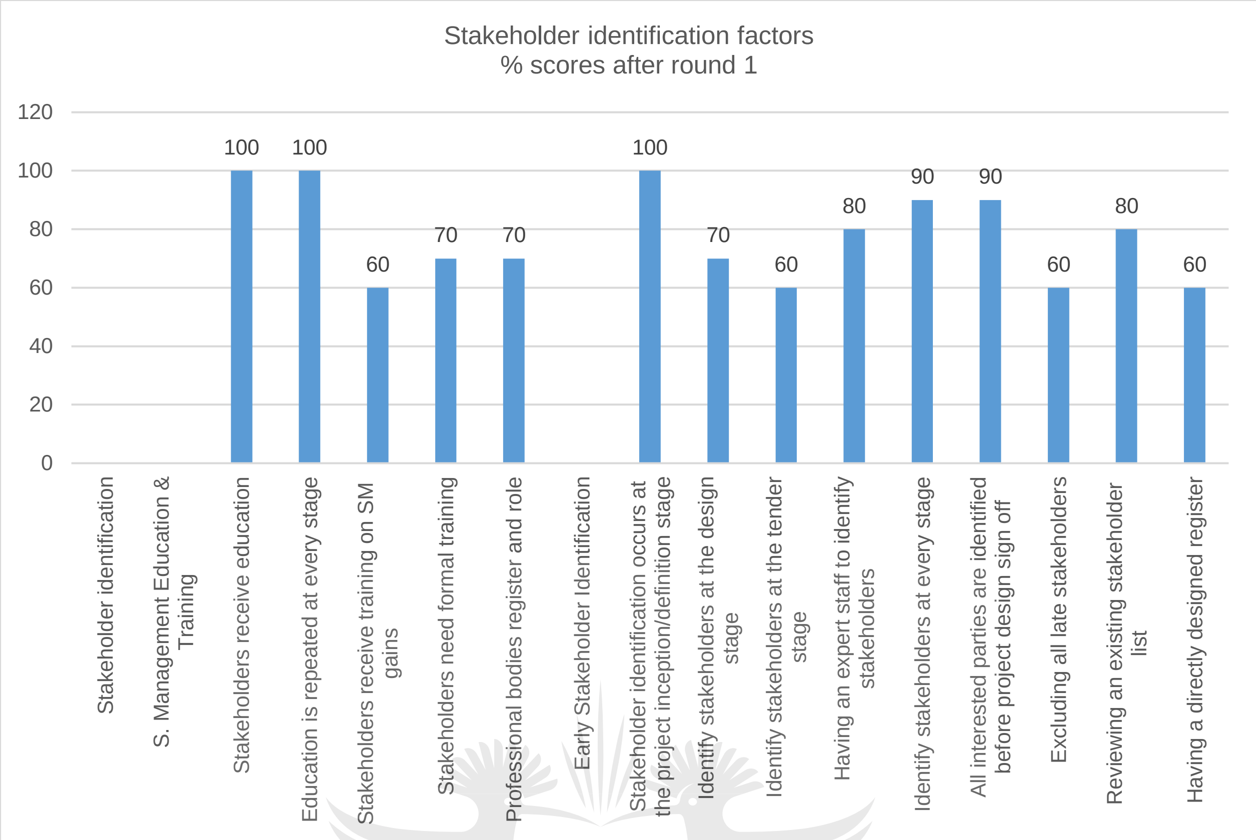


Figure 8.3: Stakeholder Identification Factors

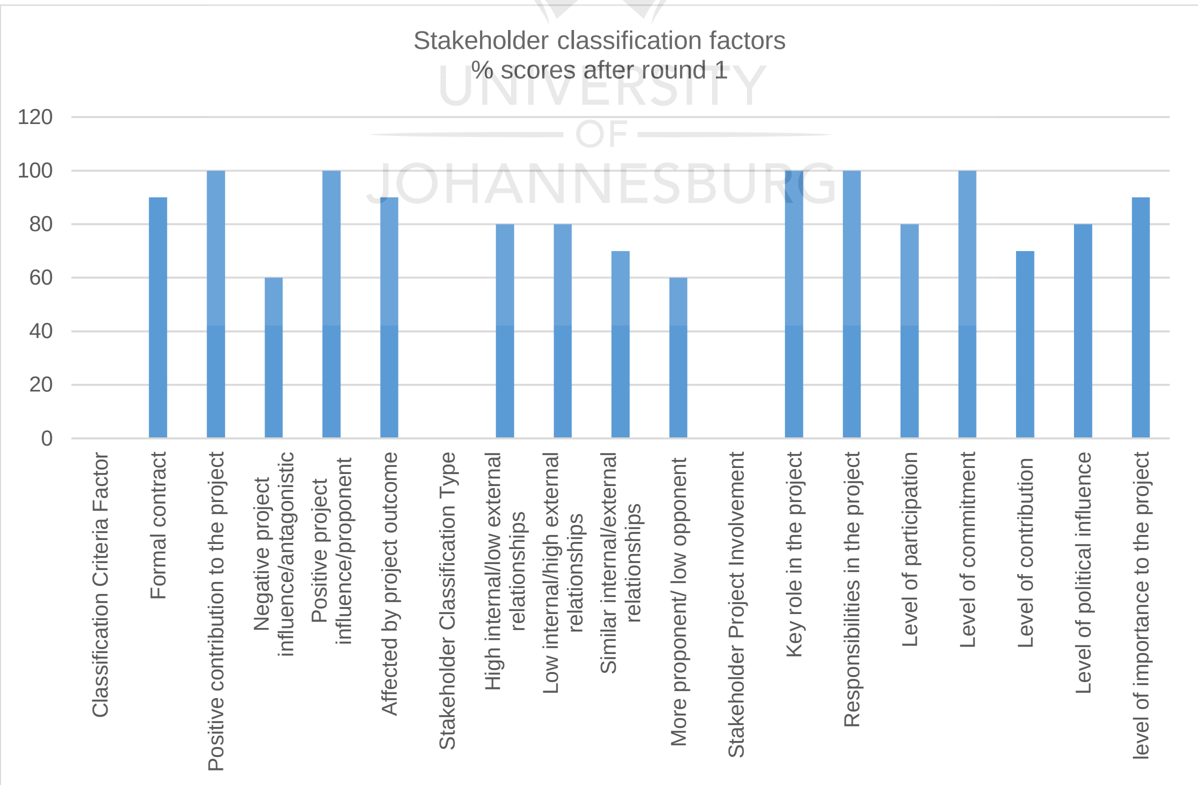


Figure 8.4: Stakeholder Classification Factors

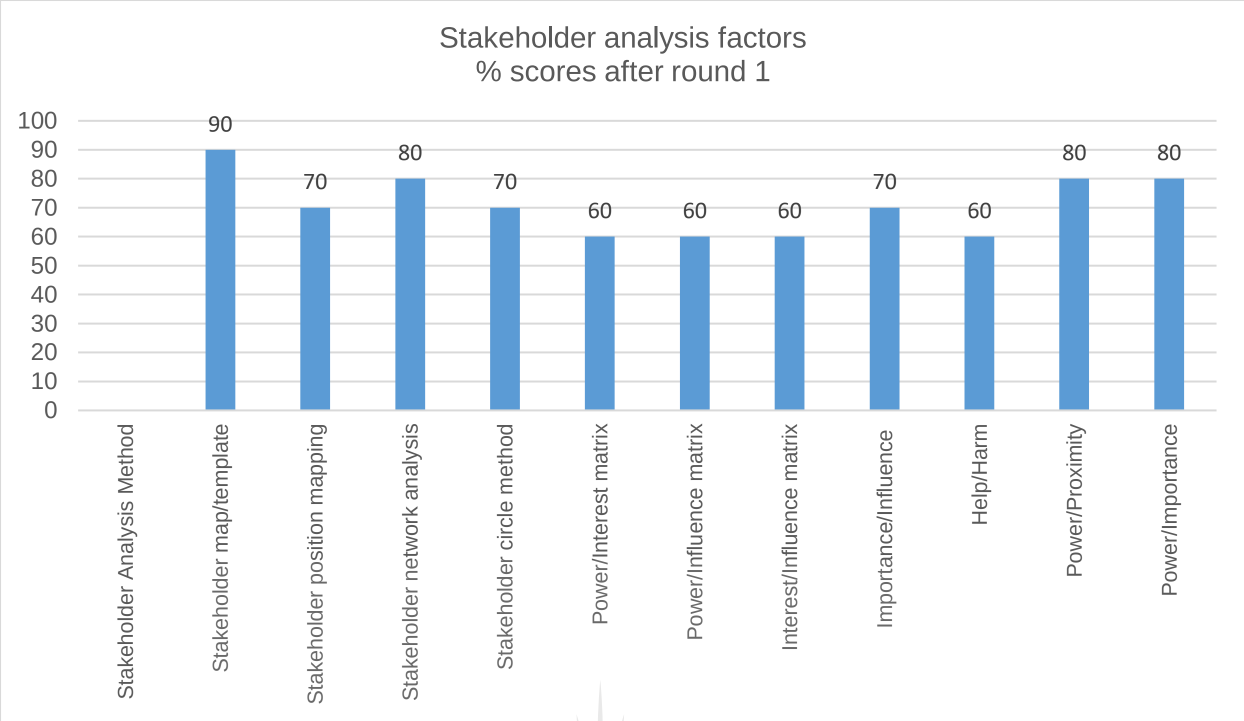


Figure 8.6: Stakeholder Analysis Factors

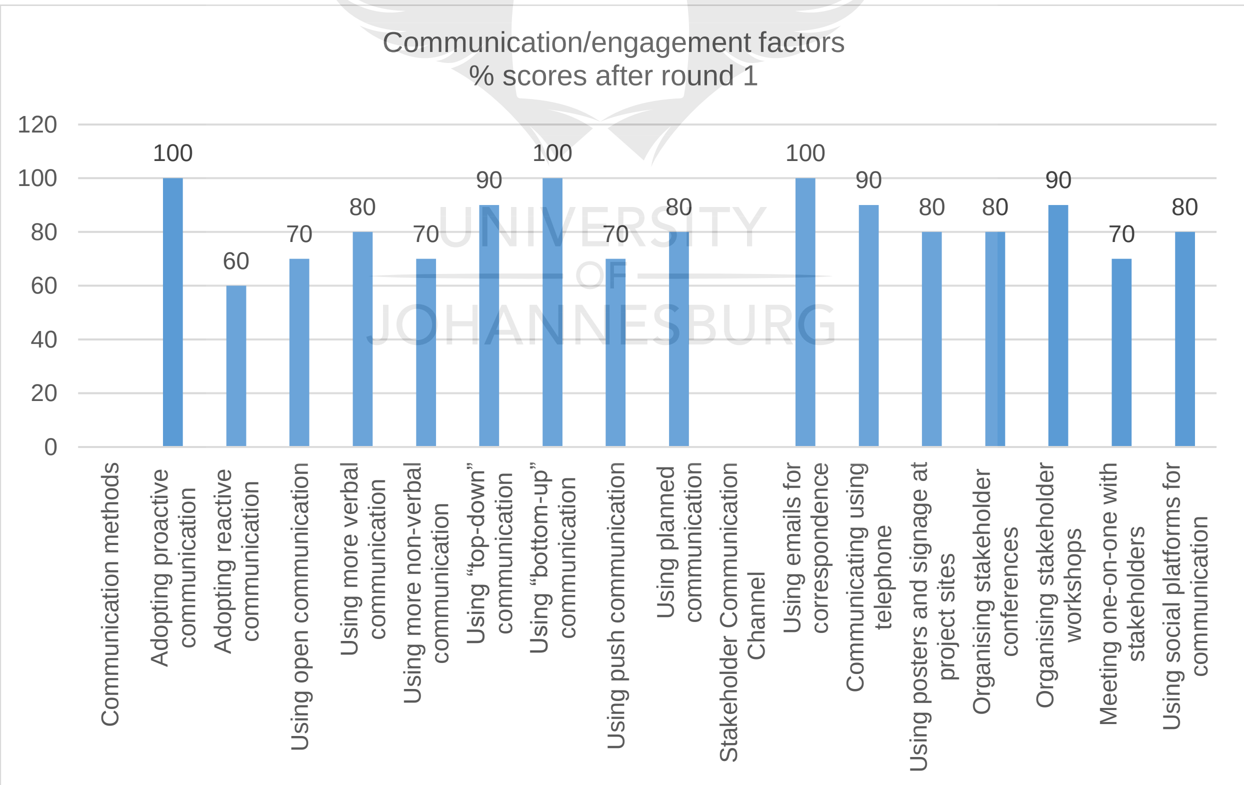


Figure 8. 7: Communication/Engagement Factors

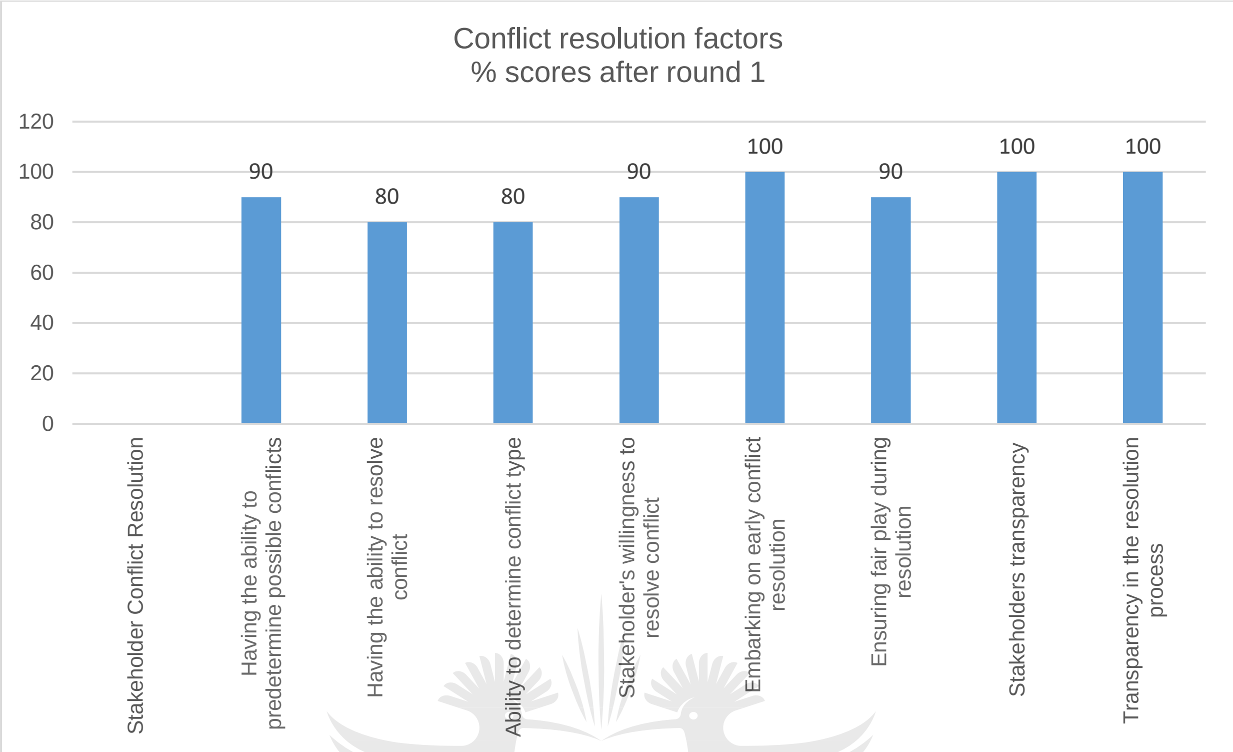


Figure 8.8: Conflict Resolution Factors

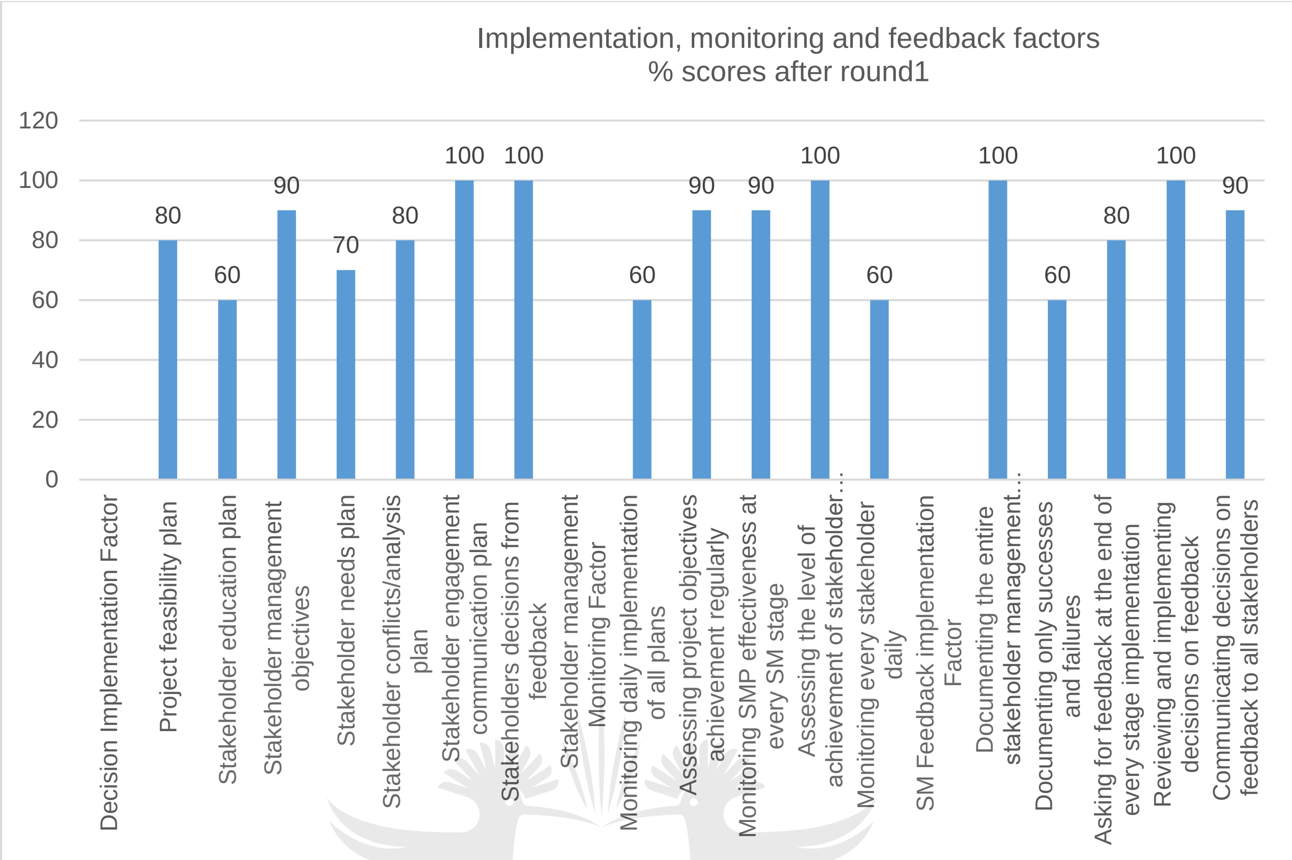


Figure 8.9: Implementation, monitoring and feedback factors

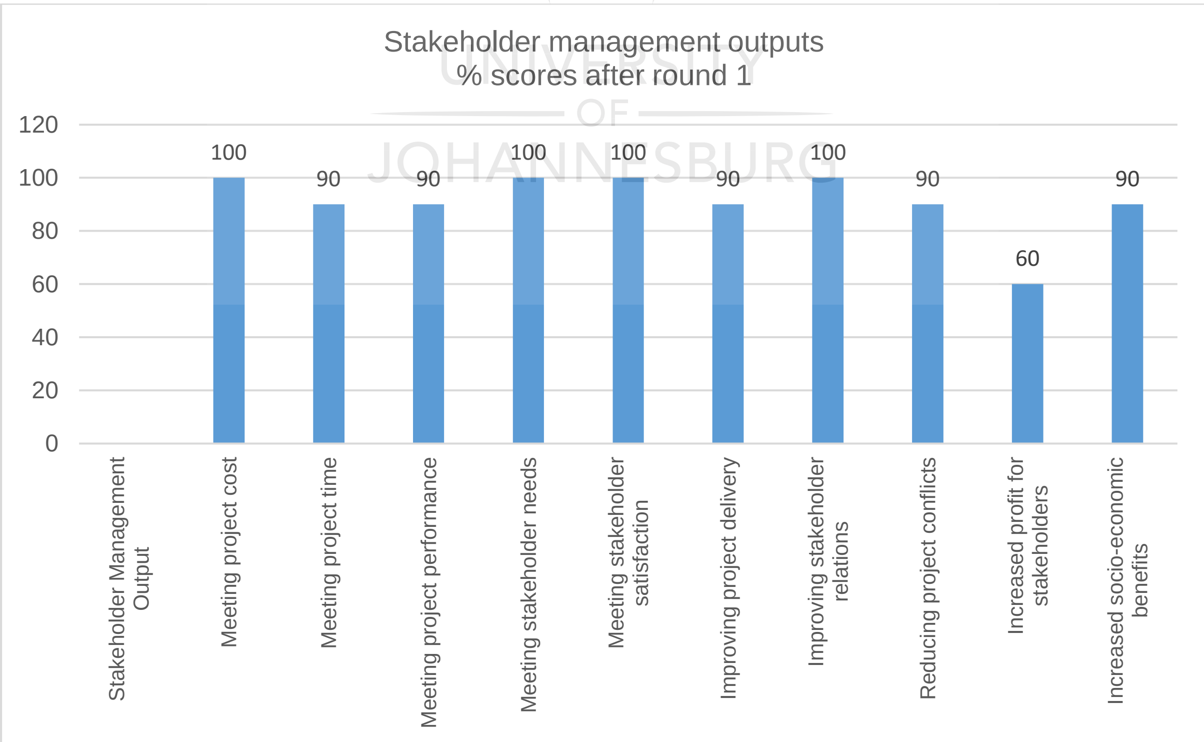


Figure 8.10: Stakeholder Management Output

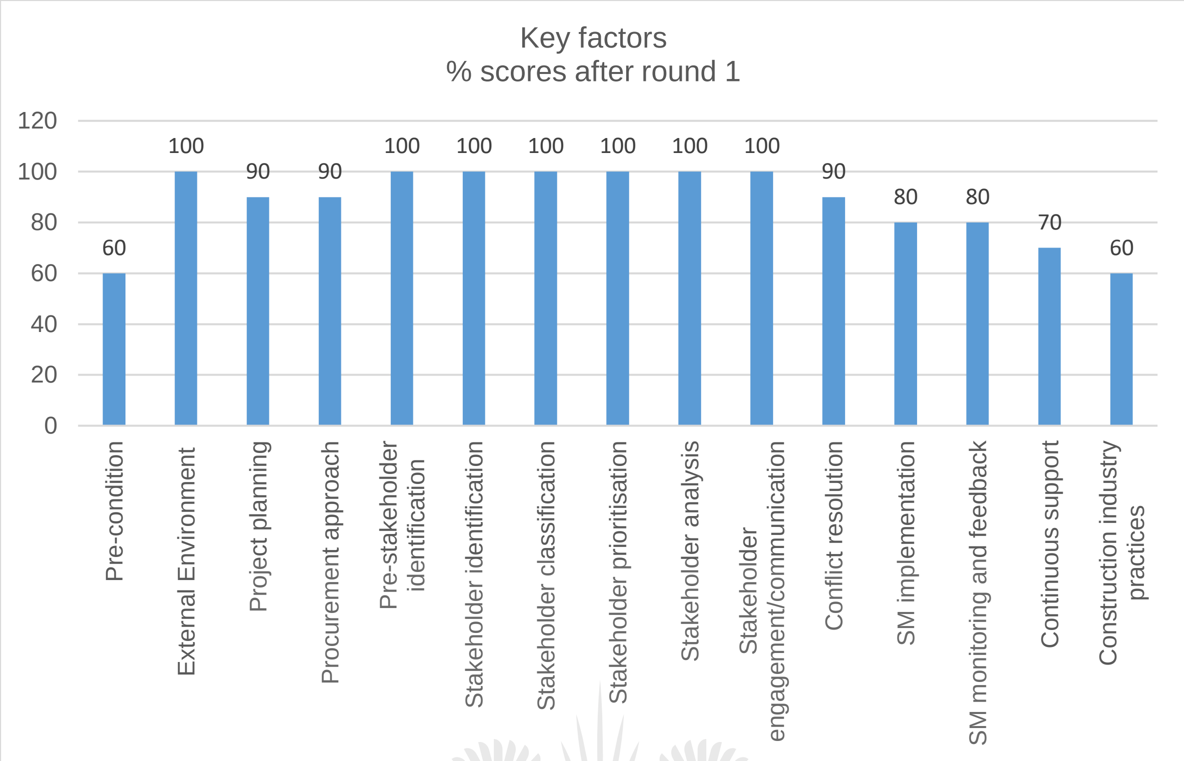


Figure 8.11: Conflict Resolution Factors

8.4 Findings of Delphi Survey Round Two

All the Delphi panellists who participated in round one also returned their responded questionnaire for round two evaluations. The specific objectives were evaluated using the pre-set qualification for consensus. The aim was to assess the level of influence of each key and related factor in achieving successful SMP using the conceptual SSMF.

8.4.1 Evaluating External Environment Factors

DSO1*- The objective was to evaluate the critical barrier factors (CBF) of sustainable stakeholder management (SSM) as identified in the literature. These are referred as the external environment factors.*

Nine related factors were identified as critical barriers from the literature reviewed. These were obtained from the review of stakeholder management theories as well project management literature. Though the factors were identified mainly as related factors from developed and developing countries' case studies, they were tested in Ghana for confirmation and their importance in relation to sustainable stakeholder management (SSM). Panellists' confirmation indicated the level of relevance to project managers for consideration in achieving stakeholder management success.

Table 8.2: External Environment Factors (Critical Barrier Factors)

Related factors	M	$\bar{x}$	SD	IQD
Economic issues	4.0	3.90	1.044	2.0
Cultural practices/influences	3.5	3.50	0.806	1.0
Legal policies/legislation	4.5	4.40	0.663	1.0
Ethics of firms/stakeholders	4.0	4.20	0.748	1.0
Social behaviour/practices	3.5	3.40	0.917	1.0
Political influences/policies	4.0	3.90	1.136	1.8
Construction industry practices	3.5	3.50	0.5	1.0
Labour agitations (unrest)	3.5	3.50	0.5	1.0
Absence of regulatory body	4.0	3.90	0.539	0.0

From the table 8.2 above, it is evident that *legal policies/legislation* is the only related factor to have achieved strong consensus at the end of round one though all the remaining eight related factors achieved good consensus. This implies that *legal policies/ legislation* has the greatest influence on sustainable stakeholder management (SSM). Since a consensus, in general, ought to have been 100% (median-5, mean 5), panellists were given the opportunity to re-consider their choices in the round two. The attribute with the least measurement at the end of round one was *social behaviour or practices*. *Economic issues, ethics of firms/stakeholders, political influences/policies and absence of regulatory body* had same central tendencies of the median and mean values of 4.0 and 3.90 respectively. This implies that they have an equal impact as critical barriers factors to sustainable stakeholder management (SSM). Again, considering IQD values as a measure of consensus, seven related factors have strong IQD values between 0 and 1.0 with the *absence of regulatory body* having the highest IQD value. *Economic issues* had the highest IQD value of 2.0, implying that the lower quartile and upper quartile values showed the highest difference.

8.4.2 Measuring Pre-stakeholder Identification Factor

DSO2: *To determine sub-attributes and the extent of influence of pre-stakeholder identification-related factors on SSM. The sub-attributes are projected definition and planning, procurement method and stakeholder factor.*

Table 8.3: Pre-Stakeholder Identification Factors

Project Initiating and Planning	M	$\overline{x}$	SD	IQD
Excellent project feasibility study	5.0	4.40	0.8	1.0
Clearly stated project objectives	5.0	4.80	0.4	0
Good project location	4.0	3.90	0.539	0
Detailed design	4.5	4.30	0.781	1.0
Resisting project scope changes	3.0	2.90	1.136	1.8
Clearly stated stakeholders needs	5.0	4.50	0.671	1.0
Poor project planning and control	4.0	3.80	0.6	0.8
Project Stakeholder Factor				
Level of project manager's competence	4.5	4.40	0.663	1.0
Project manager's knowledge in the SM	5.0	4.60	0.49	1.0
Project manager's leadership skills	5.0	4.60	0.663	0.8
Project manager's experience	4.0	4.10	0.539	0
Project team's experience in SM	3.5	3.30	0.781	1.0
Project stakeholders need previous experience in SM	3.0	2.90	1.044	0.8
Procurement Method Factor				
Separating design and build stages	2.5	2.40	0.663	1.0
Integrating design and build stages	4.5	4.30	0.9	1.0
Separate project management and design	2.5	2.50	0.806	1.0
Working with the same project team	4.0	3.80	1.166	1.5
Using design and management combined	4.0	4.20	0.748	1.0
Not using the Public Procurement Act, Act 663	2.0	1.90	0.7	0.8

The study sought to assess the level of influence of activities that are carried out before formal stakeholder identification takes place. Literature has suggested that good identification of needs, good feasibility studies, preparation of designs, and the decision on a procurement system can determine the stakeholder relationship to be considered.

On project initiating and planning, Table 8.3 indicates that seven related factors had been identified. Six relevant factors, namely *excellent project feasibility study, clearly stated project objectives, good project location, detailed design, resisting project scope changes, clearly stated stakeholders needs* and finally, *poor project planning and control* scored strong values for the central tendencies of the median and the mean. All the six values achieved strong consensus at the end of the round one. However, *resisting project scope changes* with the median value of 3.0 and mean of 2.90 scores had weak consensus. This implied that experts were all of the view that scope changes can hardly be avoided and hence must not be considered but rather embraced and catered for in the development of the SSM framework.

Clearly stated project objectives with a median of 5.0, a mean of 4.80, the standard deviation of 0.4 and IQD of 0 had the highest score. This inferred that project development must ensure clear objectives are stated and adhered to in relating to project stakeholders. All related factors had strong interquartile deviation and low standard deviation scores, an indication of high consensus among the Delphi panellists.

Similarly, the project stakeholders' role sub-factor was measured using six leading indicators. Four related factors attained the desired consensus. *Project managers' leadership skill* was the most rated with a median of 5.0, a mean of 4.60, the standard deviation of 0.663 and IQD of 0.8. All the four indicators had a strong consensus. *Project team's experience in SM* achieved a good agreement but *project stakeholders need for previous experience in SM* was rated as having a weak consensus with a median of 3.0 a mean of 2.90 and standard deviation of 1.044. This implies that *previous experience of all project stakeholders* is not a leading indicator influencing SSM.

Studies have indicated that the procurement method employed can influence SSM because it determines stakeholder types and role. Of the six measuring indicators, only *integrating design and build* had a strong consensus with a median of 4.5, mean of 4.3 and IQD of 1.0. *Working with the same project team* and using *design and management combined* rated as having a good consensus (Table 8.3). The remaining three factors (Table 8.3) did not achieve consensus. Also, the PPA itself was found not as not influencing SSM much.

8.4.3 Measuring Stakeholder Identification Factor

DSO3: *To evaluate the influence of stakeholder identification on sustainable stakeholder management.* It addresses the issue of how it should be conducted, the resources needed, who should carry it out, and the role of education and training.

Table 8.4: Stakeholder Identification

Stakeholder Management Education and Training	M	$\bar{x}$	SD	IQD
Stakeholders receive education at project inception	5.0	4.70	0.458	1.0
Education is repeated at every stage	4.0	4.20	0.4	0.8
Stakeholders receive training on SM gains only	3.0	2.80	0.872	1.0
Stakeholders need formal training	3.5	3.20	0.872	1.0
Professional bodies must promote SM gains to members	5.0	4.80	0.4	0.8

Early Stakeholder Identification				
Stakeholder identification occurs at the project inception/definition stage	5.0	4.50	0.707	1.0
Identify stakeholders at the design stage	4.0	3.80	0.422	0.0
Identify stakeholders at the tender stage	3.5	3.50	0.527	1.0
Having an expert staff to identify stakeholders	4.0	4.00	0.943	0.8
Identify stakeholders at every stage	4.5	4.50	0.527	1.0
All interested parties are identified before project design sign off	4.0	3.90	0.994	1.5
Excluding all late stakeholders	2.5	2.50	1.08	1.0
Reviewing an existing stakeholder list	4.0	3.90	0.994	1.5
Having a directly designed register	3.5	3.30	0.949	1.0

Stakeholder identification is the formal process of identifying stakeholders and documenting their information as a register. It is stated in all stakeholder literature as a critical factor. Five related factors were used to measure the extent of influence on SSM under education and training for stakeholders. *Professional bodies must promote SM gains to members* with a median of 5.0, and a mean of 4.80 was the highest and had a strong consensus rate, followed by *stakeholders receive education at project inception* with a median of 5.0, and a mean of 4.70. Three other leading indicator metrics had good consensus except *stakeholders receive training on SM gains only* which had a weak consensus of median 3.0 and a mean of 2.80 according to Table 8.4.

When measuring the sub-factor early stakeholder identification, seven out of nine related-factors achieved either strong or good consensus. According to Table 8.4, *stakeholder identification occurs at the project definition stage* and *having all stakeholders involved at initial stage* had the highest scores and were also rated as having strong consensus. *Excluding all late stakeholders* was the only attribute that did not achieve any consensus with a median of 2.5 and a mean of 2.5. The outcome agrees with the literature on the role of stakeholder identification in SSMP.

8.4.4 Evaluating Stakeholder Classification, Prioritisation and Analysis Factor

DSO4: *The objective is to evaluate the influence of stakeholder types and prioritise them for analyzing their influence on SSM.*

It considers three classification sub-factors, two prioritization sub-factors, and analysis as shown in Table 8.5.

Table 8.5: Stakeholder Classification Factor

Classification Criteria Factor	M	$\bar{x}$	SD	IQD
Formal contract	4.0	4.00	0.816	1.5
Positive contribution to the project	4.5	4.50	0.527	1.0
Negative project influence/antagonistic	3.0	3.00	1.155	1.5
Positive project influence/proponent	4.5	4.40	0.699	1.0
Affected by project outcome	4.5	4.10	1.197	1.0
Stakeholder Classification Type				
High internal/low external relationships	4.0	3.70	0.675	1.0
Low internal/high external relationships	3.0	3.20	0.789	1.0
Similar internal/external relationships	4.5	4.10	1.101	1.8
More proponent/ low opponent	4.0	3.90	1.101	2.0
Stakeholder Project Involvement				
Key role in the project	5.0	4.8	0.422	0.0
Responsibilities in the project	5.0	4.8	0.422	0.0
Level of participation	4.0	4.3	0.675	1.0
Level of commitment	5.0	4.9	0.316	0.0
Level of contribution	4.0	3.7	1.418	2.0
Level of political influence	4.0	3.8	0.919	0.8
level of importance to the project	4.0	3.7	0.483	0.8

According to Table 8.5, *positive contribution to the project, positive project influence or proponent* and *affected by project outcome*-related factors were the leading indicators that had strong consensus as all their mean, median and IQD values were highly scored. *Positive contribution to the project* factor had the strongest consensus with a median of 4.5, a mean of 4.50 and IQD of 1.0. Also, one and three related factors had strong and good consensus under classification type. *Similar internal/external relationships* had the highest score with a median of 4.5, a mean of 4.10 and IQD of 1.8. On stakeholder project involvement, three out of the seven related factors had strong consensus while the rest had good consensus. The *level stakeholder commitment* with a median of 5.0, a mean of 4.9 and IQD of 0.0 is the highest rated factor. Only two factors, namely *negative project influence/antagonistic* and *low internal/high external relationships* with 3.0 median score had weak consensus for round one. On those stakeholders to be considered, the table below indicates "who and how project stakeholders" are to be prioritised using power and non-power attributes.

Table 8.6: Stakeholder Prioritisation Factor

Stakeholder Power Attribute	M	$\bar{x}$	SD	IQD
Power to influence decisions	5.0	4.6	0.516	1.0
Urgency of need	4.0	4.0	1.054	1.8
Legitimacy to demand need	4.0	4.0	1.054	1.8
Delegated power to influence	3.0	3.2	1.033	1.8
Power, legitimacy, and urgency	5.0	4.6	0.966	0.0
Stakeholder Non-Power Attribute				
Interest in the project	4.5	4.0	1.247	1.8
View of project's importance	3.5	3.3	1.418	1.0
Impact on the project	4.0	3.8	1.135	1.5
High managerial influence on the project	4.0	4.0	0.816	1.5
Needs and expectations	5.0	4.4	0.843	1.0
Dynamism and salience to project	4.0	3.9	0.316	0.0
Has shares in the project/firm	4.0	3.8	0.422	0.0

Two related factors scored strong consensus while one had weak consensus. Project stakeholder attribute of *power to influence decisions* and *power, legitimacy, and urgency* with a median of 5.0 and a mean of 4.6 had the highest rating. *The urgency of need* and *legitimacy to demand need* had good consensus. This agrees with the literature stance that a person or firm possessing the three attributes is a definitive stakeholder. However, *delegated power to influence* had a weak rating.

Measuring the non-power attributes, *needs and expectations* with median of 5.0, a mean of 4.4 and IQD of 1.0 was followed by *interest in the project* with a median of 4.5, a mean of 4.0, and IQD had strong scores. Moreover, the remaining five related factors all had good consensus.

Table 8.7: Stakeholder Analysis Method

stakeholder analysis method	M	x̄	SD	IQD
Stakeholder map/template	5.0	4.2	1.135	1.8
Stakeholder position mapping	4.0	4.0	0.816	1.5
Stakeholder network analysis	4.5	4.3	0.823	1.0
Stakeholder circle method	3.0	3.1	0.994	1.0
Power/Interest matrix	4.0	3.5	0.707	1.0
Power/Influence matrix	4.0	3.7	0.949	1.0
Interest/Influence matrix	4.0	3.7	0.675	1.0
Importance/Influence	4.0	3.5	0.707	1.0
Help/Harm	3.5	3.5	0.527	1.0
Power/Proximity	4.0	4.0	0.667	0.0
Power/Importance	4.0	3.7	0.675	1.0

A method for analysing stakeholders was measured. In round one using *stakeholder map/template* was rated highest with a median of 5.0, a mean of 4.2 but low IQD of 1.8. Using *stakeholder network* analysis was second with a median of 4.5 but strongest score due to lower IQD of 1.0. Out of the eleven related factors, two had a strong influence, eight had a good influence, while one scored a low influence. *Stakeholder circle method* has the least influence with median of 3.0, a mean of 3.1, and IQD of 1.0. All the mean values had a strong score of 3.5 and above.

8.4.5 Evaluating Stakeholder Communication/Engagement factor

DSO5: *To determine the extent of influence of stakeholder communication or engagement factors on SSM. It further examines the related factors and influence on SSM.* The major sub-factors measured are communication methods and channels. Sixteen related attributes in all were evaluated.

Table 8.8: Stakeholder Engagement/Communication

Stakeholder Engagement, Communication	M	x̄	SD	IQD
Adopting proactive communication	5.0	4.9	0.316	0.0
Adopting reactive communication	2.0	2.5	0.972	1.0

Using open communication	4.0	4.3	0.675	1.0
Using more verbal communication	3.5	3.4	0.966	1.0
Using more non-verbal communication	3.5	3.6	0.966	1.0
Using “top-down” communication	4.0	3.5	0.972	1.0
Using “bottom-up” communication	4.0	3.8	1.033	1.8
Using push communication	4.0	3.6	0.516	1.0
Using planned communication	4.0	3.7	0.483	0.8
Stakeholder Communication Channel				
Using emails for correspondence	5.0	4.4	0.966	1.0
Communicating using telephone	4.5	4.2	1.033	1.0
Using posters and signage at project sites	3.5	3.6	0.966	1.0
Organising stakeholder conferences	5.0	4.5	0.707	1.0
Organising stakeholder workshops	4.0	4.3	0.675	1.0
Meeting one-on-one with stakeholders	4.0	3.8	1.317	2.5
Using social platforms for communication	4.0	3.8	1.229	1.5

Regarding the stakeholder engagement/communication sub-factor, *adopting proactive communication* with a median of 5.0, a mean of 4.9, the standard deviation of 0.316 and IQD 0.0 was highly rated and scored strong consensus. Seven other related factors had a good score with medians of 4.0 and good IQD values of 1.0 and below. However, *adopting reactive communication* with median 2.0, mean 2.5 and IQD of 1.0 achieved weak consensus. Three related factors under communication channels, *using emails for correspondence* with a median of 5.0, a mean of 4.4, and IQD of 1.0 and *organising stakeholder conferences* with a median of 5.0, a mean of 4.5 and IQD of 1.0 achieved strong consensus. Also, *communicating using telephone* with a median of 4.5, a mean of 4.2 and IQD of 1.0 scored strong consensus. The four other related factors all scored good consensus.

8.4.6 Evaluating Conflict Analysis

DS06: *To evaluate the influence of conflict analysis-related factors on the implementation of the sustainable stakeholder management framework.* On stakeholder conflict analysis, eight related factors were measured for influence on SSM.

Table 8.9: Conflict Analysis

Stakeholder Conflict Analysis	M	x̄	SD	IQD
Having the ability to predetermine possible conflicts	4.5	4.2	1.033	1.0
Having the ability to resolve conflict	4.0	3.7	0.675	0.0
Having the ability to determine conflict type	4.5	3.7	1.494	3.0
Stakeholder's willingness to resolve conflict	4.5	4.0	1.155	2.0
Embarking on early conflict resolution	5.0	4.6	0.516	1.0
Ensuring fair play during resolution	5.0	4.6	0.966	0.0
Stakeholder's transparency	5.0	4.9	0.316	0.0
Transparency in the resolution process	5.0	4.9	0.316	0.0

The central tendency measures recorded high scores for both the median and mean. Six related attributes achieved strong consensus at the end of round one. These are *having the ability to predetermine possible conflicts* with a median of 4.5, a mean of 4.2, and IQD of 1.0; *embarking on early conflict resolution* with a median of 5.0, a mean of 4.6, and IQD of 1.0; and *ensuring fair play during resolution* with a median of 5.0, a mean of 4.6, and IQD of 0.0. The rest are *stakeholders' transparency* with a median of 5.0, a mean of 4.9, and IQD of 0.0 and *transparency in the resolution process* with a median of 5.0, a mean of 4.9 and IQD of 0.0. The rest all achieved good consensus.

8.4.7 Measuring implementation, Monitoring and Feedback Documentation Factor

DSO7: *To determine the extent of the impact of implementation, monitoring and feedback documentation-related factors on SSM.*

Table 8.10: Decision Implementation, Monitoring and Feedback

Decision Implementation	M	x̄	SD	IQD
Project feasibility plan	4.5	4	1.247	1.75
Stakeholder education plan	3.0	3.5	1.08	1.5
Stakeholder management objectives	5.0	4.4	0.966	1.0
Stakeholder needs plan	4.0	4	0.943	2.0
Stakeholder conflicts/analysis plan	4.0	4.1	0.876	1.75

Stakeholder engagement communication plan	5.0	4.6	0.516	1.0
Stakeholders decisions from feedback	5.0	4.6	0.516	1.0
Monitoring				
Monitoring daily implementation of all plans	3.5	3.5	1.269	2.5
Assessing project objectives achievement regularly	5.0	4.6	0.516	1.0
Monitoring SMP effectiveness at every SM stage	4.5	4.3	0.823	1.0
Assessing the level of achievement of stakeholder satisfaction and needs	5.0	4.8	0.422	0.0
Monitoring every stakeholder daily	3.0	2.9	1.37	2.0
Feedback implementation				
Documenting the entire stakeholder management process	4.5	4.4	0.699	1.0
Documenting only successes and failures	3.5	3.3	1.337	1.75
Asking for feedback at the end of every stage implementation	4.5	4.3	0.949	1.0
Reviewing and implementing decisions on feedback	5.0	4.5	0.707	1.0
Communicating decisions on feedback to all stakeholders	5.0	4.8	0.422	0.0

Three main sub-factors with seventeen related factors were investigated for influence on SM success. Four SM decision implementation-related factors achieved strong consensus rating using central tendency median and mean measures. According to Table 8.10, *stakeholder engagement communication* and *stakeholders' decisions from feedback* with a median of 5.0, and a mean of 4.6 were the highest measured. One factor had a weak score while the rest attained good consensus.

For monitoring related-factors, three factors were rated as strong consensus, one as good and the last as weak. *Assessing the level of achievement of stakeholder satisfaction* and needs with a median of 5.0, a mean of 4.8 and IQD of 0.0 measured the highest. *Monitoring daily implementation of all plans* with IQD of 2.5 was the highest record.

On feedback implementation related-factors, four out of five factors measured achieved strong consensus (Table 8.10). The last related factor, *documenting only successes and failures* with median of 3.5 and mean of 3.3 had weak consensus.

8.4.8 Sustainable Stakeholder Management Output

DSO8: *To evaluate the SSM success output attributes as a result of SSM.* This is necessary as ultimately the study seeks to enhance project delivery.

Table 8.11: Stakeholder Management Output

Key factors (identified by headings)	M	$\bar{x}$	SD	IQD
Meeting project cost	5.0	5	0	0.00
Meeting project time	5.0	4.8	0.422	0.00
Meeting project performance	5.0	4.8	0.422	0.00
Meeting stakeholder needs	5.0	4.6	0.516	1.00
Meeting stakeholder satisfaction	5.0	4.6	0.516	1.00
Improving project delivery	5.0	4.6	0.516	1.00
Improving stakeholder relations	4.0	4.3	0.675	1.00
Reducing project conflicts	5.0	4.5	0.707	1.00
Increased profit for stakeholders	3.5	3.5	0.527	1.00
Increased socio-economic benefits	4.0	3.6	0.516	1.00

Seven out of ten evaluated-related outputs achieved strong consensus at the end of round one (See Table 8.11). *Improving stakeholder relations* with median 4.0, mean 4.3 and *increased socio-economic benefits* with median 4.0 and mean 3.6 both having IQD of 1.00, had good consensus. Only one output was rated weak.

8.4.9 Main Factors for Sustainable Stakeholder Management.

DSO9: *To seek and also confirm or otherwise factors identified from the literature review and those formulated as gaps.* The study requested additional factors from experts in the field in the absence of a formal model in Ghana.

Table 8.12: Key Factors

Key Factors (identified by headings)	M	$\bar{x}$	SD	IQS
Pre-condition	3.0	3.2	1.751	3.50
External environment	5.0	5	0	0
Project planning	5.0	4.8	0.632	0

Procurement approach	5.0	4.2	1.033	2
Pre-stakeholder identification	5.0	5	0	0
Stakeholder identification	5.0	5	0	0
Stakeholder classification	5.0	4.8	0.422	0
Stakeholder prioritization	5.0	5	0	0
Stakeholder analysis	5.0	5	0	0
Stakeholder engagement/communication	5.0	5	0	0
Conflict resolution	5.0	4.9	0.316	0
SM implementation	4.0	4	1.054	2
SM monitoring and feedback	4.0	4	1.054	2
Continuous support	2.0	2.4	0.516	1
Construction industry practices	4.0	3.1	1.197	2

The eight key factors that the study had proposed had very strong consensus as per Table 8.12. The additional factors that were included according to experts' view and evaluation had weak consensus. Also, a panel of experts recommended the grouping of some proposed factors as they seek to achieve the same objectives. These are *pre-conditions* and *external factors*, *project planning*, *procurement approach*, *pre-stakeholder identification*; *implementation and monitoring* and *feedback*. These agreed with literature and the researcher's stance.

8.5 Discussions of Delphi Survey Round Two

During the round two, the analysed round one survey results were sent to the Delphi experts, stating factors that had achieved strong, good and weak consensus. There was the chance that some factors that had achieved good consensus could be upgraded to strong consensus. The results have been presented for discussion in the next round.

8.5.1 Evaluating External Environment Factors

Three related factors measured achieved strong consensus while the remaining six scored good consensus as compared with round one where only *legal policies/legislation* had a strong score.

Table 8.13: External Environment Factors (2)

Related factors	M	$\bar{x}$	SD	IQD
Economic issues	4.5	4.30	0.95	1
Cultural practices/influences	4.0	4.20	0.42	0
Legal policies/legislation	4.5	4.40	0.70	1
Ethics of firms/stakeholders	4.0	4.20	0.79	1
Social behaviour/practices	4.0	3.80	0.79	0
Political influences/policies	4.5	4.10	1.20	1
Construction industry practices	3.5	3.50	0.53	1
Labour agitations/unrest?	4.0	3.80	0.42	0
Absence of regulatory body	4.0	3.90	0.57	0

8.5.2 Measuring Pre-stakeholder Identification Factors

The objectives remained as in round one. Four related factors achieved strong consensus under project initiating and planning, three under project stakeholder and two under procurement method sub-factors. *Working with the same project team* was scored higher during round two. Also, four related factors scored weak consensus at the end of round two.

Table 8.14: Pre-Stakeholder Identification (2)

Project Initiating and Planning	M	$\bar{x}$	SD	IQD
Excellent project feasibility study	5.0	4.40	0.84	1
Clearly stated project objectives	5.0	4.80	0.42	0
Good project location	4.0	3.90	0.57	0
Detailed design	4.5	4.30	0.82	1
Resisting project scope changes	3.0	3.10	0.99	1.5
Clearly stated stakeholders needs	5.0	4.50	0.71	1
Poor project planning and control	4.0	3.90	0.57	0
Project Stakeholder Factor				
Level of project manager's competence	4.5	4.40	0.70	1
Project manager's knowledge in the SM	5.0	4.60	0.52	1

Project manager’s leadership skills	5.0	4.60	0.70	0.75
Project manager's experience	4.0	4.10	0.57	0
Project team’s experience in SM	4.0	3.50	0.85	0.75
Project stakeholders need previous experience in SMP	3.0	2.90	1.10	0.75
Procurement Method Factor				
Separating design and build stages	2.5	2.40	0.70	1
Integrating design and build stages	4.5	4.30	0.95	1
Separate project management and design	2.5	2.50	0.85	1
Working with the same project team	4.5	4.30	0.82	1
Using design and management combined	4.0	4.20	0.79	1
Not using the Public Procurement Act, Act 663	2.0	1.90	0.74	0.75

8.5.3 Measuring Stakeholder Identification (2)

Similarly, the objective remained as in round one. Two factors each qualified for high consensus under early stakeholder identification and education and training. Two metrics, unfortunately, had weak consensus as in round one.

Table 8.15: Stakeholder Identification (2)

Stakeholder Management Education and Training	M	$\bar{x}$	SD	IQD
Stakeholders receive education	5.0	4.50	0.71	1
Education is repeated at every stage	4.0	3.80	0.63	0
Stakeholders receive training on SM gains only	3.0	2.60	1.07	1
Stakeholders need formal training	3.5	3.20	0.87	1
Professional bodies must promote SM gains to members	5.0	4.70	0.48	0.75
Early Stakeholder Identification				

Stakeholder identification occurs at the project inception/definition stage	5.0	4.50	0.71	1
Identify stakeholders at the design stage	4.0	3.80	0.42	0
Identify stakeholders at the tender stage	4.0	3.80	0.42	0
Having an expert staff to identify stakeholders	4.0	4.00	0.94	0.75
Identify stakeholders at every stage	5.0	4.70	0.48	0.75
All interested parties are identified before project design sign off	4.0	3.90	0.99	1.5
Excluding all late stakeholders	2.5	2.50	1.08	1
Reviewing an existing stakeholder list	4.0	3.90	0.99	1.5
Having a directly designed register	3.5	3.30	0.95	1

8.5.4 Evaluating Stakeholder Classification, Prioritization, Analysis Factors

The objective remained as in round one. Seven factors had a strong consensus, two had strong medians and mean values but high IQD, hence nine had good scores. No related factor was poorly rated. *The level of participation* in round two moved from good to strong consensus.

Table 8.16: Classification Factors (2)

Classification Criteria Factor	M	$\bar{x}$	SD	IQD
Formal contract	4.0	4.00	0.82	1.5
Positive contribution to the project	4.5	4.50	0.53	1
Negative project influence/antagonistic	3.5	3.60	0.70	1
Positive project influence/proponent	4.5	4.40	0.70	1
Affected by project outcome	4.5	4.10	1.20	1
Stakeholder Classification Type				
High internal/low external relationships	4.0	3.70	0.68	1
Low internal/high external relationships	3.0	3.20	0.79	1
Similar internal/external relationships	4.5	4.10	1.10	1.75
More proponent/ low opponent	4.0	3.90	1.10	2
Stakeholder Project Involvement				
Key role in the project	5.0	4.8	0.42	0

Responsibilities in the project	5.0	4.8	0.42	0
Level of participation	4.5	4.4	0.70	1
Level of commitment	5.0	4.9	0.32	0
Level of contribution	4.5	4.0	1.33	1.75
Level of political influence	4.0	3.8	0.92	0.75
The level of importance to the project	4.0	3.8	0.42	0

There were no changes in prioritization-related metrics measured as three factors scored strong consensus and eight had good scores. No factor was rated as weak consensus.

Table 8.17: Stakeholder Prioritisation Factor (2)

Stakeholder Power Attribute	M	$\bar{x}$	SD	IQD
Power to influence decisions	5.0	4.6	0.52	1
Urgency of need	4.0	4.0	1.05	1.75
Legitimacy to demand need	4.0	4.0	1.05	1.75
Delegated power to influence	3.0	3.2	1.03	1.75
Power, legitimacy, and urgency	5.0	4.6	0.97	0
Stakeholder Non-Power Attribute				
Interest in the project	4.5	4.0	1.25	1.75
View of project's importance	3.5	3.3	1.42	1
Impact on the project	4.0	4.0	0.94	0.75
High managerial influence on the project	4.0	4.0	0.82	1.5
Needs and expectations	5.0	4.4	0.84	1
Dynamism and salience to project	4.0	3.9	0.32	0
Has shares in the project/firm	4.0	3.8	0.42	0

Table 8.18: Stakeholder Analysis Method (2)

Stakeholder Analysis Method	M	$\bar{x}$	SD	IQD
Stakeholder map/template	5.0	4.2	1.14	1.75
Stakeholder position mapping	4.0	4.0	0.82	1.5
Stakeholder network analysis	4.5	4.3	0.82	1
Stakeholder circle method	3.0	3.1	0.99	1

Power/Interest matrix	4.0	3.8	0.63	0
Power/Influence matrix	4.0	3.8	0.92	0.75
Interest/Influence matrix	4.0	3.7	0.68	1
Importance/Influence	4.0	3.8	0.79	0
Help/Harm	4.0	3.8	0.63	0.75
Power/Proximity	4.0	4.0	0.67	0
Power/Importance	4.0	3.8	0.63	0.75

Regarding analysis methods, only stakeholder analysis method had a strong score while seven were rated as having a good score and only *stakeholder circle method* as weak.

8.5.5 Evaluating Stakeholder Communication/Engagement Factor (2)

The extent of influence of stakeholder communication or engagement factors on SM success was further measured. Six out of sixteen related factors measured had a strong consensus score as compared with three in the round one. Nine factors were rated as having good agreement while *adopting reactive communication* failed to qualify (Table 8.18).

Table 8.19: Stakeholder Engagement/Communication (2)

Stakeholder Engagement, Communication	M	$\bar{x}$	SD	IQD
Adopting proactive communication	5.0	4.9	0.32	0
Adopting reactive communication	2.0	2.5	0.98	1
Using open communication	4.5	4.4	0.70	1
Using more verbal communication	3.5	3.4	0.97	1
Using more non-verbal communication	3.5	3.6	0.97	1
Using “top-down” communication	4.0	3.5	0.97	1
Using “bottom-up” communication	4.0	4.0	0.94	0.75
Using push communication	4.0	3.6	0.52	1
Using planned communication	4.0	3.7	0.48	0.75
Stakeholder Communication Channel				
Using emails for correspondence	5.0	4.4	0.97	1
Communicating using telephone	4.5	4.2	1.03	1
Using posters and signage at project sites	3.5	3.6	0.97	1
Organising stakeholder conferences	5.0	4.5	0.71	1

Organising stakeholder workshops	4.5	4.4	0.70	1
Meeting one-on-one with stakeholders	4.0	3.8	1.32	2.5
Using social platforms for communication	4.0	3.8	1.23	1.5

8.5.6 Evaluating Conflict Analysis (2)

The objectives remained. All the eight related factors measured for influence on SM success qualified with six achieving strong consensus. *Having the ability to resolve conflict* was rated as a good score while the *ability to determine conflict type* had strong median and mean values but low IQD so was rated as good score (See Table 8.20).

Table 8. 20: Conflict Resolution

Stakeholder Conflict Resolution	M	$\bar{x}$	SD	IQD
Having the ability to predetermine possible conflicts	4.5	4.2	1.033	1
Having the ability to resolve conflict	4.0	3.8	0.632	0
Having the ability to determine conflict type	4.5	3.8	1.398	2.75
Stakeholder's willingness to resolve conflict	4.5	4	1.155	2
Embarking on early conflict resolution	5.0	4.6	0.516	1
Ensuring fair play during resolution	5.0	4.6	0.966	0
Stakeholders transparency	5.0	4.9	0.316	0
Transparency in the resolution process	5.0	4.9	0.316	0

8.5.7 Measuring Implementation, Monitoring and Feedback Documentation Factor

The extent of influence of the following related factors on SM success was evaluated. Ten factors had strong consensus scores, four had good consensuses scores and two had weak. *Daily monitoring of implementation and stakeholders* and *stakeholder education plan implementation* were low rated when measured (See Table 8.21).

Table 8:21 Implementation, Monitoring and Feedback Documentation

Decision Implementation Factor	M	$\bar{x}$	SD	IQD
Project feasibility plan	4.5	4.2	1.03	1
Stakeholder education plan	3.0	3.5	1.08	1.5
Stakeholder management objectives	5.0	4.4	0.966	1
Stakeholder needs plan	4.0	4	0.943	2
Stakeholder conflicts/analysis plan	4.0	4.1	0.876	1.75
Stakeholder engagement communication plan	5.0	4.6	0.516	1
Stakeholders decisions from feedback	5.0	4.6	0.516	1
Stakeholder management Monitoring Factor				
Monitoring daily implementation of all plans	3.5	3.5	1.269	2.5
Assessing project objectives achievement regularly	5.0	4.6	0.516	1
Monitoring SM effectiveness at every SM stage	4.5	4.3	0.823	1
Assessing the level of achievement of stakeholder satisfaction and needs	5.0	4.8	0.422	0
Monitoring every stakeholder daily	3.0	2.9	1.37	2
SM Feedback Implementation Factor				
Documenting the entire stakeholder management process	4.5	4.4	0.699	1
Documenting only successes and failures	3.5	3.3	1.337	1.75
Asking for feedback at the end of every stage implementation	4.5	4.3	0.949	1
Reviewing and implementing decisions on feedback	5.0	4.5	0.707	1
Communicating decisions on feedback to all stakeholders	5.0	4.8	0.422	0

8.5.8 Sustainable Stakeholder Management Success Output (SMO)

The proposed output factors were re-measured using the same objectives as in round one. Though *increased profit for stakeholders and socio-economic benefits* had their mean values increased, they could only achieve good consensus as in round one (See Table 8.22).

Table 8.22: Stakeholder Management Output

Stakeholder Management Output				

Meeting project cost	5.0	5	0	0
Meeting project time	5.0	4.8	0.422	0
Meeting project performance	5.0	4.8	0.422	0
Meeting stakeholder needs	5.0	4.6	0.516	1
Meeting stakeholder satisfaction	5.0	4.6	0.516	1
Improving project delivery	5.0	4.6	0.516	1
Improving stakeholder relations	4.0	4.3	0.675	1
Reducing project conflicts	5.0	4.5	0.707	1
Increased profit for stakeholders	4.0	3.7	0.483	0.75
Increased socio-economic benefits	4.0	3.8	0.422	0

8.5.9 Main Factors for Sustainable Stakeholder Management Success (2).

Key factors were evaluated after considering experts' suggestions in the first round and grouping some factors. All the factors measured scored good consensus except *continuous support* which had a good consensus score (See Table 8.21).

Table 8.23: Key Factors

Key Factors (identified by headings)				
External environment	5.0	5	0	0
Pre-stakeholder identification	5.0	5	0	0
Stakeholder identification	5.0	5	0	0
Stakeholder classification	5.0	4.8	0.422	0
Stakeholder prioritisation	5.0	5	0	0
Stakeholder analysis	5.0	5	0	0
Stakeholder engagement/communication	5.0	5	0	0
Conflict resolution	5.0	4.9	0.316	0
SM implementation, monitoring and feedback	5.0	4.7	0.483	0.75
Continuous support	4.0	3.7	1.252	1.75

8.6 Discussion of Delphi Results

This section of the study discusses and validates the set of main factors and related factors established by the panel of experts as known or perceived to be important and having an influence on the successful stakeholder management (SSM). Eleven (11) key factors, nineteen (19) subfactors and one hundred and thirty-two (132) related factors were evaluated. These leading factors are perceived to impact on a sustainable stakeholder management framework (SSMF) developed for the construction industry in developing countries with similar characteristics as Ghana.

Objective *DSO1*

The external environment factors acting as critical barrier factors (CBF) of sustainable stakeholder management (SSM) as identified in the literature and provided by experts were evaluated. Meeting economic, legal, ethical, social and environmental requirements have been identified as essential social responsibilities for SM success (Carroll, 1979; Yang, 2014). Similarly, Gudiene et al. (2013) have identified external factors as those factors impacting businesses beyond the control of the management, affecting the success and survival of a venture irrespective of the performance.

Table 8. 24: External Environment Factors (R3)

	R1	**R2**			**R3**		
External Environment Factors	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Economic issues	100	4.0	3.90	2.0	4.5	4.30	1.00
Cultural practices/influences	90	3.5	3.50	1.0	4.0	4.20	0.00
Legal policies/legislation	90	4.5	4.40	1.0	4.5	4.40	1.00
Ethics of firms/stakeholders	80	4.0	4.20	1.0	4.0	4.20	1.00
Social behaviour/practices	80	3.5	3.40	1.0	4.0	3.80	0.00
Political influences/policies	90	4.0	3.90	1.8	4.5	4.10	1.00
Construction industry practices	60	3.5	3.50	1.0	3.5	3.50	1.00
Labour agitations/unrest	60	3.5	3.50	1.0	4.0	3.80	0.00
Absence of regulatory body	70	4.0	3.90	0.0	4.0	3.90	0.00

Among the factors are economic, social, legal, physical, political and cultural. The influencing role of politics and culture is emphasized by Newcombe (2003), Crawford and Da Ros (2002), Bourne (2005), von Meding et al. (2013) and Mok et al. (2015).

Morsing and Schultz (2006) assert that ethical corporate action and socially responsible acts produce strong and positive responses from stakeholders. Gudiene et al. (2013) posit that changes in the law, ownership and restrictions on imports are legal and political factors that influence construction project delivery. The development of infrastructure in Africa is a measure of the political (Oyedele, 2013) and political support is necessary for project success (Li et al., 2005b; Osei-kyei and Chan, 2015). At consensus after round three, the summary of responses (Table 8.24) indicates that all the nine related factors influence SSM, hence these will be validated by a field survey. As argued by scholars mentioned above, project managers should consider these factors during the stakeholder management process.

Objective *DSO2*

The study measured the leading indicator metrics of pre-stakeholder identification to ascertain the degree of influence on SSMP. Out of nineteen related-factors, nine had strong, five good and five weak consensus scores. Jergeas et al. (2000) recognized the setting of common goals, objectives and project priorities. Similarly, Landin (2000) argues that performance depends on decisions made. Yang et al. (2009) and Jurgens et al. (2010) identified exploring needs and constraints. Razali and Anwar (2011) in Aapaoja and Hapasaalo (2014) assert the documentation of project purpose and customer constraints, an excellent feasibility study, clearly stated objectives, and detailed project design and planning (Osei-Kyei and Chan, 2015). Also included is pre-project planning and scope clarity (Tabish and Jha, 2011; Gudiene et al. 2013). The findings therefore confirm the assertions by the various scholars.

The scores also agree the assertion that project managers' knowledge, competence, leadership skills and personality are essential for project success (PMI, 2008). Similarly, the study emphasized the suggestion relating to competence, leadership, coordinating skills, experience authority and trust as being critical for project success (Tabish and Jha, 2011; Seiler et al., 2012; Verburg et al., 2013). Moreover, the study agrees with findings that project team, client and contractor-related factors affect the project and SM success (Chan et al., 2002). Also included are the project manager's role, competence, leadership and authority (Muller and

Turner, 2007 in Abu Baker et al., 2009; Gudiene et al., 2013). The need for first stakeholder analysis at early project stage is confirmed (Eskerod and Jepson, 2013).

Procurement method used establishes a relationship, stakeholders' roles, authority and contractual frameworks as influencing project SM (Love et al., 1998; Ren et al., 2012). Osei-Kyei and Chan (2015) found competitive and transparent methods as influencing stakeholders and project outcome. According to Rwelamila (2010), project managers need knowledge for a decision on PPS as it affects SM and projects. Early PPS attention ensures project success about SM. Love et al. (1998) postulate that one PPS is "better" than others for a particular project. Different PPS determine stakeholders' involvement, time and attention.

Table 8.25: Pre-Stakeholder Identification (R3)

Pre-Stakeholder Identification	R1	R2			R3		
	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Project initiating and planning							
Excellent project feasibility study	100	5.0	4.40	1.0	5.0	4.40	1.00
Clearly stated project objectives	100	5.0	4.80	0.0	5.0	4.80	0.00
Good project location	80	4.0	3.90	0.0	4.0	3.90	0.00
Detailed design	90	4.5	4.30	1.0	4.5	4.30	1.00
Resisting project scope changes	70	3.0	2.90	1.8	3.0	3.10	1.50
Clearly stated stakeholders needs	100	5.0	4.50	1.0	5.0	4.50	1.00
Proper project planning and control	90	4.0	3.80	0.8	4.0	3.90	0.00
Project Stakeholder Factor							
Level of project manager's competence	90	4.5	4.40	1.0	4.5	4.40	1.00
Project manager's knowledge in the SM	100	5.0	4.60	1.0	5.0	4.60	1.00
Project manager's leadership skills	100	5.0	4.60	0.8	5.0	4.60	0.75
Project manager's experience	100	4.0	4.10	0.0	4.0	4.10	0.00
Project team's experience in SM	60	3.5	3.30	1.0	4.0	3.50	0.75
Project stakeholders need previous experience in SMP	60	3.0	2.90	0.75	3.0	2.90	0.75
Procurement Method Factor							
Separating design and build stages	60	2.5	2.40	1.0	2.5	2.40	1.00
Integrating design and build stages	100	4.5	4.30	1.0	4.5	4.30	1.00

Separate project management and design	70	2.5	2.50	1.0	2.5	2.50	1.00
Working with the same project team	80	4.0	3.80	1.5	4.5	4.30	1.00
Using design and management combined	80	4.0	4.20	1.0	4.0	4.20	1.00
Not using the Public Proc Act, Act 663	60	2.0	1.90	0.8	2.0	1.90	0.75

Objective *DSO3*

The study evaluated the influence of stakeholder identification on SM success. Four indicator metrics were rated as strong, six had good and three indicators had weak consensus. *Stakeholders receive training on SM gains only*, *formal training* and *excluding all late stakeholders* failed to qualify (Table 8.26). *Project early stage and repeated identification* are essential (Eskerod and Jepsen, 2013). The outcome collaborates with findings arguing for stakeholder identification in successful SMP (Karlsen, 2002; Young, 2006; Bal et al., 2013). Furthermore, the findings agree with the need to prepare a stakeholder list and register (Bourne and Weaver, 2010). Early identification of certain and uncertain stakeholders, needs clarification, identifying differences and expectations at the project beginning and repeated severally are required (PMI, 2008; Eskerod and Jepsen, 2013; Aapaoja and Haapasalo, 2014).

Similarly, the findings confirm that a stakeholder register can be prepared directly from the identification process or a review of the previous register (PMI, 2008) and using documented information from professional bodies register (Eskerod and Jepsen, 2013). The study maintains that stakeholders should be educated about gains as weak opposition stakeholders can increase the power base through alliances (Olander, 2010). Accessing information on stakeholders can be enhanced using a professional bodies' register. Another important aspect is the stakeholder register (PMI, 2008; Eskerod and Jepsen, 2013). The findings (See Table 8.26) also support early identification of key stakeholders and involvement as a key to value creation and influence of project success (Baiden et al., 2006; Aapaoja et al., 2013).

Table 8.26: Stakeholder Identification (R3)

Stakeholder Identification	R1	R2			R3		
	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Stakeholder Management, Education & Training							
Stakeholders receive education	100	5.0	4.50	1.0	5.0	4.50	1.00

Education is repeated at every stage	100	4.0	3.60	0.8	4.0	3.80	0.00
Stakeholders receive training on SMP gains only	60	3.0	2.60	1.0	3.0	2.60	1.00
Stakeholders need formal training	70	3.0	2.70	1.0	3.0	2.70	1.00
Professional bodies register and role	70	5.0	4.70	0.8	5.0	4.70	0.75
Early Stakeholder Identification							
Stakeholder identification occurs at the project inception/definition stage	100	5.0	4.50	1.0	5.0	4.50	1.00
Identifying stakeholders at the design stage	70	4.0	3.80	0.0	4.0	3.80	0.00
Identifying stakeholders at the tender stage	60	3.5	3.50	1.0	4.0	3.80	0.00
Having an expert staff to identify stakeholders	80	4.0	4.00	0.8	4.0	4.00	0.75
Identifying stakeholders at every stage	90	4.5	4.50	1.0	5.0	4.70	0.75
All interested parties are identified before project design sign off	90	4.0	3.90	1.5	4.0	3.90	1.50
Excluding all late stakeholders	60	2.5	2.50	1.0	2.5	2.50	1.00
Reviewing an existing stakeholder list	80	4.0	3.90	1.5	4.0	3.90	1.50
Having a directly designed register	60	3.5	3.30	1.0	3.5	3.30	1.00

Objective *DSO4*:

This objective evaluated the influence of stakeholder classification, prioritisation and analysis on SSM. The study assessed the listed factors in Table 8.25. From Table 8.25, seven factors each had strong and good scores while two, *negative influence* and *low internal/high external*, failed to qualify. Many scholars have postulated several classifications depending on stakeholders' contract with the client, contribution, position about the project and whether affects/affected (Freeman 1984; Winch, 2002; Newcombe, 2003; Sutterfield et al., 2006, Chinyio and Olomolaiye, 2010). Lester (2007) argues that stakeholders can be proponents or opponents. The study, therefore, agrees with research finding that stakeholders need to be classified. Classifying stakeholders based on their *role (contribution)*, *commitment, responsibility*, *the level of participation*, *political influence and importance* measured strongly. This agrees with findings by many scholars on the need for classification (Savage et al., 1991; Carroll and Buchholtz, 2006; Chinyio and olomolaiye, 2010).

On stakeholder prioritization, the power to influence, the legitimacy of relationship and urgency of the claim as related factors had a strong consensus. Mitchel et al. (1997) had argued the need to prioritise stakeholders on this basis and were supported by many scholars (Elias et al., 2002; Bourne and Weaver, 2010; Aapaoja and Haapasalo, 2014). Similarly, using non-power attributes of interest, influence, importance and need findings corroborates with the position of many scholars, including Newcombe (2003). Similarly, the use of stakeholder map, position, and the matrix has been postulated by several researchers (Winch, 2003; Johnson and Scholes, 1999; Newcombe, 2003).

Also, the leading metrics for analysing stakeholders were measured. From Table 8.25, ten methods qualified except the stakeholder circle (Bourne, 2005) that had 3.0 median score. The findings corroborate with a literature review that identified several stakeholder analysis methods (Savage et al., 1991; Newcombe, 2003; PMI, 2008; Jepsen and Eskerod, 2009; Chinyio and Olomolaiye, 2010).

Table 8.27: Stakeholder Classification and Prioritisation (R3)

Classification Criteria Factor	R1	R2			R3		
	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Formal contract (inside/outside)	90	4.0	4.00	0.0	4.0	4.00	1.50
Positive contribution to the project	100	4.5	4.50	1.5	4.5	4.50	1.00
Negative project influence/antagonistic	60	3.0	3.00	1.0	3.5	3.60	1.00
Positive project influence/proponent	100	4.5	4.40	1.5	4.5	4.40	1.00
Affected by project outcome	90	4.5	4.10	1.0	4.5	4.10	1.00
Stakeholder Classification Type							
High internal/low external relationships	80	4.0	3.70	0.0	4.0	3.70	1.00
Low internal/high external relationships	80	3.0	3.20	1.0	3.0	3.20	1.00
Similar internal/external relationships	70	4.5	4.10	1.0	4.5	4.10	1.75
More proponent/ low opponent	60	4.0	3.90	1.8	4.0	3.90	2.00
Stakeholder Project Involvement							
Key role in the project	100	5.0	4.80	0.0	5.0	4.80	0.00
Responsibilities in the project	100	5.0	4.80	0.0	5.0	4.80	0.00
Level of participation	80	4.0	4.30	0.0	4.5	4.40	1.00

Level of commitment	100	5.0	4.90	1.0	5.0	4.90	0.00
Level of contribution	70	4.0	3.70	0.0	4.5	4.00	1.75
Level of political influence	80	4.0	3.80	2.0	4.0	3.80	0.75
level of importance to the project	90	4.0	3.70	0.8	4.0	3.80	0.00
Stakeholder Power Attribute							
Power to influence decisions	100	5.0	4.60	0.0	5.0	4.60	1.00
Urgency of need	100	4.0	4.00	1.0	4.0	4.00	1.75
Legitimacy to demand need	100	4.0	4.00	1.8	4.0	4.00	1.75
Delegated power to influence	60	3.0	3.20	1.8	3.0	3.20	1.75
Power, legitimacy, and urgency	100	5.0	4.60	1.8	5.0	4.60	0.00
Stakeholder Non-Power Attribute							
Interest in the project	100	4.5	4.00	1.8	4.5	4.00	1.75
View of project's importance	90	3.5	3.30	1.0	3.5	3.30	1.00
Impact on the project	80	4.0	3.80	1.5	4.0	4.00	0.75
High managerial influence on the project	70	4.0	4.00	1.5	4.0	4.00	1.50
Needs and expectations	100	5.0	4.40	1.0	5.0	4.40	1.00
Dynamism and salience to project	70	4.0	3.90	0.0	4.0	3.90	0.00
Has shares in the project/firm	80	4.0	3.80	0.0	4.0	3.80	0.00
Stakeholder Analysis Method							
Stakeholder map/template	90	5.0	4.20	1.8	5.0	4.20	1.75
Stakeholder position mapping	70	4.0	4.00	1.5	4.0	4.00	1.50
Stakeholder network analysis	80	4.5	4.30	1.0	4.5	4.30	1.00
Stakeholder circle method	70	3.0	3.10	1.0	3.0	3.10	1.00
Power/Interest matrix	60	4.0	3.50	1.0	4.0	3.80	0.00
Power/Influence matrix	60	4.0	3.70	1.0	4.0	3.80	0.75
Interest/Influence matrix	60	4.0	3.70	1.0	4.0	3.70	1.00
Importance/Influence	70	4.0	3.50	1.0	4.0	3.80	0.00
Help/Harm	60	3.5	3.50	1.0	4.0	3.80	0.75
Power/Proximity	80	4.0	4.00	0.0	4.0	4.00	0.00
Power/Importance	80	4.0	3.70	1.0	4.0	3.80	0.75

Objective *DSO5*

The study determined the extent of influence of stakeholder communication or engagement on SSM. Scholars have identified communication as a critical success factor for project SSM (Jergeas et al., 2000; Landin, 2000; Kalsen, 2002; PMI, 2008; Yang, 2009). Also, the literature suggests different methods of communication and channels (Al-Khafaji et al., 2010; Eskerod and Jepsen, 2013). Gudiene et al. (2013) opine that an important issue for a project management team is to identify those stakeholders who can affect the project and then manage their differing demands through good communication in the early stages of a project.

From Table 8.26, eight out of nine related factors measured for influence had strong or good consensus. *Adopting proactive method* for communication rated the highest score. Similarly, *downward and upward, planned and pushed methods* were rated good by the Delphi experts and agree with literature finding (PMI, 2008; Al-Khafaji et al., 2010). *Reactive communication* failed to qualify to corroborate with research finding as a not best approach by project managers (Eskerod and Jepsen, 2013).

Also, from Table 8.26, all the seven channels of communication leading metrics measured had strong or good consensus. The outcome also agrees with the literature review. According to Al-Khafaji et al. (2010), an organization cannot engage its stakeholders effectively without communication. An improvement in stakeholder management, long-term performance of construction and the ability to satisfy them require care in communication (Jergeas et al., 2000; Landin, 2000; Yang, 2009).

Table 8.28: Stakeholder Communication/Engagement (R3)

Stakeholder Engagement, Communication	R1	R2			R3		
	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Communication method							
Adopting proactive communication	100	5.0	4.90	0.0	5.0	4.90	0.00
Adopting reactive communication	60	2.0	2.50	1.0	2.0	2.50	1.00
Using open communication	70	4.0	4.30	1.0	4.5	4.40	1.00
Using more verbal communication	80	3.5	3.40	1.0	3.5	3.40	1.00
Using more non-verbal communication	70	3.5	3.60	1.0	3.5	3.60	1.00

Using “top-down” communication	90	4.0	3.50	1.0	4.0	3.50	1.00
Using “bottom-up” communication	100	4.0	3.80	1.8	4.0	4.00	0.75
Using push communication	70	4.0	3.60	1.0	4.0	3.60	1.00
Using planned communication	80	4.0	3.70	0.8	4.0	3.70	0.75
Stakeholder Communication Channel							
Using emails for correspondence	100	5.0	4.40	1.0	5.0	4.40	1.00
Communicating using telephone	90	4.5	4.20	1.0	4.5	4.20	1.00
Using posters and signage at project sites	80	3.5	3.60	1.0	3.5	3.60	1.00
Organising stakeholder conferences	80	5.0	4.50	1.0	5.0	4.50	1.00
Organising stakeholder workshops	90	4.0	4.30	1.0	4.5	4.40	1.00
Meeting one-on-one with stakeholders	70	4.0	3.80	2.5	4.0	3.80	2.50
Using social platforms for communication	80	4.0	3.80	1.5	4.0	3.80	1.50

Objective *DS06:*

This study evaluated the influence of conflict resolution on implementation of the sustainable stakeholder management framework. Freeman (1984) suggests that there can be conflict within the board of directors and ownership group which will affect a project outcome. Olander (2006) mentions the risk of future conflicts if an affected local community is not regarded in decision making. From Table 8.27, all the eight related factors evaluated scored high consensus, emphasising the influence of conflict on SSMP and the need for management. Of most importance is *stakeholders' transparency* and *transparency in the resolution process* (PMI, 2008). The study also corroborates the assertion that specific requirements of stakeholders create conflicts which are the root of most project management challenges (Olander, 2007; Aapaoja and Haapasalo, 2014). Conflict is a fact and part of life (Moura and Teixeira; 2010).

Table 8. 29: Conflict Analysis (R3)

Stakeholder Conflict Resolution	**R1**	R2			R3		
	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Having the ability to predetermine possible conflicts	90	4.5	4.20	1.0	4.5	4.20	1.00
Having the ability to resolve conflict	80	4.0	3.70	0.0	4.0	3.80	0.00
Having the ability to determine conflict type	80	4.5	3.70	3.0	4.5	3.80	2.75

Stakeholder's willingness to resolve conflict	90	4.5	4.00	2.0	4.5	4.00	2.00
Embarking on early conflict resolution	100	5.0	4.60	1.0	5.0	4.60	1.00
Ensuring fair play during resolution	90	5.0	4.60	0.0	5.0	4.60	0.00
Stakeholder’s transparency	100	5.0	4.90	0.0	5.0	4.90	0.00
Transparency in the resolution process	100	5.0	4.90	0.0	5.0	4.90	0.00

Objective *DSO7*

The objective was to determine the extent of the impact of implementation, monitoring and feedback documentation on SSM. Keeping complete documentation on project decisions and development helps to resolve conflicts (SAC, 2013). The section is about the transactional level where the organisation “engages” the external environment (Freeman, 1984). Research identifies implementing decisions, strategies, adequate monitoring, feedback and documentation of the process as necessary for corrective action and project success (Ihuah et al., 2014; Fewings, 2015). That, also agrees with Pinto and Slevin’s (1987) success factors.

From Table 8.28, fourteen factors scored either strong or good consensus and thus qualified, while two scored weak consensus, and thus failed. Jurgens et al. (2010) mention monitoring stakeholder satisfaction. The study outcome corroborates research finding on the role of implementation of strategies, monitoring and feedback documentation in influencing SSM (Strong et al., 2001; Olander, 2006; Yang, 2010).

Table 8. 30: Decision Implementation, Monitoring and Feedback (R3)

	R1	R2			R3		
	%	M	x̄	IQD	M	x̄	1QD
Decision Implementation Factor							
Project feasibility plan	80	4.5	4.00	1.8	4.5	4.20	1.00
Stakeholder education plan	60	3.0	3.50	1.5	3.0	3.50	1.50
Stakeholder management objectives	90	5.0	4.40	1.0	5.0	4.40	1.00
Stakeholder needs plan	70	4.0	4.00	2.0	4.0	4.00	2.00
Stakeholder conflicts/analysis plan	80	4.0	4.10	1.8	4.0	4.10	1.75
Stakeholder engagement communication plan	100	5.0	4.60	1.0	5.0	4.60	1.00
Stakeholders decisions from feedback	100	5.0	4.60	1.0	5.0	4.60	1.00

Stakeholder Management Monitoring Factor							
Monitoring daily implementation of all plans	60	3.5	3.50	2.5	3.5	3.50	2.50
Assessing project objectives achievement regularly	90	5.0	4.60	1.0	5.0	4.60	1.00
Monitoring SMP effectiveness at every SM stage	90	4.5	4.30	1.0	4.5	4.30	1.00
Assessing the level of achievement of stakeholder satisfaction and needs	100	5.0	4.80	0.0	5.0	4.80	0.00
Monitoring every stakeholder daily	60	3.0	2.90	2.0	3.0	2.90	2.00
SM Feedback Implementation Factor							
Documenting the entire stakeholder management process	100	4.5	4.40	1.0	4.5	4.40	1.00
Documenting only successes and failures	60	3.5	3.30	1.8	3.5	3.30	1.75
Asking for feedback at the end of every stage implementation	80	4.5	4.30	1.0	4.5	4.30	1.00
Reviewing and implementing decisions on feedback	100	5.0	4.50	1.0	5.0	4.50	1.00
Communicating decisions on feedback to all stakeholders	90	5.0	4.80	0.0	5.0	4.80	0.00

Objective *DSO8:*

The perceived outputs of the sustainable stakeholder management were evaluated as the ultimate aim of the framework development is the successful management of stakeholders for enhanced construction projects delivery. Ten likely outputs were thus measured, indicating that meeting project time, cost and performance are influenced by SSM (Olander and Landin, 2005; Eyiah-Botwe, 2015). Hidden stakeholder expectations when revealed later lead to scope changes affecting time and cost (Gardiner 2005).

The study outcome agrees with research finding that stakeholders can dance to the same tune when needs and satisfaction are met (Chinyio and Olomolaiye 2010). Also corroborated is that SM leads to building trust, satisfaction, support and maintains good relationships (OGC, 2006; Cleland and Ireland, 2007). Good relationship creates value. It also reaffirms the claim of von Meding et al. (2013) that SM can deliver profit, value, social benefits and improved stakeholder relationship.

Table 8.31: Stakeholder Management Outputs (R3)

Stakeholder Management Output	R1	R2			R3		
	%	M	$\bar{x}$	IQD	M	$\bar{x}$	1QD
Meeting project cost	100	5.0	5.00	0.0	5.0	5.00	0.00
Meeting project time	90	5.0	4.80	0.0	5.0	4.80	0.00
Meeting project performance	90	5.0	4.80	0.0	5.0	4.80	0.00
Meeting stakeholder needs	100	5.0	4.60	1.0	5.0	4.60	1.00
Meeting stakeholder satisfaction	100	5.0	4.60	1.0	5.0	4.60	1.00
Improving project delivery	90	5.0	4.60	1.0	5.0	4.60	1.00
Improving stakeholder relations	100	4.0	4.30	1.0	4.0	4.30	1.00
Reducing project conflicts	90	5.0	4.50	1.0	5.0	4.50	1.00
Increased profit for stakeholders	60	3.5	3.50	1.0	4.0	3.70	0.75
increased socio-economic benefits	90	4.0	3.60	1.0	4.0	3.80	0.00

Objective *DSO9:*

The study also sought to confirm or otherwise main factors identified from the literature review and those formulated as gaps. Out of fifteen factors presented, eleven factors had strong scores from Table 8.29. Six experts, however, advised at the final round that some factors need to be combined for enhanced implementation by project managers. In their opinion the greater the number of factors, the more reluctant project managers will be regarding their adoption. The proposed combination of classification, prioritization, analysis and named assessment agrees with Yang (2010) and Eskerod and Jepsen (2013). Thus, the six key factors agreed on are pre-stakeholder identification; stakeholder identification; assessment; engagement or communication; conflict resolution; and implementation, monitoring and feedback. External environment and continuous support are considered within the SMP. This suggestion corroborates previous studies (Kalsen, 2002; Yang, 2010; Eskerod and Jepsen, 2013; Bal et al., 2013; Aapaoja and Hapaasalo, 2014).

Table 8.32: Key Factors (R3)

Key Factors (Headings)	R1	R2			R3		
	%	M	x̄	IQD	M	x̄	1QD
Pre-condition	60	3.0	3.20	3.5	0	5.00	0.00
External environment	100	5.0	5.00	0.0	5	5.00	0.00
Project planning	90	5.0	4.80	0.0	0	5.00	0.00
Procurement approach	90	5.0	4.20	2.0	0	4.80	0.00
Pre-stakeholder identification	100	5.0	5.00	0.0	5	5.00	0.00
Stakeholder identification	100	5.0	5.00	0.0	5	5.00	0.00
Stakeholder classification	100	5.0	4.80	0.0	5	5.00	0.00
Stakeholder prioritisation	100	5.0	5.00	0.0	5	4.90	0.00
Stakeholder analysis	100	5.0	5.00	0.0	5	4.70	0.00
Stakeholder engagement/communication	100	5.0	5.00	0.0	5	3.70	0.00
Conflict resolution	90	5.0	4.90	0.0	5	4.90	0.00
SM implementation	80	4.0	4.00	2.0	5	4.70	0.75
SM monitoring and feedback	80	4.0	4.00	2.0	5	4.70	0.75
Continuous support	70	4.0	3.40	1.0	4	3.70	1.75
Construction industry practices	60	4.0	3.10	2.0	0	0.00	0.00

8.7 Conclusion

The chapter consisted of two sections. The first section presented the evaluated responses of round one and two and the second session discussed the evaluated response of the round three process. A total of 10 key factors, one SSM output, 19 subfactors, and 132 related factors were evaluated. After round three, based on the evaluated response and suggestions from the ten experts, the conceptualised framework is revised owing to initial incomplete knowledge and the need for a forecast (Skulmoski et al., 2007). Six key factors with one hundred and eleven (111) related factors are proposed to be considered alongside two factors (external environment factor and continuous support) to achieve the output factor. The refined conceptualised model is discussed in chapter nine.

CHAPTER NINE

CONCEPTUAL FRAMEWORK

9 Introduction

This chapter discusses the theoretical and conceptual development serving as the basis for this empirical study. The underlying theoretical framework is critically examined and presented. The philosophy and the theory that underpins the framework conceptualisation and the foundation of the research are discussed. Also stated are the model identification and justification of the selected variable. Two main theories on stakeholder management were considered: the stakeholder concept and the stakeholder dynamics. Also, apart from the several models, theories and frameworks reviewed and presented in Chapter 2, two frameworks on construction stakeholder management were critically reviewed. The overarching theory is the 'stakeholder concept' developed by Freeman (1984). Aaltonen (2011) states that the central purpose of stakeholder theory is that managers will understand and subsequently manage stakeholders more strategically. Stakeholder management frameworks developed by Yang (2010) and Aapaoja and Haapasalo (2014) were very useful for this study. The chapter concludes on the theorised model postulated.

9.1 Theoretical Framework

Theories are well-grounded opinions and essential for the development of theoretical frameworks. Neuman (2014) defines social theory as a coherent system of logically consistent and interconnected ideas used to condense and organise knowledge. It seeks to explain the reasons for happenings. According to Nilsen (2015), theoretical approaches employed in the implementation of science have three overarching aims:

- describing and guiding the process of translating research into practice (process models);
- understanding and explaining what influences implementation outcomes (determinant frameworks, classic and implementation theories); and
- evaluating implementation (evaluation frameworks).

Studies have shown that research may have an overlap of one or more approaches. This study seeks to develop a combination of determinant and evaluation frameworks. The determinant aspect of the framework provides the "how to" support and generic determinants while the evaluative aspect is based on the provision of a structure for evaluating the implementation outcome. Thus a framework can be applied for evaluation purposes because of the specification of concepts and constructs that may be operationalized and measured (Nilsen, 2015).

Also, studies suggest that determined factors in a model are evaluated as ideas must be subjected to the rigours of testing to be embraced as knowledge (Bryman, 2003). Bryman (2003) further asserts that deductive theory is the most common view on the relationship between social research and theory. The deductive theory approach is linear, follows a rationale, and a regular order, requiring that the postulated theory is observed before findings are accepted as knowledge; hence the need for theoretical framework consideration. In so doing a framework is essential. It guides the understanding of the philosophical assumptions, the paradigm perspectives, theoretical assumptions and the influence on the research (Creswell and Poth, 2017).

A theoretical framework of a study refers to the system of concepts, assumptions, expectations, beliefs, ideologies and theories that lend support and inform the identified research themes as well as their relationship (Creswell, 2009; Maxwell, 2004; Robson, 2011; Kwofie, 2016). The theoretical and conceptual framework development has a vital role in every research. The theoretical framework derives from the stakeholder concept for stakeholder management as an overarching concept. However, the stakeholder dynamics concept is well considered in the stakeholder assessment.

9.1.1 Selection of Variables for Stakeholder Management

Donaldson and Preston (1995) opine that there is a plethora of literature on stakeholder management. Some models and frameworks were reviewed and presented in chapter two. These models and frameworks have identified some common factors as influencing stakeholder management (Karlsen 2002; Young, 2006; Bourne and Walker, 2006; Olander, 2006; Lock 2007; Yang 2010). Two key theories, namely the stakeholder concept and the dynamics of stakeholders also asserted similar factors for consideration. These factors are stakeholder identification, assessment, engagement and monitoring.

Karlsen (2002) postulated four factors influencing SM as identifying stakeholders; analysing the characteristics of stakeholders; communicating and sharing information with stakeholders; and developing strategies and following up. Similarly, Lock (2007) indicated systematic identification, analysing, monitoring and controlling as influencing SM. Also, Walker et al. (2008) claim that the primary factors are identifying stakeholders, prioritising stakeholders, visualising stakeholders, engaging stakeholders, and monitoring the effectiveness of communication. Eskerod and Jepsen (2013) likewise mention stakeholder identification and assessment.

A critical framework which was adopted for having reviewed the previous models was the construction SM framework by Yang (2010). Equally, Yang (2010) claims that stakeholder identification, assessment, engagement and evaluation are the main SM influencing factors. This study, therefore, adopts the four main factors, namely stakeholder identification (SIP), stakeholder assessment (SAC), stakeholder engagement and communication (SEN), and implementation, monitoring and feedback (IMF). Consequently, the four factors SIP, SAC, SEN, IMF based on the literature review qualified for the Delphi process to be validated or otherwise as factors affecting SSM.

Likewise, the Delphi study also confirmed these factors as influencing SSM. A Delphi study was undertaken to gather data from experts in the field in Ghana. Experts were requested to provide factors for SSM. Also, they were to measure the importance of the factors identified from literature as part of the round one process. The experts identified all the factors, namely SIP, SAC, SEN, and IMF as relevant for consideration in the three-round Delphi study. At the end of the round three, all the factors had strong scores.

This study, therefore, considers successful SSM for public sector construction projects as including stakeholder identification (8); stakeholder assessment (15); stakeholder engagement (8) and implementation, monitoring and feedback (8) variables. The four constructs stated have been postulated in many stakeholder management studies for the developed world in the past two decades. The inclusion of external environmental factors is as a result of the literature review. Though Yang (2010) has considered it as a pre-condition construct, many project management researchers find it an external environment factors (Gudiene et al., 2013). Equally, Freeman (1984) identified the impact of the environment on both the production and managerial view. Kujala et al. (2012) also mention the rapidly changing environment and the need to find and explore important stakeholders. Having also been qualified by the Delphi experts, the study thus includes an external environment with eight variables. The other two constructs, namely pre-stakeholder identification and conflict resolution, have been thoroughly explained in chapter three of this study under Gaps

Identification. The construct and the eight variables were the outcomes of the literature review and the Delphi study that was undertaken.

9.1.2 Stakeholder Identification (SIP)

Most stakeholder literature identified stakeholder identification as a key factor for SM success (PMI, 2008; Chinyio and Olomolaiye, 2010). The majority assertion is attributed to the stakeholder concept development which identified stakeholders as "…those groups without whose support an organisation will cease to exist" (Freeman, 2010, p.31). Similarly, they are defined as "…those who affect and are affected by an organisation and its activities" (Freeman, 2010, p.46). Then the question arises as "Who are the stakeholders of a firm?" (Mitchell et al., 1997, p.853). All efforts should be made to identify all parties concerned as defined by many scholars such as Carroll (1993), Carroll and Nasi (1997) and Carroll and Buchholtz (2006). Stakeholders are those who affect, impact, have a stake, interest, legitimacy and are actively involved in a project (Yang, 2010). Also, projects cannot be established and accomplished and the benefits realised without stakeholder identification (Eskerod and Jepsen, 2013). Hence stakeholder identification is a key SM factor.

Also, scholars have suggested the need to consider when to identify these stakeholders. There is a suggestion for early stakeholder identification or identifying stakeholders at early stages of the projects (Bryson 2004; Aapaoja and Hapasaalo, 2014). Similarly, the Finland stakeholder management model for construction management emphasises early stakeholder identification (Chinyio and Olomolaiye, 2010). Reed (2008) supports early and repeated identification. Beyond early identification, the study asserts repeat identification several times at the various project stages (Chinyio and Olomolaiye, 2010; Eskerod and Jepsen, 2013). The Finland model suggests every phase of the project and as early as the pre-feasibility stage.

Furthermore, scholars have suggested the identification of key stakeholders first while others mention the project team (Newcombe, 2003; Koster, 2009). Also suggested is the use of experts within and outside the organisation, stakeholder registers from previous projects, project charters, and expertise or project management community (PMI, 2008; Eskerod and Jepsen 2013). Other suggestions by scholars include early stakeholder identification, stakeholder identificationat the project definition stage, and having all stakeholders involved at the initial stage. Likewise it was suggested that all interested parties are identified before project design sign off; all late stakeholders are excluded, and an existing stakeholder register should be reviewed (Pouloudi and Whitley1997; Calvert, 1995; PMI, 2008, Jepsen and Eskerod, 2009).

Table 9.1: Conceptual Model: Latent Constructs using Critical Success Factors

Latent Variable Construct	Measurement Variables
Pre-stakeholder identification (PSI)	PSI1 Having adequate project feasibility study
	PSI2 Having clear stated project objectives
	PSI3 Having very detailed design
	PSI4 Having clear stated stakeholders needs
	PSI5 Project manager with high competence
	PSI6 Project manager with good knowledge
	PSI7 Project manager with good leadership skills
	PSI8 Maintaining project teams
	PSI9 Employing the design and build method
	PSI10Adopting the management ontract
Stakeholder Identification (SIP)	SIP1 Identifying stakeholders at project inception stage
	SIP2 Identifying stakeholders using an expert staff
	SIP3 Reviewing an existing stakeholder register
	SIP4 Identifying stakeholder at every stage
	SIP5 Providing stakeholders with education
	SIP6 Repeating stakeholders' education at every stage
	SIP7 Using register provided by the professional bodies
	SIP8 Preparing a new register of stakeholders
Stakeholder Assessment (SAC)	SAC1 Stakeholder affects/has formal contract
	SAC2 Stakeholder has a key role in the project
	SAC3 Stakeholder has some project responsibility
	SAC4 Stakeholder is committed to the project
	SAC5 Stakeholder contributes positively to project
	SAC6 Stakeholder has political influence
	SAC7Stakeholder affects/has the power to influence project
	SAC8 Stakeholder has a legitimate demand
	SAC9 Stakeholder possesses power, urgency and legitimacy
	SAC10 Stakeholder has needs and expectation
	SAC11 Stakeholder is dynamic and salient
	SAC12 Stakeholder map/template
	SAC13 Stakeholder position mapping
	SAC14 Power/Interest matrix
	SAC15 Power/ Influence matrix
Stakeholder Engagement (SEN)	SEN1 Adopting proactive communication

	SEN2 Using open communication SEN3 Using emails for correspondence SEN4 Communicating using telephone SEN5 Organizing stakeholder conferences SEN6 Organizing stakeholder workshops SEN7 Using social platforms SEN8 Using planned communication
Stakeholder Conflict Resolution (SCR)	SRC1 Having the ability to predetermine possible conflicts SRC2 Having the ability to resolve conflicts SRC3 Having the capacity to determine conflict type SRC4 Stakeholders being willing to resolve conflict SRC5 Embarking on early conflict resolution SRC6 Ensuring fair play during resolution SRC7 Ensuring transparency between stakeholders SRC8Ensuring that conflict resolution process is transparent
Implementation, Monitoring and Feedback (IMF)	IMF1 Implementing fully, project feasibility brief IMF2 Implementing fully, stakeholder needs plan Full implementation of stakeholder management objectives IMF3 Implementation of stakeholder communication plan IMF4 Monitoring project objectives achievement IMF5 Monitoring stage activity and effectiveness IMF6 Monitoring stakeholders need achievement IMF7 Documenting the entire stakeholder process IMF8 Reviewing feedback and informing stakeholders on decisions at every stage IMF9 Implementing decisions on feedback

Table 9.1b: Conceptual Model: Latent Constructs using Critical Barrier Factors

Latent Variable Construct	Measurement Variables
External Environment Factors (EEF)	EEF1 Unstable economic conditions EEF2 Differences in stakeholders' culture EEF3 Legal policies and legislations EEF4 Firms/Individuals ethics EEF5 Stakeholders social behaviour EEF6 Stakeholders political influences EEF7 Absence of industry regulatory body EEF8 Negative impact of the Procurement Act

9.1.3 Stakeholder Assessment Criteria (SAC)

Researchers use different names such as assessment, prioritisation, classification or analysis for this concept. Most studies in stakeholder management have proposed assessment as a key factor (Johnson and Scholes 1999; Yang, 2010; Eskerod and Jepsen, 2013). The need to assess stakeholders gained prominence following the research by Mitchell et al. (1997) on stakeholder salience. Stakeholder assessment asserts the importance and influence levels of stakeholders (Heravi et al., 2015) and their contribution towards the project success (Eskerod and Jepsen, 2013). Other literature on SM has focused on analysis as central (Lock, 2007; Aaltonen, 2009). Gardiner (2005) and Pinto (2007) argue for stakeholder analysis and mapping as a technique for discerning project stakeholder values, beliefs and expectations.

According to Mitchell et al. (1997), there are different stakeholders types based on their possession of power, legitimacy and the urgency to make a claim, as well as salience and power attributes. Other authors suggest either classification, prioritisation (Walker et al., 2008; Bal et al., 2013; Eskerod and Jepsen) or both (Aapaoja and Haapasalo 2014). Classifying and prioritising stakeholders should aim at changing project opponents to proponents and mapping used to manage them (Winche and Bonke, 2002; Bourne, 2005). Bourne and Weaver (2010) state that power, support, influence, interest and attitude are variable for stakeholder analysis. Watson et al. (2002) support using power and interest attributes. Nguyen et al. (2009) discuss power, legitimacy, proximity, interest, attitude, knowledge and impact as assessment variables. Further studies have suggested using a formal/without a formal contract to determine primary/secondary stakeholders (Winch and Bonke, 2002; Carroll and Buchholtz, 2006). Also suggested are power/interest matrix (Johnson and Scholes, 1997; Newcombe, 2003), power/influence (PMI, 2008), importance/influence (Mitchell, 1997), and impact probability (Olander, 2007; Aapaoja and Haapasalo, 2014), among others. However, after the Delphi process, 15 variables were scored for the field survey (See Table 9.1). Other notable analysis techniques are the stakeholder circle (Bourne, 2005; Bourne and Weaver, 2010) and social network analysis (Newcombe, 2003; Landin, 2008; Mok et al., 2015). The variables outlined (See Table 9.1) are the classification, prioritisation and analysis techniques qualified by the Delphi study as postulated by different authors and proposed by experts.

9.1.4 Stakeholder Engagement and Communication (SEN).

Similarly, researchers have either referred to stakeholder engagement or communication or both as a key factor (Kalsen, 2002; Walker, 2008). Effective communication strategy considers the diverse stakeholders, those who are to communicate and those who benefit from the project outcome (Bourne, 2016). Furthermore, it is about sharing the right information at the right time. Engagement necessitates their participation and involvement (Deegan and Parkin, 2011; Butt et al., 2016). Project managers need skills to communicate with stakeholder community. Communication must be two-way to be meaningful and parties involved credible for its success (Freeman, 2010). Studies have identified communication as crucial for project success (Pinto and Slevin, 1987; Fewings, 2004; Gudiene et al., 2013; Osei-Kyei and Chan, 2015). Bourne (2016) asserts engagement through effective communication. Likewise, Yang (2010) states effective communication and engagement as critical success factor and stakeholder expectations (Mok et al., 2015). The PMI (2008) views the SM as project communication management.

Project stakeholder communication is vital as the SM concept is about an organisation's management (Freeman, 2010) and building and sustaining the relationships with its specific stakeholders (Eskerod and Jepsen, 2013). Studies have suggested interactive, push, pull, group meetings, conferences, electronic mails and planned communication (PMI, 2013; Butt et al., 2016). Similarly, other have suggested push, pull, reactive, proactive, verbal, non-verbal and interpersonal communication (Eskerod and Jepsen). Similarly, Al-Khafaji et al. (2010) suggest upward, downward, and regular meetings as organisations cannot engage stakeholders without effective communication. Following the Delphi studies, adopting proactive and open communication, using emails for correspondence, communicating using the telephone, organizing stakeholder conferences and workshops, and using interactive social platforms and planned effective communication (See Table 9.1).

9.1.5 Implementation, Monitoring and Feedback (IMF)

Implementation of strategies, monitoring, control and feedback is important stakeholder communication and engagement (Bourne, 2005; 2016). Consideration of each factor results in a plan or strategy for implementation and follow-up (Karlsen, 2002). There is the need for monitoring and control (Lock, 2007) and monitoring of effectiveness (Walker et al., 2008). Yang (2010) postulates implementing and evaluating strategies, SM process and stakeholder satisfaction. The reason for this is that stakeholder power and base are not static (Mitchell et al., 1997; Olander and Landin, 2005). Most processes and frameworks reviewed suggest implementation, monitoring and feedback as major factors (Olander, 2006; Lock, 2007; Walker et al., 2008; PMI 2008).

Freeman (2010) reports implementing, monitoring and control of stakeholder strategies. Similarly, implementing stakeholder register, communication and management strategy are claimed as stakeholder needs and expectations management (PMI, 2008). Eskerod and Jepsen (2013) stress monitoring and follow-up during the implementation phase. Also, studies suggest that stakeholders adopt influencing strategies during the project execution stage (Altonen et al., 2008; Mok et al., 2015), hence the need for implementation, monitoring and feedback consideration.

Follow-up of stakeholder strategies implementation is suggested for regular basis (Vaagaasar, 2006) and for every stage/phase (Mikkelsen and Riis, 2003; Jepsen and Eskerod, 2013). Feedback documentation is a must (SAC, 2013; Aapaoja and Haapasalo, 2014; Eyiah-Botwe, 2015). Also, monitoring and feedback are essential in the later part of a project as claimed among ten success criteria by project managers (Pinto and Slevin, 1987; Fewings, 2005). This study thus considers ten variables (Table 9.1) qualified by the Delphi process for the field survey.

9.1.6 Critical Barrier Factors (CBF)

While critical success factors (CSF) when well managed will ensure stakeholder management success, critical barrier factors (CBF), if not managed, lead to SM failure and project failure. This research identified CBF as external environment factors (EEF). Studies have identified procurement system and politics as influencing SM success (Rwelamila, 2010; Eyiah-Botwe, 2016). Likewise, obvious change due to external environment creates turbulence for the business environment engendered by the government and special groups using political process (Freeman, 2010). Yang (2010) identified economic, legal, environment, cultural and ethical issues as influencing projects as pre-condition factors. Similarly, Newcombe (2003) identifies cultural and political arena as areas of stakeholder negative influence on project outcome.

Gudiene et al. (2013) define external factors which influence the business outcome as beyond the management control. The variables include economic, social, technological, legal, physical, political, natural ecological and cultural factors. Similarly, most studies identify the cultural and social impact (Smyth, 2008; Bourne, 2011; Aapaoja and Haapasalo, 2014; Mok et al., 2015). Economics, legal, ethical and cultural factors have been empirically determined and confirmed by the Delphi experts.

The absence of a regulatory body impacts negatively on construction project activities (Ofori, 2013). Equally, adopting a procurement system can influence SM (Rwelamila, 2010; Eyiah-Botwe, 2016). Together with the outcome of the Delphi study, this thesis therefore, postulates that external environment factors of economic, legal, social, cultural, political, ethical and negative impact of procurement systems as well as the absence of a regulatory body impact on successful SMP.

9.2 Specification of Model and Justification

This main aim of this thesis is to develop a sustainable stakeholder management framework (SSMF). The SSMF will be used to successfully manage construction stakeholders in the public sector of the Ghanaian construction industry using the existing project guidelines. As explained in detail in chapter two, the theoretical framework was based on the work of Freeman (1984) on stakeholder theory and that of Mitchell et al. (1997). Six factors, namely pre-stakeholder identification; stakeholder identification; engagement or communication; conflict resolution; implementation, monitoring and feedback factors evolved out of the Freeman's (1984) strategic formulation concept, hence the overarching concept. Stakeholder identification and assessment is built on Mitchell et al.'s (1997) stakeholder identification and salience' theory. Also emanating from Freeman (1984) was the influence of the external environment factors.

Freeman (1984) asserts that organizations must deal actively with their stakeholders by managing the relationships to achieve its purpose. It requires formulating strategies, implementing, monitoring and evaluating the strategies. Furthermore, the outcome may be measured by the performance of the individual stakeholders and as a group. The theory perceives that successful SM can be measured by a project/product performance, time, cost and quality. Also necessary are meeting stakeholder needs, satisfaction, delivery ability, reduction of conflicts at an early stage and increased value. Thus, successful SM is perceived as a criterion for measuring project success and the achievement of stakeholder needs and satisfaction. Also, Mitchell et al. (1997) postulated the theory of stakeholder identification and salience based on their attributes as impacting on successful SMP. Stakeholder assessment is thus critical for a stakeholder-manager relationship and in determining “who” and “what” really counts in successful stakeholder relationships.

Furthermore, the study reviewed literature for variables that measure successful SM and SM outputs/benefits (Fewings, 2004; Bourne and Walker, 2005; PMI, 2008; Freeman, 2010). Also reviewed are studies by Al-Khafaji et al. 2010 in Chinyio and Olomolaiye (2010), von Meding et al. (2013) and Eskerod and Jepsen (2013). The variables are classified as both subjective and objective. Project cost, time, quality, stakeholder needs, satisfaction, project delivery targets, reduced conflicts, profitability, value/socio-economic benefits are measurable and are the result of key stakeholders’ continuous support, collaboration, good communication, relationship and trust. These variables are equally seen as outputs of successful SM.

Combining both objective and subjective indicators within the model is supported by most research. This is because objective indicators can often be misleading and equally subjective and insufficient as guides to policy (Al-Abed and Wilda, 1995; Aigbavboa, 2013). Studies assert that subjective and objective measures can be either substitute (Kren and Tyson 2009) or should be used as complements (Baker et al. 1994; Moers 2005; Rajan and Reichelstein 2009). Each type of measure has its advantages and disadvantages. The combined use can explore the advantages of each while minimising the disadvantages (Merchant et al., 2010).

Table 9.2: Sustainable Stakeholder Management Output (SMO) Variables

Sustainable stakeholder management success/output variables		Fewings (2004)	Bourne and Walker (2005)	PMI (2008)	Freeman (2010)	Al-Khafaji et al 2010 in Chinyio and Olomolaiye (2010)	Meding et al., (2013)	Eskerod and Jepsen (2013)
Performance	Reduced project cost	x	x	x	x	x		X
	Reduced project time	x	x	x	x	x		X
	Improved project quality	x	x	x	x	x	x	X
Needs achievement	Stakeholder satisfaction and needs	x	x	x	x			
	Improved project delivery		x		x		x	X
	Early stakeholder identification							X

Relationship	Improved stakeholder collaboration					x	x	
	Reduced project conflicts	x			x	x		
	Excellent communication	x	x	x		x		
	Continuous key stakeholders support	x	x					
	Good relationship and trust		x	x			x	
Gains	Increased Profitability				x	x	x	
	Increased socio-economic benefit/value	x	x				x	
Environment	Well considered environment factors			x				

This thesis considers the key factors and related factors identified from the Delphi study and literature reviewed as the primary determinants of SSM output for public sector construction projects. Therefore, the conceptual model theorises that SSM is achieved by the relationship that exists between the independent variables (constructs) including the underlying factors which the objective and subjective measurements are linked. Thus, the SSM is adopted considering the Ghanaian construction industry practices. Also, it is proposed to produce the needed SM success output for the industry players.

Table 9.3: Latent Construct Measures (Refined Conceptual Model CSF)

Dependent Variable (Sustainable stakeholder management success/output)	Independent Variables (for sustainable stakeholder management)
Performance ○ Reduced project cost ○ Reduced project time ○ Improved project quality **Needs achievement** ○ Stakeholder satisfaction and needs ○ Improved project delivery ○ Early stakeholder identification **Relationship**	**Pre-stakeholder identification** ○ PSI1 Having adequate project feasibility study ○ PSI2 Having clear stated project objectives ○ PSI3 Having very detailed design ○ PSI4 Having clear stated stakeholders needs ○ PSI5 Project manager with high competence ○ PSI6 Project manager with good knowledge ○ PSI7 Project manager with good leadership skills ○ PSI8 Maintaining project teams ○ PSI9 Employing the design and build method ○ PSI10Adopting the management contract **Stakeholder identification** ○ SIP1 Identifying stakeholders at project inception stage ○ SIP2 Identifying stakeholders using an expert staff

○ Improved stakeholder collaboration ○ Reduced project conflicts ○ Excellent communication ○ Continuous key stakeholders support ○ Good relationship and trust **Gain** ○ Increased Profitability ○ Increased socio-economic benefit/value ○ Well considered environment factors	○ SIP3 Reviewing an existing stakeholder register ○ SIP4 Identifying stakeholder at every stage ○ SIP5 Providing stakeholders with education ○ SIP6 Repeating stakeholders' education at every stage ○ SIP7 Using register provided by the professional bodies ○ SIP8 Preparing a new register of stakeholders **Stakeholder assessment** ○ SAC1 Stakeholder affects/has formal contract ○ SAC2 Stakeholder has a key role in the project ○ SAC3 Stakeholder has some project responsibility ○ SAC4 Stakeholder is committed to the project ○ SAC5 Stakeholder contributes positively to project ○ SAC6 Stakeholder has political influence ○ SAC7Stakeholder affects/has the power to influence project ○ SAC8 Stakeholder has a legitimate demand ○ SAC9 Stakeholder possesses power, urgency and legitimacy ○ SAC10 Stakeholder has needs and expectation ○ SAC11 Stakeholder is dynamic and salient ○ SAC12 Stakeholder map/template ○ SAC13 Stakeholder position mapping ○ SAC14 Power/Interest matrix ○ SAC15 Power/ Influence matrix **Stakeholder engagement** ○ SEN1 Adopting proactive communication ○ SEN2 Using open communication ○ SEN3 Using emails for correspondence ○ SEN4 Communicating using telephone ○ SEN5 Organizing stakeholder conferences ○ SEN6 Organizing stakeholder workshops ○ SEN7 Using social platforms ○ SEN8 Using planned communication **Conflict resolution** ○ SRC1 Having the ability to predetermine possible conflicts ○ SRC2 Having the ability to resolve conflicts ○ SRC3 Having the capacity to determine conflict type ○ SRC4 Stakeholders being willing to resolve conflict ○ SRC5 Embarking on early conflict resolution ○ SRC6 Ensuring fair play during resolution

	○ SRC7 Ensuring transparency between stakeholders ○ SRC8 Ensuring that conflict resolution process is transparent **Implementation, monitoring and feedback** ○ IMF1 Implementing fully, project feasibility brief ○ IMF2 Implementing fully, stakeholder needs plan ○ Full implementation of stakeholder management objectives ○ IMF3 Implementation of stakeholder communication plan ○ IMF4 Monitoring project objectives achievement ○ IMF5 Monitoring stage activity and effectiveness ○ IMF6 Monitoring stakeholders need achievement ○ IMF7 Documenting the entire stakeholder process ○ IMF8 Reviewing feedback and informing stakeholders on decisions at every stage ○ IMF9 Implementing decisions on feedback

Table 9.4: Latent Construct Measures (Refined Conceptual Model CBF)

Dependent Variable (Sustainable stakeholder management success/output)	Independent Variables (for sustainable stakeholder management)
Performance ○ Reduced project cost ○ Reduced project time ○ Improved project quality **Needs achievement** ○ Stakeholder satisfaction and needs ○ Improved project delivery ○ Early stakeholder identification **Relationship** ○ Improved stakeholder collaboration ○ Reduced project conflicts ○ Excellent communication ○ Continuous key stakeholders support ○ Good relationship and trust	**External environment** ○ EEF1 Unstable economic conditions ○ EEF2 Differences in stakeholders' culture ○ EEF3 Legal policies and legislations ○ EEF4 Firms/Individuals ethics ○ EEF5 Stakeholders social behaviour ○ EEF6 Stakeholders political influences ○ EEF7 Absence of industry regulatory body EEF8 Negative impact of the Procurement Act

Gain ○ Increased profitability ○ Increased socio-economic benefit/value Well considered environment factors	

9.3 Structural Component of the Model (critical success factors)

It is necessary to have a well-designed measurement system to achieve a sustainable stakeholder management for improved project success. The measurement system should have the ability to check and monitor the SM indicators (constructs). This study proposes a conceptual SSM model with the right elements and leading indicator metrics that influence SSM outcome.

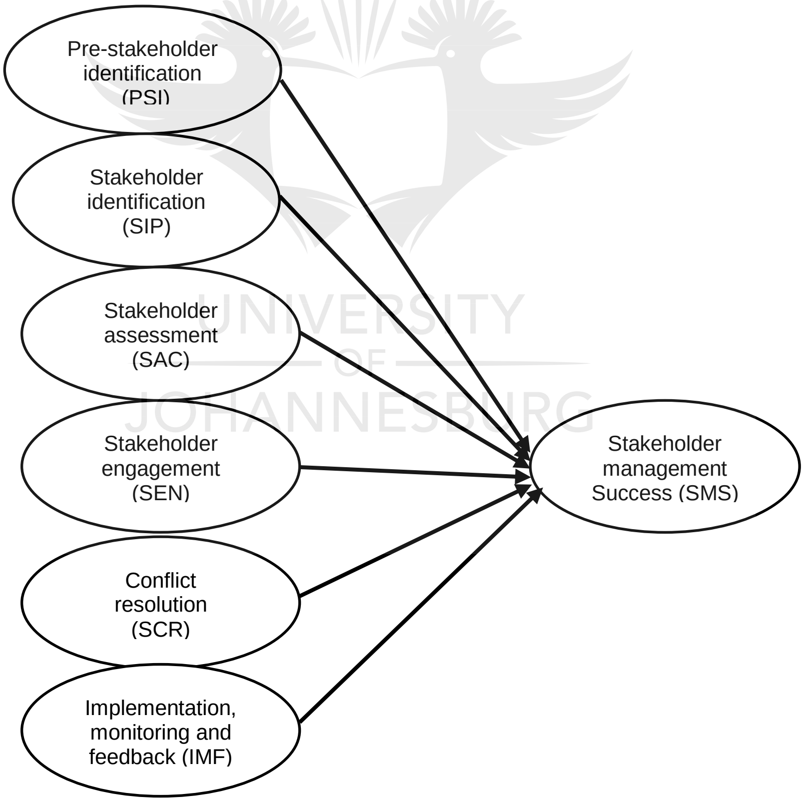


Figure 9.1: Conceptual Model for Stakeholder Management Success

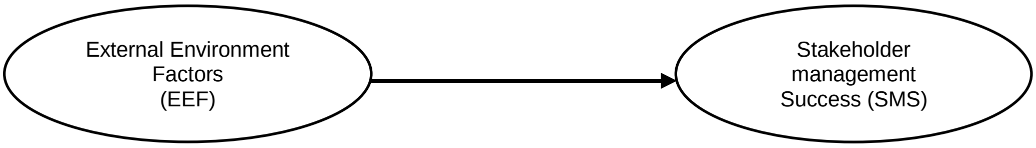


Figure 9.2: Conceptual Model for Stakeholder Management Success

This study's conceptual model hypothesises that construction projects' SSM success is realised by successfully managing the constructs. These constructs are a pre-stakeholder (PSI), stakeholder identification (SIP), stakeholder assessment (SAC), stakeholder engagement (SEN), conflict resolution (SCR), implementation, monitoring, feedback (IMF) and external environment (EEF). Thus, the model proposes for the test, the multi-facet SSM success as dependent on PSI, SIP, SAC, SEN, SCR, IMF and EEF. This model as stated is primarily conceptualized on the premises of the work of Freeman (1984) and Mitchell et al. (1997) on the stakeholder theory.

The refined conceptual model was developed from the conceptual framework and the Delphi study. The SSM success output is the result of the stakeholder management consideration which is an objective evaluation of the constructs. Thus, the SSM output is treated as a criterion (dependent variables) and the constructs as predictor variables. Hence, the measurement components of the model are SSM factors of PSI (10), SIP (8), SAC (15), SEN (8), SCR (8) and IMF (9). Also, there are 13 SSM outputs considered as manifest variables. The study postulates that the SSM output is to be considered as the SM success for the proposed public-sector construction projects.

9.4 Conclusion

This chapter discussed the theories and concepts underpinning the development of the conceptual and theoretical frameworks. It found theories as essential for the development of theoretical frameworks. There was emphasis on the development of a determinant and evaluation framework. It further highlighted the revised conceptualised model based on the Delphi study and literature review conducted. Stakeholder identification, stakeholder assessment, stakeholder engagement, monitoring and feedback were adopted from the reviewed models and concepts as key factors. The Delphi study's identified and confirmed factors of pre-stakeholder identification, conflict resolution and addition of implementation to monitoring and feedback as one construct and key factors for a developing country was noted. Since the external environment factor was identified as a critical barrier factor it was treated separately.

The theorised model postulates by deduction and reason that SM success is a multi-dimensional structure composed of six latent variables as pre-stakeholder identification; stakeholder identification; stakeholder assessment; stakeholder engagement; conflict resolution; implementation, monitoring and feedback. These factors are critical success factors. Also, the study postulates that external environment factor influences stakeholder management success. The next chapter thus presents the field survey findings based on the theorised model.

CHAPTER TEN

PRESENTATION AND INITIAL ANALYSIS OF FIELD SURVEY

10 Introduction

This chapter presents the field data from the questionnaire survey undertaken. It draws on the knowledge and perception of construction industry practitioners on working on public sector projects which is the focus of this study. In chapter nine, the proposed SSM model was refined (See Figure 9.1) and discussed from the outcome of the literature reviewed, and the Delphi survey conducted. Similarly, in chapter seven, an indication of the research design and methodology for this chapter was discussed. Also, statistical techniques for presentation and analysis including testing the reliability and validity of the measuring instrument were provided. In this section, the relevant data on the perceptions of project managers, team leaders and stakeholders from the different professional background is offered. The presentation begins with a background presentation of respondents necessary for validity, reliability and generalisability of the research findings. Also included are the descriptive analysis, inferential statistics and the results of the hypothesised testing conducted.

10.1 Data Collection and Presentation

The initial manual screening of the 310 returned raw data reduced the sample size by 12 in that returned questionnaires were found to be significantly incomplete and could affect the validity of the results. The data was captured using the Statistical Package for Social Sciences (SSPS) version 16.0 for initial and descriptive analysis. The data was cleaned as studies suggest that without cleaning data, what follows in almost any analysis is questionable (Osbourne, 2013). This was exported to the Structural Equation Modelling (SEM) for inferential statistics analysis and reporting. A sample size of 289 was used for the study. Research suggests that a smaller sample size contributes to greater model fit bias, less than 100 is challenging and that a study using SEM for analysis should have more than 200 respondents (Kline, 2005:15; Aigbavboa, 2013). Comfrey and Lee (1992) support this argument and suggest a rough evaluation on the following scale: 50 – very poor; 100 – poor; 200 – fair; 300 – good. This study had a sample size of 289 which is close to 300 and thus can be considered as good. A descriptive statistics were carried out for normal distribution analysis.

10.2 Descriptive Statistics

10.2.1 Descriptive Analysis of Biographic Data.

For an enhanced picture of respondents' profiles, the study conducted the frequency distributions of the data of those surveyed (industry practitioners), profession, years of experience and highest qualification. Also included were employment status, firm and major project locations, those they consider as construction project stakeholders and their overall perception of projects stakeholder management success (See Tables 10.1 and 10.2). There were eight questions in this section aimed at assessing respondents' experience and knowledge for enhanced credibility regarding data provided and results (Bryman, 2008).

This study presents demographic information on the individual respondents and responds to the categorical part of the questionnaire and descriptive statistics such as percentages, median, mean and the standard deviation used. At the close of the survey, 289 out of 301 responses were valid.

10.2.2 Demographics of Respondents

Table 10.1 indicates that 72% (N=208) males returned completed questionnaire and 28% (N=81) females were respondents. A mean of 1.28, median 1.00 and standard deviation (SD) of 0.450 were obtained. The response of 72% male reflects male dominance in the Ghanaian construction industry but will not have any effect on the results.

Table 10.1: Demographics of Respondents

Ques.		Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
1	**Gender**				
	Male	208	72.0	72.0	72.0
	Female	81	28.0	28.0	100.0
	Total	289	100.0	100.0	
2	**Current profession**				
	Construction manager	40	13.8	13.8	33.6
	Architect	99	34.3	34.3	67.8
	Engineer	11	3.8	3.8	71.6

	Sub-contractor	5	1.7	1.7	73.4
	Quantity surveyor	63	21.8	21.8	95.2
	Contractor	13	4.5	4.5	99.7
	Specialist	1	.3	.3	100.0
	Total	**289**	**100.0**	**100.0**	
3	**Highest qualification**				
	1 Doctorate	17	5.9	5.9	5.9
	2 Master's degree	166	57.4	57.6	63.5
	3 Bachelor's degree	70	24.2	24.3	87.8
	4 HND/National Diploma	18	6.2	6.2	94.1
	5 Other	17	5.9	5.9	100.0
	Total	**288**	**99.7**	**100.0**	
4	**Year of experience**				
	1-5 years	96	33.2	33.2	33.2
	6-10 years	100	34.6	34.6	67.8
	11-15 years	56	19.4	19.4	87.2
	16 years and above	37	12.8	12.8	100.0
	Total	**289**	**100.0**	**100.0**	

The majority of the respondents are architects representing 34.3% (N-99), followed by quantity surveyors at 21.8% from Table 10.1. The least recorded profession was a specialist with 0.3% (N-1), followed by subcontractors at 1.7% represented by five persons. Respondents were drawn from seven different professional backgrounds in the construction industry (See Table 10.2). Also, the researcher believes that a 34.3% representation of architects reflects the leadership role of architects as project managers in Ghana. This is followed by quantity surveyors and then construction managers. The responses reveals a fair representation. Currently, all project managers have a first degree in the professions outlined.

Respondents' experience in the construction industry ranged from one to 16 years and above. Drawing from Table 10.1, the experience of survey participants was 1 to 5years (33.2%) , 6 to 10 years (34.6%), 11 to 15 years (19.4 %) and16 years and above (12.8%). Likewise, respondents had different academic qualifications ranging from diplomas to doctorates. Table 10.2 indicates that the majority of the respondents, namely 57.4% (N-166) have a master's degree, followed by 24.2% (N-70 with a bachelor's degree, and 6.2% (N-18) with a HND whereas doctorates and other qualifications scored 5.9% each (N-17).

Table 10.2: Employment Related Data

Ques.		Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
5	**Employment status**				
	Full-time employed	210	72.7	72.7	72.7
	Part-time employed	63	21.8	21.8	94.5
	Unemployed	16	5.5	5.5	100.0
	Total	**289**	**100.0**	**100.0**	
	Sector of employment				
	1 Public sector	160	55.4	55.4	55.4
	2 Private sector	112	38.7	38.7	94.1
	3 Both	17	5.9	5.9	100.0
	Total	**289**	**100.0**	**100.0**	
6	**Firm location in Ghana**				
	1 Southern Sector	122	42.2	42.4	42.4
	2 Middle Sector	127	43.9	44.1	86.5
	3 Northern Sector	39	13.5	13.5	100.0
	Total	288	99.7	100.0	
	Missing System	1	.3		
	Total	289	100		
7	**Project locations in Ghana**				
	1 Southern Sector	89	30.8	31.2	31.2
	2 Middle Sector	126	43.6	44.2	75.4
	3 Northern Sector	37	12.8	13.0	88.4
	4 All applicable	33	11.4	11.6	100.0
	Total	285	98.6	100.0	
	Missing System	4	1.4		
	Total	289	100		

Also, full-time employees constituted the majority of the respondents with 72.7%. That indicates that responses emanated from real life experience and knowledge acquired from working full-time. That was followed by those employed part-time at 21.8% and only 5.5% are currently unemployed. Though 5.5% are currently unemployed, the low percentage will have a minimal influence on the outcome.

The majority of the participants (55.4 % [N-160]), are working in the public-sector, followed by 38.7% (N-112) in the private sector and 5.9% (N-17) work for both the public and private sectors. Since the research aims at enhancing public sector projects delivery, having the majority of respondents from the public sector increases the credibility and acceptance of the study outcome. Again responses depict the reality associated with public sector projects. A reasonable number of respondent (38.7%) brings experience and knowledge to the research from the private sector where project managers and principals have vast experience in project management (Table 10.2). Out of the 289 respondents, 127 (43.9%) have their firms located in the middle sector followed by 122 (42.2%) in the southern sector, and finally the northern area with 39 (13.5%) and one missing. Similarly, (See Table 10.2), the majority of the respondents' construction projects are located in the middle belt (43.6%) followed by the southern sector (30.8%), northern (12.8) and those with many jobs in all sectors (11.4%). On who constitute their project stakeholders, 99.3% agreed on the listed construction stakeholders in Ghana and 2% had a different view. Furthermore, on efforts to manage project stakeholders, 91.7% (N-265) indicated that they consciously make an effort to manage their project stakeholders while 8.3 (N-24) stated otherwise (See Table 10.3). Most respondents appreciate ?? and make an effort to manage stakeholders for project success.

Table 10.3: Managing Stakeholders

	Frequency	Percent (%)	Valid Percent (%)	Cumulative Percent (%)
Who are your stakeholders?				
1 Yes	287	99.3	99.3	99.3
2 No	2	.7	.7	100.0
Total	289	100.0	100.0	
Do you make efforts to manage your stakeholders?				
1 Yes	265	91.7	91.7	91.7
2 No	24	8.3	8.3	100.0

Table 10.4: Descriptive Statistics of Demographic Characteristics

	What is your gender?	What is your current profession?	Please specify	What is your highest qualification?	How many years of work experience do you have in managing construction projects?	What is your current employment status?	What is your current employment area?	Where is your firm/institution located in Ghana?	Where are your main construction projects located in Ghana?	Do you consider the following as part of your project stakeholders?	Have you been managing your project stakeholders?
Valid	289	289	289	289	289	289	289	288	288	289	289
Missing	0	0	0	0	0	0	0	1	1	0	0
Mean	1.28	3.39		2.49	2.12	1.33	1.51	1.71	2.05	1.01	1.08
Median	1.00	3.00		2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00
Std. Deviation	.450	1.914		.922	1.014	.577	.607	.691	.952	.083	.276
Skewness	.984	.478		1.196	.507	1.573	.776	.451	.716	11.958	3.038
Std. Error of Skewness	.143	.143		.144	.143	.143	.143	.144	.144	.143	.143
Kurtosis	-1.040	-1.016		1.256	-.856	1.459	-.374	-.855	-.333	141.972	7.278
Std. Error of Kurtosis	.286	.286		.286	.286	.286	.286	.286	.288	.286	.286

The descriptive analysis illustrated in Table 10.4 is an indication that the research participants agree on project stakeholders considered for this study. Also, the response demonstrated an attempt to manage stakeholders for project success in the absence of formal SM in Ghana. Respondents showed experience, a good level of knowledge, and high levels of academic qualification that will impact on the evaluation of the variables and the overall research. There was a good distribution of the data as suggested by the mean, median, standard deviation, kurtosis and the skewness (Table10.4).

10.3 Inferential Statistical Analysis of Field Data

This study employed both factor analysis and structural equation modelling in analyzing the quantitative data. In using factor analysis, the set of observed variables or measured items were evaluated as well as their significance on the latent constructs (Field, 2009; Byrne, 2013). Consequently, both critical barrier and success variables were subjected to factor analysis as they were uncertain in the absence of a formal model in Ghana and with the large population involved in the study. Though the Delphi process explored variables, the use of the statistical method for the large population served as confirmatory identification of the minimal number and the level of significance of variables identified. Based on the theory, postulated hypothesized model, knowledge on significant variables and the structure, structural equation modelling (SEM) was used in evaluating the causal effect of constructs on stakeholder management success. Also, SEM was used for Goodness-of-Fit for model development and validation of the SM success framework for construction projects in Ghana.

10.3.1 Measuring the Critical Barrier Factors Impact on Stakeholder Management Success

Evaluating critical success factors for improved construction project delivery has been increasingly considered by researchers and project managers owing to the high rate of project failure (Chan et al., 2004). Davis (2014) asserts the need for a soft management approach for project success as efforts on hard skills (time, cost and quality) have failed. The assertion thus raises the need for the evaluation of critical barrier factors (CBF). Project success entails project product and project management success, hence the need for consideration (Eskerod and Jepsen, 2013). This the external environment has been identified as a pre-condition and factor impacting on project management success, hence its significance (Yang, 2010; Gudiene et al., 2013). This section considers the influence of external environmental factors as CBF to SM success.

10.3.1.1 Critical Barrier Factors Influence on Stakeholder Management

This thesis set out to identify the influence of CBF, mainly represented as external environment factors (EEF) on stakeholder management success. The analysis is derived from the empirical data from the field survey confirming or otherwise the Delphi survey results. For results, the frequencies of the eight (8) observed variables (indicators) in Section B

(Q17), and of the survey questionnaire (Table 10.6) were assessed and are presented in the next section.

10.3.1.2 Factor Analysis of External Environment Factors (Critical Barriers)

The object of employing factor analysis was to examine which variables are linked to the underlying factor (construct) influencing the SMS negatively for successful project delivery. Thus, to identify a cluster of variables and the minimum number accounting for the covariation among variables observed (Field, 2009; Byrne, 2013) both exploratory and confirmatory methods were used to explore and confirm variables tested utilizing the field survey (Pallant, 2013).

10.3.1.3 Determining Sampling Adequacy

Principal component analysis (PCA) was run for an empirical summary of data set, smaller linear combinations and pattern of correlation (Tabachnik and Fidell, 2007; Pallant, 2013). The PCA method was used as a norm for the reliability of factor analysis results (Field, 2009; Kwofie, 2015). Three tests were considered as appropriate for using factor analysis: assessment of data suitability, factor extraction and rotation, and interpretation (Pallant, 2013). The test began with the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) test and Bartlett's test of sphericity to determine the sampling adequacy and population matrix (Kwofie, 2015). The researcher aimed at determining whether the results meet the threshold for the data to be analysed using factor analysis procedure.

Table 10.5: Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.723
Bartlett's Test of Sphericity	Approx. Chi-Square	499.910
	Df	28
	Sig.	0.000

Source: Correlation Matrix

The KMO value of 0.723 falls within the 0-1 range (Pallant, 2013). According to Tabachnik and Fidell (2007), a KMO of 0.6 is required as a minimum for factor analysis while other studies suggest 0.5. Thus, a KMO of 0.723 was considered adequate and appropriate for this study. Also, Bartlett's test of sphericity had to meet a threshold of Sig. (p) < 0.5 for the appropriateness of the factor analysis. As illustrated in Table 10.5, Bartlett's test of sphericity was 499.91 and df of 28 was suitable for the analysis. The results imply that the variables are potentially correlated and thus indicate that the clusters are likely to form factors from the variables.

10.3.1.4 Factor Extraction

Based on Pallant (2013), the rotation was performed and communalities extracted on each variable and evaluated. That was necessary for determining factors to be finally retained (Field, 2009; Pallant 2013). The total amount an original variable shared with others in the analysis was thus determined. From Table 10.6, it can be seen that the highest was 0.977, the least 0,495 and average 0.648. Studies suggest that variables of <0.5 communality should be discarded, ≥0.5 good for convergent validity and an average of ≥0.6 indicates reliable results (Field, 2009; Hair et al., 2010; Kwofie, 2015). The square of a factor of less than 0.7 amounts to communality less than 0.50. Poor planning had 0.495, but 0.50 (two) decimal meeting the minimum threshold, hence retained with all the other factors.

Table 10.6: Communalities Extracted

	External Environment Factors	Initial	Extraction
EEF1	Unstable economic conditions	1.000	0.537
EEF2	Differences in stakeholders' culture	1.000	0.598
EEF3	Legal policies and legislations	1.000	0.692
EEF4	Firms/Individuals ethics	1.000	0.658
EEF5	Stakeholders' social behaviour	1.000	0.604
EEF6	Stakeholders' political influences	1.000	0.628
EEF7	Poor project planning and control	1.000	0.495
EEF8	Negative impact of the Procurement Act	1.000	0.977

Extraction Method: Principal Component Analysis

10.3.1.5 Test for Internal Reliability

Reliability, validity and objectivity are critical for any statistical analysis to be generally accepted (Flick, 2011). The instrument was thus tested for the results to be generalised (Bryman, 2008). Internal consistency and reliability tests were performed. According to

Bryman (2008), Cronbach's alpha is a commonly accepted test for internal reliability *Differences in stakeholder culture* had a Cronbach's Alpha (min) of 0.566 while the '*adverse impact of procurement act'* had the highest of 0.705 with items deleted. It was followed by *legal policies and legislation* at 0.676 and *firms and individual ethics* with 0.650 which are all above 0.6 α. The average Cronbach's alpha was 0.652, and 0.677 for standardized items (See Table 10.6) for eight (8) variables tested indicating how closely the indicators are related to a group. Though a coefficient of reliability of ≥ 0.7 is typically recommended as a rule of thumb, 0.652 was acceptable using the range of 0.6<α<0.7, (Kline, 2000; George and Mallery, 2003; Bhatnagar et al., 2014). They attain the 0.7 value (one decimal point) recommended.

Table 10.7: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.652	0.677	8

10.3.1.6 Component Extraction

The total variance as contributed by each of the principal components extracted was assessed and explained. The results are shown in Table 10.8. While principal component one is responsible for 35.603%, the second accounted for 16.708% of the total variance of the negative impact of critical barrier factors' influence on stakeholder management success. Finally, principal component three when extracted accounted for 12.549%. Considering the above, the three principal components when extracted accounted for a total of 64.86% above (Table10.8). Studies recommend that the minimum total variance for which a factor should be considered is 50% (Field, 2009; Kwofie, 2015). The external environment factor influences SM success.

Table 10.8: Total Variance Explained

Total Variance Explained									
Com-ponent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.848	35.603	35.603	2.848	35.603	35.603	2.811	35.134	35.134

2	1.337	16.708	52.311	1.337	16.708	52.311	1.358	16.979	52.113
3	1.004	12.549	64.860	1.004	12.549	64.860	1.020	12.747	64.860
4	0.735	9.194	74.054						
5	0.661	8.262	82.315						
6	0.603	7.539	89.855						
7	0.509	6.367	96.221						
8	0.302	3.779	100.000						

The study employed the rotated component matrix presented in Table 10.9 and it revealed five variables very much interrelated and extracted as component 1, two variables as component two and only a variable as component 3. A careful assessment of Component 1 identifies variables mainly representing the external environment. The leading indicators can be considered as dynamic external environment factors influenced by society, political government policies and changes with time (Gudiene et al., 2013). Variables extracted as Component 2 can be considered as adverse prevailing external conditions due to different stakeholder participations. They are pre-conditions for successful stakeholder management (Yang, 2010). Different stakeholders have different work ethics and are restricted by various legal frameworks and jurisdiction thereby influencing project outcomes. Component 3 has the only the *negative impact of procurement act*. The procurement system adopted influences stakeholder participation and management (Rwelamila, 2010). The CBF which are also considered as external environment factors are discussed in the next section.

Table 10.9: Rotated Component Matrix

Rotated Component Matrix			
Variable	Component		
	1	2	3
EEF6 Stakeholders' political influences	0.783		
EEF5 Stakeholders' social behavior	0.767		
EEF2 Differences in stakeholders' culture	0.759		
EEF1 Unstable economic conditions	0.728		
EEF7 Poor project planning and control	0.700		
EEF3 Legal policies and legislation		0.831	
EEF4 Firms/Individuals' ethics		0.802	
EEF8 Negative impact of the Procurement Act			0.987

Extraction Method: Principal Component Analysis.

Gudiene et al. (2013) assert that external factors impact on the project beyond company's management control, thereby affecting success and survival. These were identified to include economic, social, political and cultural factors. Studies suggest that these variables impact businesses beyond a company's management control and independent of performance, resulting in project failure, hence a pre-condition for management consideration (Yang, 2010; Gudiene et al., 2013). Their impact on a project is influenced by government policies, society demands and the macro environment. The political environment has a significant impact on stakeholder management as changes in political government lead to a revision of projects, tax laws, policies and in some instances, stakeholder participation and needs.

10.3.2 Measuring the Critical Success Factors

Osei-Kyei and Chan (2015) quotes Rockart (1982) as defining critical success factors (CSFs) as the 'few key areas of activity where satisfactory results are essential for a manager's consideration to achieve project goals' (Osei-Kyei and Chan, 2015, p.1336). These factors and management practices when considered can lead to project success (Alias et al., 2014). Also considering these management actions, project procedures and relationship related factors are necessary for enhancing the effectiveness of project delivery (Chan et al., 2004; Alias et al., 2014). They are indeed critical areas for managerial planning to achieve efficiency (Saraph et al. 1989; Yang et al., 2009). CSFs peculiar to the construction environment must be identified to manage project stakeholders in developing countries successfully. The CSFs were first explored through a Delphi technique and then the field questionnaire survey involving a large population of industry participants.

10.3.2.1 Reliability and Validity of the Critical Success Factors (CSF)

In determining CSFs for a construction project, SM reliability statistics were conducted to establish the internal consistency of responses and reliability scale. Research has greatly depended on Cronbach alpha (α) as standard practice in validation studies. In a similar study, α was used to examine internal consistency of the scales with low coefficients, indicating that indicator is not reliable with the variable component (Yang et al. 2009). Studies assert that α values depend on the number of items in a scale but values greater than 0.7 are regarded as sufficient (Yang et al., 2009; Pallant, 2013). Based on the number of variables, other researchers argue that a range of $0.6<\alpha<0.7$ is acceptable (Kline, 2000; George and Mallery, 2003; Bhatnagar et al., 2014). Fewer items less than 10 in a scale produce enough small Cronbach'a alpha values, hence a mean-inter item correlation may be used (Pallant, 2013). According to Kline (2013), a scale of $\alpha \geq 0.9$ – Excellent, $0.7 \leq \alpha < 0.9$ – Good, $0.6 \leq \alpha < 0.7$ – Acceptable, $0.5 \leq \alpha > 0.6$, and $\alpha < 0.5$ – Unacceptable can be employed. The Cronbach alpha values of the variables were observed (See Table10.10)

Table 10.10: Construct Reliability (α) Summary for Constructs

Construct	Cronbach's Alpha (α)	α Based on Standardized Items	N of Items
PSI	0.732	0.738	10
SIP	0.687	0.719	8
SAC	0.876	0.879	15
SEN	0.654	0.668	8
SCR	0.801	0.808	8
IMF	0.834	0.834	9

The Cronbach's alpha for pre-stakeholder identification (PSI) items were examined. The maximum α score for items deleted was *project manager with good knowledge* 0.746 and *having adequate project feasibility study* with 0.685 as a minimum. The average was 0.732 α value and 0.738 for standardized items. PSI construct which was a gap identified had very good internal consistency, hence qualified for the structural equation modelling (SEM).

Similarly, the internal consistency for stakeholder identification (SIP) was measured. *Preparing a new register of stakeholders* had the highest α value of 0.76 and *repeating and providing stakeholders education at every stage* tied with α value of 0.594 (0.6) as a minimum. Project managers must give attention to a well-prepared stakeholder register during the identification process. The average α values were 0.687 and 0.719 for standardized items. Again, based on the range used, all the variables qualified for the factor analysis as both the average and individual values were within the acceptable range as an empirically tested construct recommended by scholars (Yang, 2010).

Also, the Cronbach's alpha for the stakeholder *assessment* (SAC) construct was evaluated and excellent values obtained (See Table 10.11). *Stakeholder position mapping* had the lowest Cronbach's alpha (0.858) while *stakeholder has a legitimate demand* and *stakeholder contributes to the project* tied for the maximum (0.877). That implies that respondents believe that the two variables must be well considered by project managers for SM success. The average α values were 0.876 and 0.879 for standardized items.

The *stakeholder engagement* (SEN) construct had α values of 0.730 and 0.567 as maximum and minimum respectively (See Table 10.11). The average α values were 0.654 and 0.668 for standardized items. The *stakeholder engagement* as a construct has been empirically tested and recommended by SM authors and the key models reviewed.

Following SEN was *stakeholder conflict resolution* (SCR) which was a gap identified from the literature and the Delphi study. The examined Cronbach's alpha values for the items were *having the ability to predetermine possible conflicts* (0.755) and *stakeholders being willing to resolve conflict* (0.814). These were the minimum and maximum values respectively. Again, as a new construct, the internal consistency values were high using the scale adopted (Kline, 2013). Finally, implementation, monitoring and feedback as a construct was considered. Not many SM scholars have considered the three activities together as a construct. Freeman (2010) mentions implementing and monitoring, Yang (2010) stated action and evaluation while many others omitted this construct. In ensuring validity and reliability of scale, Cronbach's alpha and internal consistency tests among items and constructs were conducted. As part of the study, the cut-off value of 0.5 was compared. Furthermore, item to item correlation was examined (acceptable value > 3), and item to total correlation (acceptable value > 0.5).

The range of α values were 0.796 to 0.838. Again, high values were obtained indicating outstanding data reliability. *Implementing fully, project feasibility brief* had the minimum while *monitoring stage activity and effectiveness* was the highest. Freeman (2010) argues for greater effort in monitoring and implementation. The two documentation and feedback items had over 0.8 α values (See Table 10.11).

Table 10.11: Construct Reliability (α) Among Items in a Construct

Variable	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PSI1 Having adequate project feasibility study	37.62	15.500	0.569	0.551	0.685
PSI2 Having clear stated project objectives	37.63	15.867	0.500	0.466	0.696

PSI3 Having very detailed design	37.61	15.988	0.505	0.336	0.696
PSI4 Having clear stated stakeholders needs	37.84	16.357	0.390	0.217	0.711
PSI5 Project manager with high competence	38.01	16.548	0.307	0.240	0.724
PSI6 Project manager with good knowledge	38.22	17.859	0.141	0.203	0.746
PSI7 Project manager with good leadership skills	38.01	16.448	0.341	0.267	0.718
PSI8 Maintaining project teams	38.29	15.929	0.333	0.160	0.722
PSI9 Employing the design and build method	37.85	15.266	0.449	0.490	0.701
PSI10 Adopting the management contract method	37.94	15.594	0.438	0.442	0.703
SIP1 Identifying stakeholders at project inception stage	28.01	13.646	0.353	0.232	0.664
SIP2 Identifying stakeholders using an expert staff	28.85	13.662	0.202	0.068	0.701
SIP3 Reviewing an existing stakeholder register	28.31	12.015	0.548	0.443	0.618
SIP4 Identifying stakeholder at every stage	28.17	12.120	0.581	0.518	0.614
SIP5 Providing stakeholders with education	28.13	11.705	0.663	0.610	0.594
SIP6 Repeating stakeholders' education at every stage	28.24	11.444	0.637	0.555	0.594
SIP7 Using register provided by the professional bodies	29.05	13.084	0.331	0.220	0.668
SIP8 Preparing a new register of stakeholders	29.36	15.147	-0.036	0.166	0.768
SAC1 Stakeholder affects/has a formal contract	59.79	46.460	0.596	0.457	0.865
SAC2 Stakeholder has a key role in the project	59.73	48.799	0.481	0.372	0.871
SAC3 Stakeholder has some project responsibility	59.89	48.378	0.472	0.302	0.871
SAC4 Stakeholder is committed to the project	59.80	48.405	0.488	0.312	0.870
SAC5 Stakeholder contributes to the project	60.02	49.296	0.348	0.227	0.877

SAC6 Stakeholder has political influence	59.81	46.202	0.612	0.460	0.865
SAC7 Stakeholder has the power to influence project	59.60	48.017	0.618	0.484	0.866
SAC8 Stakeholder has a legitimate demand	60.32	49.300	0.349	0.281	0.877
SAC9 Stakeholder possesses power, urgency, legitimacy	59.80	47.710	0.593	0.435	0.866
SAC10 Stakeholder's needs and expectations	60.18	50.327	0.226	0.203	0.884
SAC11 Stakeholder is dynamic and salient	59.94	47.578	0.505	0.284	0.870
SAC12 Stakeholder map/template	59.97	44.801	0.713	0.780	0.859
SAC13 Stakeholder position mapping	59.95	45.168	0.741	0.815	0.858
SAC14 Power/Interest matrix	60.03	45.996	0.662	0.607	0.862
SAC15 Power/Influence matrix	60.09	46.751	0.613	0.523	0.865
SEN1 Adopting proactive communication	29.10	9.792	0.384	0.323	0.614
SEN2 Using open communication	29.10	9.084	0.579	0.487	0.567
SEN3 Using emails for correspondence	29.20	8.714	0.553	0.460	0.565
SEN4 Communicating using telephone	30.19	11.710	-0.058	0.057	0.730
SEN5 Organizing stakeholder conferences	29.36	9.786	0.378	0.200	0.616
SEN6 Organizing stakeholder workshops	29.79	11.028	0.093	0.088	0.685
SEN7 Using social platforms	29.50	8.570	0.520	0.392	0.571
SEN8 Using planned communication	29.10	9.566	0.477	0.329	0.594
SCR1 Having the ability to predetermine possible conflicts	30.55	10.214	0.657	0.623	0.755
SCR2 Having the ability to resolve conflicts	30.48	10.917	0.638	0.591	0.763
SCR3 Having capacity to determine conflict type	30.79	11.009	0.459	0.276	0.787
SCR4 Stakeholders being willing to resolve conflict	31.06	11.563	0.306	0.128	0.814
SCR5 Embarking on early conflict resolution	30.55	10.359	0.644	0.589	0.758
SCR6 Ensuring fair play during resolution	30.54	10.791	0.655	0.578	0.760
SCR7 Ensuring transparency between stakeholders	30.91	11.357	0.430	0.268	0.791

SCR8 Ensuring that conflict resolution process is transparent	30.74	11.665	0.383	0.230	0.797
IMF1 Implementing fully, project feasibility brief	34.60	13.783	0.720	0.622	0.796
IMF2 Implementing fully, stakeholder needs plan	34.66	14.197	0.687	0.589	0.801
IMF3 Full implementation of stakeholder management objectives	34.92	15.494	0.384	0.227	0.834
IMF4 Implementation of stakeholder communication plan	34.70	14.147	0.605	0.455	0.809
IMF5 Monitoring project objectives achievement	34.97	15.169	0.488	0.350	0.823
IMF6 Monitoring stage activity and effectiveness	35.09	15.675	0.355	0.174	0.838
IMF7 Monitoring stakeholders need achievement	34.76	14.535	0.603	0.470	0.810
IMF8 Documenting the entire stakeholder process	34.63	14.476	0.605	0.439	0.810
IMF9 Implementing decisions on feedback	34.62	15.520	0.448	0.283	0.826

All the constructs attained an average minimum of 0.7 (one decimal point) and also based on $0.6<\alpha<0.7$ acceptable criteria (Kline, 2000; George and Mallery, 2003; Bhatnagar et al., 2014). However, SAC (0.879) and SEN (0.654) were obtained as the maximum and lowest values. An average α value of 0.746 was achieved for the CSFs constructs. It is worth mentioning that PSI (0.732) and SCR (0.801) are factors identified as gaps. Though SIP and SEN had values of 0.687 and 0.654, they are constructs empirically tested and identified by many SM scholars and were qualified by range adopted (Yang, 2010). Considering that all constructs (with items above 10) had α of above 0.7 and the rest (items less than 10) had 0.7 or more (one decimal), all the factors considered were retained for the factor analysis. The internal consistency of the factors is reliable and acceptable (Gray et al., 2005; Othman and Hajjar 2017).

10.3.2.2 Validity of the Critical Success Factors

Yang et al. (2009) opine that conducting a comprehensive review of relevant literature and qualitative studies involving professional in the construction industry results in content validity. Content validity is not assessed numerically but by researchers' judgement when the study adequately considers the content domain or concept aspects being measured (Wong and Aspinwall, 2005; Yang et al., 2009) The CSFs were derived from an extensive literature review, peer-reviewed publications and a Delphi study conducted, hence deriving its content validity. A sampling adequacy test was further carried out for variance and construct validity for each CSF construct. The KMO and Bartlett's test results are presented in Table 10.12:

Table 10.12: KMO and Bartlett's Test

	FACTOR					
CRITERIA	**PSI**	**SIP**	**SAC**	**SEN**	**SCR**	**IMF**
KMO	0.777	0.817	0.885	0.790	0.809	0.840
BTS (approx. Chi-Square)	746.811	691.974	1827.624	517.271	829.464	898.594
BTS (df)	45	28	105	28	28	36
BTS (Sig.)	0.000	0.000	0.000	0.000	0.000	0.000
No of measured items	10	8	15	8	8	9

Legend: KMO-Kaiser-Meyer-Olkin Measure of Sampling Adequacy, BTS- Bartlett's Test of Sphericity

Factors were extracted for each test and the groupings analysed (Antony et al., 2002). A KMO of 0.6 is considered adequate while 0.5 is acceptable in the literature (Hair et al., 2014). Using the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity (BTS) at 0.000, the KMO range was 0.777 min for PSI and 0.885 max for SIP. Since all the constructs measured above 0.7, they were considered as adequate, valid and reliable (Field, 2009). The test further supported the significance of the study and the validity of responses collected from the industry practitioners. Thus, sampling adequacy and research significance were addressed.

10.3.2.3 Communalities Extracted and Rotated Component Matrix

The researcher was concerned with/about? variables to be retained and item variance in the constructs. Consequently, communalities were extracted and examined for the variables in each of the six CSFs latent constructs (Table 10.13). Communalities also indicate the total amount a variable share with others in a construct (Hair et al., 2014). For pre-stakeholder identification (PSI) the average communality was 0.509. Stakeholder identification (SIP) had an average of 0.614. Likewise, assessment construct (SAC) with an average of 0.569. The average communalities measured for engagement (SEN) was 0.537, conflict (SCR) 0.604 and finally, implementation monitoring and feedback (IMF) 0.562 were recorded (See Table 10.13).

Studies recommend an average validity of >0.6 as good for credible results (Field, 2009; Kwofie, 2015). However, other researchers argue that convergent validity >0.5 as acceptable (Henseler et al., 2009). Nevertheless, scholars agree that average latent construct validity below 0.5 should be rejected as the model will not fit well. The convergent validity for all the latent constructs was above 0.5 and considered as providing a reliable factor analysis results.

Table 10.13: Communalities Extracted

Code	Related factor	Initial	Extraction
	Pre-stakeholder Identification		
PSI1	Having adequate project feasibility study	1.000	0.686
PSI2	Having clearly stated project objectives	1.000	0.554
PSI3	Having very detailed design	1.000	0.495
PSI4	Having clear stated stakeholders needs	1.000	0.330
PSI5	Project manager with high competence	1.000	0.479
PSI6	Project manager with good knowledge	1.000	0.513
PSI7	Project manager with good leadership skills	1.000	0.562
PSI8	Maintaining project teams	1.000	0.305
PSI9	Employing the design and build method	1.000	0.606
PSI10	Adopting the management contract method	1.000	0.562
	Stakeholder identification process		
SIP1	Identifying stakeholders at project inception stage	1.000	0.416
SIP2	Identifying stakeholders using an expert staff	1.000	0.400
SIP3	Reviewing an existing stakeholder register	1.000	0.586
SIP4	Identifying stakeholder at every stage	1.000	0.681
SIP5	Providing stakeholders with education	1.000	0.752
SIP6	Repeating stakeholders’ education at every stage	1.000	0.698
SIP7	Using register provided by the professional bodies	1.000	0.683

SIP8	Preparing a new register of stakeholders	1.000	0.697
	Stakeholder Assessment classification		
SAC1	Stakeholder affects/has formal contract	1.000	0.548
SAC2	Stakeholder has a key role in the project	1.000	0.454
SAC3	Stakeholder has some project responsibility	1.000	0.483
SAC4	Stakeholder is committed to the project	1.000	0.461
SAC5	Stakeholder contributes positively to project	1.000	0.521
SAC6	Stakeholder has political influence	1.000	0.560
SAC7	Stakeholder affects/has the power to influence project	1.000	0.558
SAC8	Stakeholder has a legitimate demand	1.000	0.630
SAC9	Stakeholder possesses power, urgency and legitimacy	1.000	0.513
SAC10	Stakeholder has needs and expectation	1.000	0.498
SAC11	Stakeholder is dynamic and salient	1.000	0.363
SAC12	Stakeholder map/template	1.000	0.772
SAC13	Stakeholder position mapping	1.000	0.823
SAC14	Power/Interest matrix	1.000	0.674
SAC15	Power/ Influence matrix	1.000	0.676
	Stakeholder Engagement		
SEN1	Adopting proactive communication	1.000	0.482
SEN2	Using open communication	1.000	0.638
SEN3	Using emails for correspondence	1.000	0.634
SEN4	Communicating using telephone	1.000	0.372
SEN5	Organizing stakeholder conferences	1.000	0.524
SEN6	Organizing stakeholder workshops	1.000	0.563
SEN7	Using social platforms	1.000	0.560
SEN8	Using planned communication	1.000	0.522
	Stakeholder conflict resolution		
SCR1	Having the ability to predetermine possible conflicts	1.000	0.753
SCR2	Having the ability to resolve conflicts	1.000	0.717
SCR3	Having the capacity to determine conflict type	1.000	0.426
SCR4	Stakeholders being willing to resolve conflict	1.000	0.404
SCR5	Embarking on early conflict resolution	1.000	0.656

SCR6	Ensuring fair play during resolution	1.000	0.643
SCR7	Ensuring transparency between stakeholders	1.000	0.628
SCR8	Ensuring that conflict resolution process is transparent	1.000	0.605
	Implementation, monitoring and feedback		
IMF1	Implementing fully, project feasibility brief	1.000	0.747
IMF2	Implementing fully, stakeholder needs plan	1.000	0.739
IMF3	Full implementation of stakeholder management objectives	1.000	0.500
IMF4	Implementation of stakeholder communication plan	1.000	0.535
IMF5	Monitoring project objectives achievement	1.000	0.528
IMF6	Monitoring stage activity and effectiveness	1.000	0.431
IMF7	Monitoring stakeholders need achievement	1.000	0.668
IMF8	Documenting the entire stakeholder process	1.000	0.561
IMF9	Implementing decisions on feedback	1.000	0.352

From Table 10.14, it can be seen that PSI4 (0.330), PSI8 (0.305), SIP1 (0.416), SIP2 (0.400), SAC11 (0.363), SEN4 (0.372), SCR3(0.426), SCR4(0.404), IMF6 (0.431) and IMF9(0.352) had values less than the recommended 0.45. Studies classify 0.450 communality as fair, hence the study retained values above 0.45 but less than 0.5 as items were supported by literature and theory (Comrey and Lee, 1992; Tabachnick and Fidell 2007; Hadi et al., 2016). A further test was performed to ascertain the extent of reliability and correlation with other measured items. The retained items explain only the degree of variance with Hair et al. (1998) suggesting that, as a rule of thumb, 0.45 (fair) communality must meet a minimum sample size of 150 cases for significance. The 289-sample size satisfies this requirement, hence the suitability for factor analysis.

Table 10.14: Summary of Total Variance Explained (Critical Success Factors)

Total Variance Explained									
Compo-nent	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %

PSI F1	3.217	32.173	32.173	3.217	32.173	32.173	3.046	30.462	30.462
PSI F2	1.876	18.759	50.932	1.876	18.759	50.932	2.047	20.471	50.932
PSI F3	0.958	9.576	60.508						
SIP F1	3.256	40.694	40.694	3.256	40.694	40.694	3.247	40.585	40.585
SIP F2	1.357	16.967	57.661	1.357	16.967	57.661	1.366	17.076	57.661
SIP F3	0.963	12.037	69.698						
SAC F1	5.850	39.002	39.002	5.850	39.002	39.002	3.874	25.830	25.830
SAC F2	1.514	10.096	49.098	1.514	10.096	49.098	3.049	20.329	46.159
SAC F3	1.172	7.810	56.908	1.172	7.810	56.908	1.612	10.750	56.908
SEN F1	2.976	37.201	37.201	2.976	37.201	37.201	2.971	37.132	37.132
SEN F2	1.318	16.478	53.679	1.318	16.478	53.679	1.324	16.547	53.679
SEN F3	0.905	11.309	64.988						
SCR F1	3.560	44.503	44.503	3.560	44.503	44.503	3.074	38.423	38.423
SCR F2	1.270	15.881	60.384	1.270	15.881	60.384	1.757	21.961	60.384
SCR F3	0.839	10.492	70.876						
IMF F1	3.979	44.208	44.208	3.979	44.208	44.208	2.741	30.455	30.455
IMF F2	1.082	12.026	56.234	1.082	12.026	56.234	2.320	25.779	56.234
IMF F3	0.852	9.462	65.696						

Similarly, having determined the suitability of the data, the communalities and cut-offs, a test for total variance extraction was carried out (See Table 10.14). This research used criteria for factor extraction determination as an eigenvalue >1.0 and factor loading at 0.5, the cumulative percentage of 50-60%, scree test and parallel analysis (Hair et al., 2005: Field, 2009; Pallant, 2011; Aigbavboa, 2013; Kwofie, 2015; Rachmawati et al., 2017). By convention, factors with eigenvalues of 1.0 are retained for further investigation and those below cut off using the Kaiser's criterion (Pallant, 2013). Studies suggest that the difference in the initial and extracted values is due to the latent factors unique to the original variables in the solution. That, however, cannot be explained by the factor model. The number of underlying factors are extracted (Pallant, 2013)

An appraisal of the test indicates that for the CSFs influencing SM success, PSI had two dissimilar components, PS1 Factor 1 and PSI Factor 2. The first principal component PSI Factor 1 had 32.173 accounting for 32.27% of the variance. Similarly, the next key component, PSI Factor 2, had 18.758 indicating 18.76% as their variability in the original variables. Cumulatively, the variability explained by the two separate factors in the extracted mix is 50.932% greater than the 50% rule for the cumulative variance of the components extracted (Field, 2009; Rachmawati et al., 2017).

Also, the underlying factors for the SIP construct were extracted. The two distinct components identified are named SIP Factor1 and SIP Factor 2 (See Table 10.14). The first and principal component had a total variance of 40.694 accounting for 40.69% of the variance. Similarly, the next key component, SIP Factor 2, had 16.967 explaining 16.9% and a cumulative variance of 57.661 representing 57.66%. Again, this value is above the recommended threshold of 50% (Field, 2009). The cut-off was applied having achieved the cumulative 50% of total variance.

Thirdly, the SAC construct was examined for total variance and cut-off. The main underlying factors were identified as components 1, 2 and 3. It is the only CSF latent variable registering three key components after extraction. The first and key component (SAC Factor1) had 39.002 and contributed 39.00%; the next principal component (SAC Factor 2) with 10.096 accounted for 10.10%%, while the final key component (SAC Factor 3) had underlying 7.810 variances. A cumulative extracted variance of 56.908 and accounting for 56.91% was obtained. The aggregate variability of the principal components is thus above the 50% threshold as recommended (Field, 2009), hence the cut-off.

Following the assessment of SAC was the SEN construct for the principal components accounting for the total variance extracted. Unlike SEN, two distinct components accounted for the total variance, namely SEN Factor 1 and SEN Factor 2. The SEN Factor 1 as the principal factor had 37.201, while SEN Factor 2 had 16.478 variations accounting for 37.20%

and 16.48% respectively. The two most important underlying factors considered cumulatively accounted for 53.679% of the variance in the original variable.

Similarly, SCR had two different components, namely SCR Factor 1 and SCR Factor 2 representing the main components. The first principal component, SCR Factor 1, had 44.503 accounting for 32.27% of the variance. The next key component, SCR Factor 2, had 15.881 indicating 15.88% as their variability in the original solution. Cumulatively, the variability explained by the two distinct factors in the extracted mix is 60.384% which is greater than the 50% recommendation for the cumulative variance of factors extracted (Field, 2009; Kwofie, 2015). SCR had the highest cumulative total variance explained.

Finally, the total variance explained for the IMF construct representing the CBF was assessed and presented. Two main components were the key underlying factors for the variability in the original variables. The first principal component represented as IMF Factor 1 had 44.208 variances and the second component (IMF Factor 2), 12.026. While the first and key component accounted for 44.21%, the second recorded 12.01%. Both factors cumulatively accounted for 54.23% of the total variance in the original solution which is above the 50% recommended cut-off (Rachmawati et al., 2017). The CSF constructs of PSI, SIP, SAC, SEN, SCR and IMF thus had two or more unique factors (components) explaining the cumulative percentage of variance.

Furthermore, the principal component analysis (PCA) extraction method was employed for measured items for each construct to identify the rotated component matrix. The goal was to identify the structure and determine which component accounts more on the influence of the construct on stakeholder management success. Pallant (2013) contends that pattern matrix offers an understanding and interpretation of results. Likewise, the rotated component matrix is believed to lead to simple structure and explanation (Field, 2009)

10.3.2.4 Reliability Statistics for Rotated Components

Following the determination of the components for the various constructs, a reliability test was carried again to establish the internal consistency of the variables in the component.

The Cronbach's alpha values for the components were PSI1(.815), PSI2(.622), SIP1(.845), SIP2(.480), SAC1(.865), SAC2(.713), SEN1(.801), SEN2(.336), SCR1(.846), SCR2 (.582), IMF1(.792), IMF2(.713). It is observed that PSI2, SIP2, SEN2 and SCR2 have reliability coefficients of less than 0.7 showing that the scaled variables are unreliable with observed items component hence they were dropped. The Cronbach's alpha coefficient (α) ranges between 0 to 1 but acceptable when >.7 (Field, 2005; Pallant 2013). Similarly, items SAC3 in component SAC1, IMF3 and IMF9 in component IMF that were slightly above the final coefficient for the component the remaining variables were below. It is suggested that Cronbach's alpha values of items deleted in a component should be compared with the final and if greater, the item can be deleted by the researcher (Pavot et al., 1991; Pera-Villarroel, 2012).

Also, the rotated component matrix for factor loadings and data reduction was analysed. Studying the rotated component matrix revealed that each construct had more than a component forming a likely factor within the latent construct. Drawing from the matrix (See Table 10.16), it is observed how variables relate with the total score (Pallant, 2007). The researcher finds each component has more than one measured item in each CSF construct. It is recommended that rotated values should be greater than 0.3 to assess something similar from the scale. The scales were examined for reliability with SAC1, 6, 7, SEN 5 variables removed owing to cross loading (See Table 10.13b) and low factor loading (SIP2). Factor loadings below cut-off criteria were deleted.

Table 10.15: Rotated Component Matrix

Rotated variables	Component		
	1	2	3
Pre-stakeholder identification			
PSI1 Having adequate project feasibility study	0.822		
PSI9 Employing the design and build method	0.776		
PSI10 Adopting the management contract method	0.748		
PSI2 Having clear stated project objectives	0.734		
PSI3 Having very detailed design	0.673		
PSI7 Project manager with good leadership skills		0.748	
PSI6 Project manager with good knowledge		0.692	
PSI5 Project manager with high competence		0.690	
PSI8 Maintaining project teams		0.512	
PSI4 Having clearly stated stakeholders needs		0.442	
Stakeholder identification			
SIP5 Providing stakeholders with education	0.866		
SIP4 Identifying stakeholder at every stage	0.825		
SIP6 Repeating stakeholders' education at every stage	0.822		
SIP3 Reviewing an existing stakeholder register	0.762		
SIP1 Identifying stakeholders at project inception stage	0.606		
SIP2 Identifying stakeholders using an expert staff	0.316		

SIP8 Preparing a new register of stakeholders		0.816	
SIP7 Using register provided by the professional bodies		0.787	
Stakeholder assessment			
SAC13 Stakeholder position mapping	0.873		
SAC12 Stakeholder map/template	0.844		
SAC14 Power/Interest matrix	0.754		
SAC15 Power/ Influence matrix	0.675		
SAC11 Stakeholder is dynamic and salient	0.526		
SAC1 Stakeholder affects/has a formal contract	0.520	0.518	
SAC3 Stakeholder has some project responsibility		0.660	
SAC5 Stakeholder contributes to the project	-	0.657	
SAC4 Stakeholder is committed to the project		0.618	
SAC2 Stakeholder has a key role in the project		0.613	
SAC9 Stakeholder possesses power, urgency, legitimacy		0.603	
SAC7 Stakeholder has the power to influence project	0.508	0.545	
SAC6 Stakeholder has political influence	0.518	0.538	
SAC8 Stakeholder has a legitimate demand			0.762
SAC10 Stakeholder’s needs and expectations			0.700
Stakeholder engagement			
SEN2 Using open communication	0.798		
SEN3 Using emails for correspondence	0.796		
SEN7 Using social platforms	0.727		
SEN8 Using planned communication	0.722		
SEN1 Adopting proactive communication	0.667		
SEN6 Organizing stakeholder workshops		0.750	
SEN5 Organizing stakeholder conferences	0.409	0.598	
SEN4 Communicating using telephone		0.578	
Conflict resolution			
SCR1 Having the ability to predetermine possible conflicts	0.861		
SCR2 Having the ability to resolve conflicts	0.842		
SCR5 Embarking on early conflict resolution	0.768		
SCR6 Ensuring fair play during resolution	0.745		
SCR3 Having the capacity to determine conflict type	0.648		
SCR7 Ensuring transparency between stakeholders		0.773	
SCR8 Ensuring conflict resolution process is transparent		0.767	
SCR4 Stakeholders being willing to resolve conflict		0.626	
Implementation, monitoring and feedback			
IMF2 Implementing fully, stakeholder needs plan	0.818		
IMF1 Implementing fully, project feasibility brief	0.798		
IMF3 Full implementation of stakeholder management objectives	0.705		
IMF4 Implementation of stakeholder communication plan	0.612		
IMF9 Implementing decisions on feedback	0.542		
IMF7 Monitoring stakeholders need achievement		0.769	
IMF5 Monitoring project objectives achievement		0.700	
IMF6 Monitoring stage activity and effectiveness		0.656	
IMF8 Documenting the entire stakeholder process		0.637	

"Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization." Rotation converged in 3 iterations.

Extracting from Table 10.15, pre-stakeholder identification (PSI) had two components or factors. Factor 1 has PSI1, PSI9, PSI10, PSI2 and PSI3. PSI Factor 1 consist of the project definition and procurement method Delphi study sub-factors. The average Cronbach's alpha was 0.815, signifying a strong reliability as a component. PSI Factor 2 had PSI7, PSI6, PSI5, PSI8 and PSI4 as variables and are project manager-related in the Delphi study. Also, the average Cronbach's alpha was 0.622. No variable was deleted. However, PSI Factor was dropped because of the $\alpha \leq 0.7$. PSI Factor 1 was retained for having α value $0.815 > 0.7$. The component variables showed more formation of a possible factor and simple structure (Field, 2009). The results confirmed the Delphi study outcome (Chapter 8).

Likewise, SIP had two components, namely SIP Factor 1 and SIP Factor 2 (Table10. 13c). Factor 1 consists of SIP 5, SIP4, SIP6, SIP3, SIP1 and Factor 2, SIP8 and SIP7 with a final Cronbach's alpha of 0.845 and 0.483 respectively. SIP2 was removed for low factor loading. SIP Factor 1 had variables measuring early stakeholder identification and education. On the other hand, SIP Factor 2 contained register-related variables. It was retained for having a strong α value > 0.7 (See Table10.16).

Similarly, the components for SAC construct were determined. SAC had three components after the rotation. SAC Factor 1 (SAC13, 12, 14, 15 and11) was mainly on stakeholder involvement impact on the project during the Delphi survey, SAC Factor 2 (SAC3, 5, 4, 2 and 9) on non-power attributes and SAC Factor 3 (SAC8, 10) mainly power attributes. The average Cronbach's alpha values for the three SAC Factors were 0.865, 0.713 and 0.492 respectively. SAC7 and SAC6 were removed for cross loading. SAC Factor 1 entails mainly analysis methods while Factor 2 on classification-based on stakeholder involvement impact factor was retained for high α values > 0.7.

Further examined were 'engagement' SEN and 'conflict resolution' SCR latent constructs. SEN had two components as SEN Factor 1 (SEN2, 3, 7, 8, 1) and SEN Factor 2 (SEN6, 5, 4). SEN Factor 1 with Cronbach's alpha 0.801 is now termed as *communication approach* and maintained. SEN Factor 2 with value 0.336 as *participation* was discarded because of a low Cronbach's alpha (Table 10.13c). Measured items in SEN Factor 1 were found in both sub-factors of engagement and communication means during the Delphi study. That confirms communication and engagement as used interchangeably by respondents and literature.

Studies, however, suggest the importance of workshops, conferences and the use of the telephone for communication.

Also, the SCR construct had two component outputs as SCR Factor 1 (SCR1, 2, 5, 6, 3) and SCR Factor 2 (SCR7, 8, 4). During the Delphi survey, all variables were considered as *conflict resolution related*. Factors 1 and 2, are now termed *early conflict* and *resolution consideration* respectively. Components1 and 2 had α values of 0.846 and 0.582 respectively with the study retaining only SCR Factor 2 based on α value criteria.

Finally, the components resulting from IMF construct rotation were assessed. Two components depicted a relationship among the variables and the formation of possible factors and simple structures (Field, 2009). They are IMF Factor 1 (IMF2, 1, 3, 4, 9) named *implementation*' and Factor 2 (IMF7, 5, 6, 8) as *monitoring and feedback*. Again, the factor formation agrees with the Delphi survey findings and sub-factors identified. IMF Factor 1 and 2 had α values of 0.792 and 0.713 respectively. Both components were retained for their high α values > 0.7 and also confirming the Delphi study results. The variables retained were thus analysed using the SEM.

10.3.3 Measuring Stakeholder Management Success Output

Following the examination of the critical barrier and success factors (CBF and CSFs) represented by EEF and PSI, SIP, SAC, SEN, SCR, IMF constructs, the stakeholder management success outputs (SMS) were preliminarily evaluated as a dependent factor. Studies have argued for a management skill to curb continuous poor project performance (Davis, 2014) and to improve stakeholder relationship continuously for project success (McElroy and Mills, 2003; Jepsen and Eskerod, 2009). Similarly, the PMI (2013) asserts that project success is a sum of achievement of project performance, stakeholder needs and success. Freeman (2010) opines that strategic management for success requires a stakeholder approach. Successfully managing stakeholders for their contribution is essential if project success is to be achieved (Jepsen and Eskerod, 2009). Thus, an effort to manage stakeholders successfully can improve project success.

Studies suggest that SM success output (SMO) can be measured by project performance, stakeholder needs, satisfaction achievement, relationship, gains and environment (Chinyio and Olomolaiye, 2010; PMI, 2013; Eskerod and Jepsen, 2013). Fourteen SMO variables were measured as possible indicators of SMS under five factors. The internal reliability assessment indicates Cronbach's alpha of 0.870 and 0.872 for standardised items. Each of the fourteen observed items had above 0.800 as α value with *continuous key stakeholder support* (0.885) and *well-considered environment* (0.853) as maximum and minimum respectively, implying very high reliability of field data.

10.3.3.1 Factor Analysis - Test of Sampling Adequacy

Pallant (2013) asserts that there are three steps involved in factor analysis: assessment of the suitability of data; factor extraction; rotation and interpretation. A test for sampling adequacy and population identification for the measured items using KMO measure of sampling adequacy and Bartlett's test (BTS) were first performed (Table10.16). KMO and BTS are commonly accepted as indicative of data quality and suitability test for factor analysis with a KMO value of above 0.6 as a requirement (Field, 2009; Pallant, 2013). The KMO value for SMO as a dependent factor was 0.866 and considered meritorious. The sample size and relationship strength between the measured items were acceptable with BTS of 1443, the significance of 0.00 (Pallant, 2013; Hair et al., 2014). Also, the null hypothesis was tested to ascertain whether the original correlation matrix is an identity matrix using a BTS (Hadi et al., 2016). Studies suggest that a KMO of less than 0.5 is not acceptable (Field, 2000; Hadi et al., 2016). The field data is suitable for factor analysis.

Table 10.16: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.866
Bartlett's Test of Sphericity (BTS)	Approx. Chi-Square	1443
	Df	78
	Sig.	0.000

10.3.3.2 Factor Extraction

Similarly, communalities were extracted aimed at identifying factors to be retained. Studies state that communality below 0.3 suggests the measured item does not fit well with the others in the component. For this reason, SMO10 (0.234) was deleted. Communality of 0.5 indicates 50% of variance related to the item is in common and recommended. However, 0.45 is classified as fair, hence the decision to retain the remaining items is also supported by literature and theory (Comrey and Lee, 1992; Tabachnick and Fidell 2007; Hadi et al., 2016).

The interrelationship between the variables was identified. The retained items explain only the degree of variance. Hair et al. (1998) assert that, as the rule of thumb, 0.45 (fair) communality requires a minimum sample size of 150 cases for significance. The sample size for this study was 289, hence recommended for the factors analysis.

Table 10.17: Communalities Extracted (SMO)

SMO1 Reduced project cost	1.000	0.535
SMO2 Reduced project time	1.000	0.636
SMO3 Improved project quality	1.000	0.672
SMO4 Increased stakeholder satisfaction	1.000	0.578
SMO5 Improved project delivery	1.000	0.593
SMO6 Early identification of stakeholders reduced conflicts	1.000	0.925
SMO7 Improved stakeholder collaborations	1.000	0.594
SMO8 Excellent communication (engaging stakeholder properly, frequently and openly)	1.000	0.490
SMO9 Reduced project conflicts	1.000	0.480
SMO10 Continuous key stakeholders support	1.000	0.234
SMO11 Promotion of good relationship and trust	1.000	0.551
SMO12 Well considered external environment factors (economy, political, socio-cultural, legal, ethics)	1.000	0.708
SMO13 Increased profit for stakeholders	1.000	0.642
SMO14 Increased project socio-economic benefit/value	1.000	0.925

Based on the initial tests on reliability, adequacy, variance and the appropriateness of the data from the field survey and the decision to retain 13 SMO items, a principal component analysis (PCA) was carried out (Tabachnick and Fidell, 2007). An exploratory approach using different numbers of factors was adopted. By the following convention, Kaiser's criteria and scree test were performed with eigenvalue set at 1.0 and three components extracted. The correlation matrix was only positive definite with the elimination of SMO14 (table 10.18). The three factors were identified as SMO Factor 1, 2 and 3, respectively.

10.3.3.3 Factor Rotation

As a convention, varimax rotation aimed at robust result yielding technically components was employed and the findings presented (See Table 10.16). From Table 10.18, the first three components with eigenvalue > 1.0 are extracted. These unique component factors are confirmed by the component matrix (PCA). The Varimax rotation minimized the number of variables with high loadings on each factor (Pallant, 2013). Again, by convention, the three components extracted should account for more than 50% of the total variance (Field, 2009; Rachmawati et al., 2017). The total variance of component 1 (39.88%), 2 (12.78%) and 3 (8.49 %) sums up as 61.16% above the 50% criterion. Thus component 1 accounts for 39.88% of SM success output, component 2 for 12.78% and the last component, for 8.49% as a result of the influence of six latent constructs on SM success.

Table 10.18: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cum. %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.584	39.887	39.887	5.584	39.887	39.887	3.967	28.338	28.338
2	1.789	12.779	52.666	1.789	12.779	52.666	3.076	21.973	50.310
3	1.189	8.491	61.158	1.189	8.491	61.158	1.519	10.847	61.158
4	0.987	7.051	68.209						
5	0.787	5.624	73.833						
6	0.686	4.901	78.734						
7	0.625	4.462	83.195						
8	0.509	3.635	86.830						
9	0.477	3.406	90.236						
10	0.429	3.062	93.298						
11	0.380	2.715	96.013						
12	0.288	2.054	98.067						
13	0.271	1.933	100.000						
14	-6.82E-17	-4.871E-16	100.000						

Extraction Method: Principal Component Analysis.

This study examined the unique factors emanating out of the rotation. Firstly, it can be deduced (See Table 10.19) that the principal component 1 with distinct factor represented as SMO Factor1 has seven measurement indicators. These are 'improved project quality', 'reduced project time', 'increased stakeholder satisfaction', 'improved project delivery', 'improved stakeholder collaborations', 'reduced project cost' and 'reduced project conflicts'. From the Delphi study findings and the postulated model (Chapter 9), SMO Factor1 represents project performance, and stakeholder needs achievement. Furthermore, it implies that construction project performance and needs achievement in the public sector are dependent on SM success.

Table 10.19: Component Matrix (Principal Component Analysis)

Code	Rotated Variable	Components		
		1	2	3
SMO3	Improved project quality	**0.807**		
SMO2	Reduced project time	**0.782**		
SMO4	Increased stakeholder satisfaction	**0.739**		
SMO5	Improved project delivery	**0.733**		
SMO7	Improved stakeholder collaborations	**0.696**		
SMO1	Reduced project cost	**0.656**		
SMO9	Reduced project conflicts	**0.570**		
SMO6	Early identification of stakeholders, reduced conflicts		**0.949**	
SMO14	Increased project socio-economic benefit/value		**0.949**	
SMO12	Well considered external environment factors (economy, political, socio-cultural, legal, ethics)		**0.716**	
SMO8	Excellent communication (engaging stakeholder properly, frequently and openly)		**0.637**	
SMO13	Increased profit for stakeholders		0.062	**0.786**
SMO11	Promotion of good relationship and trust			**0.639**
SMO10	Continuous key stakeholders support			**0.482**

10.4 Structural Equation Modelling

This study aimed at a robust analytical tool to help achieve the research goal. Statistical procedures for analysis such as ANOVA and MANOVA could have been used but the study required an analytical tool that allows variables with more than an indicator and measurement errors. Most path models consider each variable as having one indicator and variable measurement without error (Bentler 2005, Kline, 2010). Structural Equation Modeling, SEM was chosen as the most appropriate and robust statistical analysis tool for the postulated model for the following reasons.

Firstly, SEM offers path analysis and measurement models as dominant approaches for testing postulated models (Kline, 2010; Kwofie, 2015). Furthermore, SEM was suitable for taking a confirmatory approach to the analysis of structural theory having explored variables and factors using the Delphi technique (Bentler, 1988: Byrne, 2013). SEM displays conditions best demonstrating causality (Aigbavboa, 2013) and has been the dominant analytical approach (Hair et al., 2013; Kline, 2010; Field 2009). Also, SEM use explains the degree of support for the hypotheses, unexpected findings and related to theory and a previous study (Kline, 2015).

Secondly, Byrne (2013) asserts that SEM has two crucial aspects: (1) representing causal processes under study by a series of structural equations, and (2) the structural relations can be modelled pictorially for a clearer understanding of the theory under study. Furthermore,

- SEM takes a confirmatory approach to data analysis by specifying the relationships among variables a priori while other multivariate techniques are just descriptive;
- SEM offers precise estimates of error variance parameters. However, the multivariate techniques are not capable of either measuring or correcting for measurement error;
- while SEM procedures include both unobserved (i.e. latent) and observed variables, the others are based on observed measurements only
- SEM is capable of modelling multivariate relations and estimating direct and indirect effects of variables under study (Khine, 2013).

The decision to use SEM was further motivated by association, isolation and directionality as conditions for causality (Hoyle, 1995: Bentler, 2005; Aigbavboa, 2013). SEM was adopted being a causal inference method meeting these conditions. The research analysed a set of causal hypotheses based on theory, questions about causal relationships among variables and which best fit SEM input (Pearl, 2012; Kline 2015). The study on SM success had a complex model and required a robust analytical tool dealing with theoretical issues. Thus, the ability to analyse both observed and latent variables distinguishes SEM from the other standard statistical regression techniques.

10.4.1 Choosing the Appropriate Structural Equation Modelling (SEM)

A covariance-based SEM (CB-SEM) AMOS was chosen for this study. Research suggests the use of AMOS, LISREL for analysis is aimed at confirming the data as fitting the model. Also, it is normally distributed data with constructs having at least three items and a having good sample size (Tabachnick and Fidell 2007). The field study aimed at confirming variables, factors identified and the postulated model. Thus, this thesis uses SEM with IBM SPSS AMOS 22 and SPSS 16 in evaluating the measurement model adequacy and structural model goodness-of-fit. Thus the critical success and barrier factors to SMS and SMO in the Ghanaian construction industry public sector were evaluated.

10.4.2 Structural Equation Modelling Analytic Strategy

The adopted SEM aims at testing the hypothesized stakeholder management (SM) success model for the public-sector construction projects in Ghana. As a statistical model, it provides an efficient means of describing the possible causal structure of a set of observed variables (Byrne, 2010). To achieve that, research asserts that a sequence of analytical strategies is followed (Hair et al., 2013). Five steps are outlined as model specification, model identification, parameter estimation, model fit, and model re-specification (Bollen & Long, 1993; Khine, 2013). Other studies also assert model specification, model identification, data collection, model estimation, evaluation (hypothesis testing) and modification (Bentler, 2005; Kline, 2010).

While the model specification is based on theory and empirical studies, it must be explicit in independent and dependent variables, relationships and possibly presented pictorially. Also, SEM application entails a measurement model and a structured model. According to Khine (2013), a measurement model indicates how latent variables are related to indicator variables and their operationalization. Similarly, a structured model relates constructs to another, representing theory and specifying relationship among constructs (Khine, 2013). Kline (2010) also asserts that a factor model can treat latent a construct relationship with another as a sub-model, hence decomposing the main model underestimation.

Following the acceptance of the two models, the process of analysis was considered. Studies suggest that SEM application involves stages. Mueller and Hancock (2008) assert four stages of initial conceptualization of model, parameter identification and estimation, data-model fit assessment and potential model modification. Some literature states five stages by separating identification and estimation (Hair et al., 2005: Khine, 2013).

However, Bentler (2005) and Kline (2010) state a two-stage approach as analyzing the measurement model and the constructs to be followed by the complete structural equation model for a fitting model. The two-stage approach was adopted as it entails all the other stages and by convention used for similar research in Ghanaian construction industry (Kwofie, 2015). The adoption of the two-stage approach ensures that assessment of the fit of the SEM structural model is independent of the assessment of the fit of the indicator variables to the latent constructs (measurement) model (Khine, 2013).

Furthermore, many scholars advise the use of CFA in assessing the measurement model. Mueller and Hancock (2008) mention four tests but assert that CFA considers the causal relationship among latent constructs and their measured variables. Khine (2013) opines that CFA is most often used to test measurement models as latent variables are rightly defined by the relationship strength of the observed variables. The first stage, therefore, adopted CFA test. That is further supported by the fact that the data is based on theory and the postulated model.

Firstly, a confirmatory factor analysis (CFA) was conducted to assess the measurement equivalency of the proposed latent constructs and the SM success variables identified from the Delphi survey and hypothesized model. It established the relationship between the measured items and the constructs. Also, determined were the internal consistency and reliability of each construct. Secondly, the postulated structural model was tested for fitness. The structural model had defined the relationship between the independent variables in the model which subsequently determine the SM success as the dependent variable. By investigating the internal consistency reliability and construct validity, variables with weak relationships and component of low factor loading were eliminated. Similarly, constructs and components with one indicator were discarded as variables with high Cronbach’s alpha values and components of high factor loading were retained.

Secondly, the full SEM structural model was tested. The import was to assess the nature and extent of the relationship between the factors and their indicator variables and among the factors (Hair et al. 2006; Khine, 2013). The test assessed the direct and indirect effects and considered the relationship between one latent construct and the other and lastly, an exogenous and endogenous variable.

SEM AMOS software was used to achieve good results. Studies suggest the use of a combination of fit of statistics for examination of fit of the model (Hu and Bentler, 1999; Aigbavboa: 2013). That led to the use of SEM generated as covariance matrix from the hypothesized model and compared with that particular sample and fit of statistics used to assess the acceptability of the resulting solution.

10.4.3 Statistics on Structural Equation Modelling - Outliers and Missing Data

Studies suggest that when respondents fail to indicate an answer (missing data), it should be addressed if occurs as more than 10% of data and in a non-random pattern (Hair et al., 2006; Khine, 2013). Data analysis may be inaccurate as a result of the missing data (Pallant, 2010). That calls for the following of the procedure to rectify the data. According to Kline (2005), missing values occur as missing at random (MAR) and missing completely at random (MACR). A careful review of the data revealed one missing value SAC13 (37). Though beyond the researcher's control and below the criteria for address, it was still addressed. This study followed an approach to detect and deal with the missing value and identify outliers (Kline, 2016), though Khine (2013) posits that these are ignorable if missing data is not regular, occurred by chance and without effect on other variables. The missing data occurred at random. Also, missing data is an issue when it happens as not missing at random (NMAR), but orderly and relating to other variables (Khine, 2013).

Similarly, a careful assessment of analysis for outliers revealed the presence of some outliers. Outliers refer to extreme scores of data sets that can significantly influence an analysis and the outcome of a study (Hair et al., 2010). Case numbers with the greatest number of outliers were inspected and addressed for each latent construct. Pallant (2013) asserts that outliers can be sensitive, hence must be checked for extreme less value. Instead of deleting the outliers, the robust maximum likelihood (RML) method was used.

10.4.4 Statistics on Structural Equation Modelling - Data Distribution

Most SEM applications provide multivariate normality, a test that informs on the best suitable good-fit model. It examines first data distribution characteristics and informs the researcher on the estimation approach to adopt. Subsequently, Bentler (2005) asserts that the mean, standard deviation, skewness, kurtosis, Mardia's multivariate skewness and kurtosis provide useful information on data distribution characteristics analysis on the latent variables. The RML estimates adopted multivariate normality. That conforms to Hair et al.'s (2016) position on the importance of normality test for studies of this nature. Therefore, based on the argument stated and by convention, before the model analysis data distribution characteristics were assessed for the best estimation method to be adopted. Univariate and multivariate distributions were examined, and the results included mean, standard deviation, skewness and kurtosis.

While all univariate distributions are normal (Kline, 2005), SEM also assumes multivariate distributions as normal. That is because non-normal distributed data can suggest a model as good or bad for fit to the data (Khine, 2013). Mardia's (1974) multivariate test commonly used for the test of multivariate skewness and kurtosis coefficient data normality in SEM was employed (Khine, 2013). While normal distributions are symmetrical, non-normal distributions are not. Studies suggest 5.00< value of < 3.00 shows the non-normally distribution of data and must be rejected (DeCarlo, 1997; Bentler, 2005; Byrne, 2010). This study used skewness and kurtosis in IBM SPSS to assess whether the variables are normally distributed. Kline (2005) asserts that when the skewness index is between -3.0 to 3.0 and the Kurtosis index is between -8.0 and 8.0 then the univariate normality is accepted. The test establishes a skewness index between -1.949 to -0.882 (-3.0 to 3.0). Similarly, the kurtosis value ranges from 0.319 to 3.947 (-8.0 to 8.0) whereas the standard errors of skewness and kurtosis are 0.143 and 0.286 respectively and are within the recommended range (closer to 0). This is an indication that the data set is normally distributed (See Table10.20).

Table 10.20: Multivariate and Univariate Test of Factors

Latent Constructs	Indicator Variable	Mean ($\bar{x}$)	SD (σx)	Skewness (G1)	Kurtosis (G2)
Pre-stakeholder identification (PSI)	PSI1	4.49	.737	-1.505	2.274
	PSI2	4.49	.736	-1.639	3.366
	PSI3	4.50	.708	-1.308	1.137
	PSI9	4.26	.920	-1.084	0.444
	PSI10	4.17	.867	-0.882	0.269
Stakeholder identification	SIP1	4.58	.727	-1.949	3.947
	SIP3	4.27	.869	-1.105	0.816
	SIP4	4.42	.813	-1.219	0.553

(SIP)	SIP5	4.46	.816	-1.482	1.866
	SIP6	4.35	.890	-1.232	0.676
Stakeholder assessment (SAC)	SAC2	4.48	.712	-1.354	1.596
	SAC3	4.31	.783	-0.968	0.375
	SAC4	4.40.	.758	-1.213	1.078
	SAC5	4.18	.847	-0.905	0.444
	SAC9	4.41	.717	-0.968	0.219
	SAC11	4.27	.838	-0.927	0.253
	SAC12	4.23	.893	-1.033	0.683
	SAC13	4.25	.830	-0.868	0.023
	SAC14	4.18	.825	-0.675	0.333
	SAC15	4.12	.799	-0.503	0.502
Stakeholder engagement (SEN)	SEN1	4.52	.755	-1.723	3.253
	SEN3	4.42	.843	-1.348	1.087
	SEN7	4.12	.911	-0.798	0.094
	SEN8	4.52	.712	-1.418	1.573
Stakeholder conflict resolution (SCR)	SCR1	4.54	.754	-1.848	3.749
	SCR2	4.61	.626	-1.429	1.270
	SCR3	4.30	.771	-0.904	0.507
	SCR5	4.54	.736	-1.760	3.262
	SCR6	4.55	.639	-1.181	0.262
Implementation, monitoring and feedback	IMF1	4.52	.746	-10748	3.487
	IMF2	4.46	.702	-1.103	0.572
	IMF3	4.20	.749	-0.539	-0.401
	IMF4	4.42	.782	-1.107	0.247
	IMF5	4.15	.700	-0.280	-0.720
	IMF6	4.03	.754	-0.502	0.399
	IMF7	4.3	.713	-0.758	-0.246
	IMF8	4.49	.722	-1.155	-0.291
	IMF9	4.50	.667	-1.053	0.212

10.4.5 Statistics on Structural Equation Modelling - Identifiability of Model

One of the concerns in adopting SEM application is whether a unique value for each free parameter can be found from the observed data (Khein, 2013). Consequently, SEM requires identifiability of structural model. Scholars in the field of SEM advise on the identifiability of structural model as a criterion a researcher must meet (Kline, 2010; Hair et al., 2013). Byrne (2010) states that model identification focuses on whether a unique set of parameters is consistent with the data or not. Similarly, model identification allows for variables' inclusion and exclusion aimed at offering best model results and test of theory (Lei and Wu, 2008; Kline, 2010). Identification is a factor of the model selected and the specifications of fixed, constrained and free parameters and not the data (Khein, 2013). Hence it is the researcher's responsibility to identify the model carefully.

Byrne (2010) posits that a model is considered identified if a unique solution for the values of the structural parameters is found. That is supported by Kline (2010), and Kaplan (2009) advises that a model is identified if it is theoretically possible to derive a unique estimate for each contained parameter. If a model cannot be identified then the parameters are subject to arbitrariness with different parameter values defining the same model (Byrne, 2010). As a result, there are three types of model identification, namely 'justidentified', 'overidentified' or 'underidentified' (Kline, 2010; Byrne, 2013; Khine, 2013).

According to Khine (2013), a model is 'justidentified' if parameters are determined with just enough information, and 'underidentified' if one or more parameters cannot be determined owing to inadequate information. However, a model is 'overidentified' if there is more than enough information and way of parameter estimation. Similarly, Byrne (2010) states that a 'justidentified' model has a one-to-one correspondence between data and the structural parameters whereas 'underidentified' has parameters estimated exceeding the number of variances and covariance. However, an overidentified model has estimable parameters as less than variances and covariance of the observed variables in data (Byrne, 2010).

Scholars assert that a 'justidentified' model can yield a unique solution but is not ideal as there is no degree of freedom and it cannot be rejected (Byrne, 2010; Khine, 2013). It is crucial to have the sum of variances and covariances to be more than estimable parameters. That allows for a test of relationships among variables in the postulated model. It is advised that a researcher ensures that a model is overidentified as SEM aims at postulating an 'overidentified' model (Byrne, 2010). According to (Byrne 2010), an 'overidentified' model with positive degrees of freedom has a determinate solution of parameter estimates and allows for model rejection, rendering it of scientific importance.

The assertions on model estimation are supported by Kline (2010) and Hair et al. (2013). They describe a justidentified model as impossible to yield a solution. This study therefore aimed at an overidentified model with a positive degree of freedom, and the sum of variances and covariances exceeding estimable parameters (Bentler, 2005, Lei and Wu, 2008). By adopting SEM, the postulated model is graphically presented, showing the relationship between the six independent and the dependent variables (Chapter 9). Specifying ‘overidentified’ model is essential but may require imposition on some parameters as well (Byrne, 2010). A preliminary test to assess the parameters using the CFA analysis test, AMOS SEM revealed the model as overidentified with a positive degree of freedom.

10.4.6 Evaluating Model Fit

Finally, as explained in the SEM section (chapter 7), a model fit evaluation was undertaken using six recommended fit indices criteria. The goal was to compare the predicted model covariance with the sample covariance matrix of the data and assess how the model fits (Khine, 2013). Studies suggest the need for authors to indicate the fit indices (Hoyle, 1995, Martens, 2005) and that fit indices may be considered as absolute fit, model comparison (comparative fit) and parsimonious fit (Mueller and Hancock, 2004; Khine, 2013). The indices criteria used are the absolute fit indices chi-square (x^2), normed chi-square (x^2/df), the goodness-of-fit index (GFI), Comparative-Fit Index (CFI), Root Mean Square Error of Approximation (RMSEA) and root mean square residual indices. The indices are presented (chapter 7) and in the next sections. Martens (2005) advises that model modification generally produces a better fitting model.

10.5 Confirmatory Factor Analysis of Latent Constructs

As stated, a CFA test was conducted to re-examine the six independent factors of pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback and the dependent factor SM success suitability measure for the model. CFA is a statistical method adopted to validate the factor structure of the indicator variables in the SEM measurement model (Lei and Wu, 2008; Kline, 2010). Also, Byrne (2010) advises that CFA must be conducted for each of the latent variables and by assessing the coefficients, the factor structure of each construct was re-affirmed. That agrees with the advice of Byrne (2010).

Similarly, studies also suggest a careful look at the sample size in SEM as determined by model misspecification, model size, departure from normality and estimation procedure (Kline, 2005: Khein, 2013). This study had a sample size of 289 for the CFA, and a ratio of 38: 289. Research suggests a 200-sample size as adequate for CFA or 1:10 (Kline, 2005:15; Aigbavboa, 2013) and at least a 1: 5 ratios of the parameter to participants (Comfrey and Lee, 1992).

Following the approval of the sample size for the CFA, the study considered the criteria for the determination of the goodness-of-fit of the model. First, the fit of the model must be good and the factor loading established as an indication that the indicators underlying the factors and the constructs are good (Aigbavboa, 2013). Furthermore, various criteria need to be considered as against one criterion for the reliability and validity of the structural model (McDonald and Ho, 2002). Hence this thesis reflects on some criteria as recommended by scholars and by convention for SEM application.

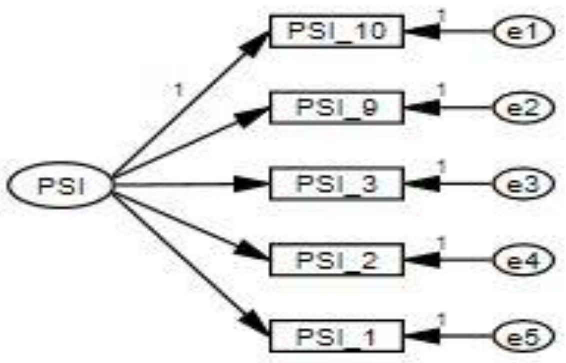
10.5.1 Fit Statistics on Measurement Models - CFA

The relationship among the SSM constructs of 'pre-stakeholder identification', 'stakeholder identification', 'assessment', 'engagement', 'conflict resolution', 'implementation, monitoring, feedback' and SM success was determined using IBM SPSS AMOS 22.0. The two-step SEM approach was used with the researcher first determining the measurement model and then the structural model. Likewise, unstandardized estimates are examined for significance (Khine, 2013).

10.5.1.1 Measurement Model - Pre-stakeholder Identification (PSI)

The PSI unidimensional model from the CFA is presented by analyzing 289 cases without a missing value. Firstly, PSI had ten measurement indicators in the preliminary CFA test, but PSI4, PSI5, PSI6, PSI7 and PSI8 variables were rejected. That is because they did not meet the criteria to be retained. The variables had low communality (<0.45), cross loaded, poor factor loading (<0.500) after rotation belonged to PSI Factor2 with a Cronbach's alpha below 0.7. Subsequently, the factor analysis has retained PSI Factor1 and its indicators (PSI1, PS12, PSI3, PSI9 and PSI10). Based on the criteria for construct and convergent validity of SEM measurement model, a five -indicator PSI measurement model is presented (See Figure 10.1). The unstandardized residual covariance range was -.011 and .007 which was around 0.0 (Byne, 2006). The normed chi-square was also above 5.0.

Figure 10.1: PSI Measurement Model



The CFA further indicates that the PSI model has five dependents, six independent variables and ten free parameters. The five dependent measured indicators are ‘having adequate project feasibility study’ (PSI1), ‘having clear stated project objectives’ (PSI2), ‘having very detailed design’ (PSI3), ‘employing the design and build method (PSI9) and ‘adopting the management contract (PSI10). The regression weights were PSI10(0.631), PS9(0.674), PSI3(0.609), PSI2(0.700) and PSI1(0.823). The model was assessed for good fit and is illustrated as in the following table. Byrne (2010) advises a careful check of parameter estimates, appropriateness of standard errors and then statistical significance.

Table 10.21: Model Fit Statistics

Model	df	x^2/df	RMR	GFI	CFI	TLI	RMSEA
PSI hypothesised	66.261	13.252	.050	.912	.871	.756	.206
PSI modified	2	.326	.004	.999	1.000	1.000	.000

The initial model assessment shows that only RMR and GFI were acceptable. However, the other criteria revealed the tendency to meet the good fit threshold on modification. Upon checking the parameter estimates and the modification indices, only error covariances made sense. Thus, following the advice of scholars, the model was modified and model fit criteria improved (x^2/df), hence the construct was accepted for meeting good fit criteria without deleting indicator variables (Martens, 2005; Byrne, 2010; Khine, 2013).

10.5.1.2 Measurement Model - Stakeholder Identification (SIP)

Similarly, 289 cases were evaluated for SIP latent construct using the CFA test. It is observed that while the SIP preliminary had eight measured items, three observed items were discarded. ‘Identifying stakeholders using an expert staff’ as SPI2 (0.100) was deleted for having a low factor loading. SIP Factor2 (SIP7, SIP8) representing ‘preparing a new register of stakeholders’ and ‘using register provided by professional bodies’ were rejected for having Cronbach’s alpha of 0.483. Thus SIP1, SIP3, SIP4, SIP5 and SIP6 were retained. Likewise, PSI, a five-indicator measurement model is illustrated for SIP construct.

The CFA analysis further revealed that the SIP measurement model has five dependents, six independent variables and ten free parameters. That implies that the construct can be analysed in the SM success model. SIP5 (providing stakeholders with education), SIP4 (identifying stakeholder at every stage), SIP6 (repeating stakeholders’ education at every stage), SIP3 (reviewing an existing stakeholder register), SIP1 (identifying stakeholders at project inception stage) are the observed variables in the SM measurement model.

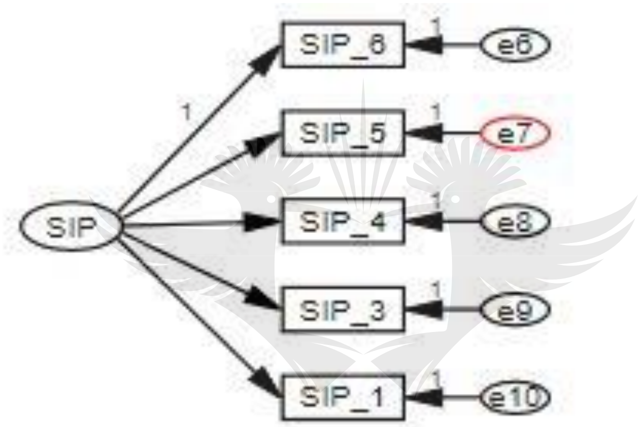


Figure 10.2: SIP Measurement Model

Similarly, the unidimensional hypothesized SIP model was assessed for good fit. The standardized parameter estimates indicated SIP6(.785), SIP5(.863), SIP4(.768), SIP3(.708), and SIP1(.489) had good factor loadings, except SIP1 which was below .500. A further check on the good fit criteria as indicated in the following table shows the model meets all the adequate fit criteria. The model did not require modification by deleting a variable or covariance of the error measurements. The residual covariance for unstandardised range was -.012 and .029 centred around 0.00 (Byrne, 2006) with the results illustrated below.

Model	df	x^2/df	RMR	GFI	CFI	TLI	RMSEA
SIP hypothesised	5	1.08	.011	.993	.999	.999	.017

10.5.1.3 Measurement Model - Stakeholder Assessments (SAC)

Furthermore, this study examined the SAC latent construct using the CFA approach. A total of 15 observed variables derived from the Delphi study and presented for the field survey were explored. During rotation, three components emanated in line with the subfactors used for the Delphi study. However, 'stakeholder has the power to influence project' and 'has political power' representing SAC7and SAC6 were removed for cross loading. Similarly, SAC Factor3 was rejected for having low-value internal consistency (0.492). Thus stakeholder assessment based on 'stakeholder having a legitimate demand' (SAC8) and 'stakeholder needs and demand' (SAC10) failed to make the measurement model stage.

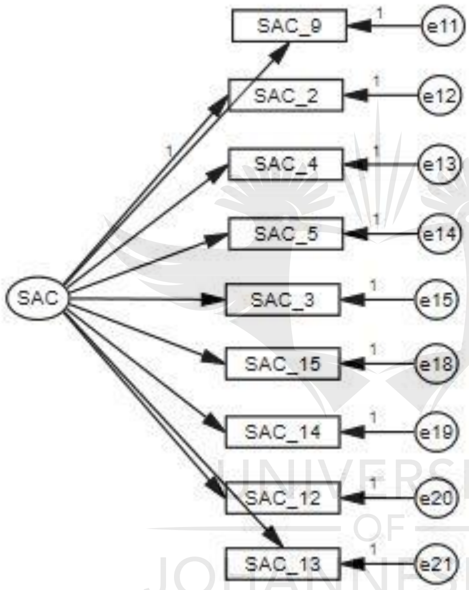


Figure 10.3: SAC Measurement Model

As illustrated in the model (Figure 10.3), the SAC analysis model is represented by a nine-manifest variable indicator. SAC Factor1 and SAC Factor2 representing stakeholder analysis, stakeholder power and non-power attribute components evolved. The components entail 'stakeholder position mapping' (SAC13), 'stakeholder map/template' (SAC12), 'power/Interest matrix' (SAC14), 'power/influence matrix' (SAC15), and 'stakeholder is dynamic and salient' (SAC11). Also included are 'stakeholder affects/has a formal contract' (SAC1), 'stakeholder has some project responsibility' (SAC3), 'stakeholder contributes to the project' (SAC5), 'stakeholder is committed to the project' (SAC9), 'stakeholder has a key role in the project' (SAC2), and 'stakeholder possesses power, urgency, legitimacy' (SAC9).

The SAC measurement model has nine dependents, ten independent variables and 18 free parameters. The latent construct, therefore, is considered overidentified and fit for the SEM measurement model analysis. However, a careful study of the standardized regression weight indicates poor factor loading for one component with indicators measuring stakeholder classification and prioritization. A theoretical review of stakeholder management places considerable emphasis on stakeholder assessment in answering the question of who or what counts in meeting stakeholder needs and satisfaction (Mitchel et al., 1997). The Delphi study, the literature review and previous empirical studies have confirmed these indicator variables. The good fit results illustrated below were not satisfactory as all factors failed to meet the good fit benchmark. There were indications of achieving good fit upon modification of the model. The outlined steps for modification were followed (Byrne, 2010). Inspection of covariances revealed greater values for error measurements as e15-e21(36.770), e13-14(21.019), e12-13(22.546), e11-e14(21.949) and e18-e19(38.074). The modified unidimensional model was reassessed for Goodness-of-fit and illustrated below. The unstandardized residual covariance range was -.034 and .141 which was slightly above the .10 recommended (Byrne, 2010). Similarly, the normed square was greater than 5.

Model	df	x^2/df	RMR	GFI	CFI	TLI	RMSEA
SAC hypothesised	27	7.487	.060	.884	.842	.790	.150
SAC modified	21	3.693	.041	.942	.949	.950	.097

Covariances of error measurement were carried out as suggested. Following that, there was a critical study of the model fit outcome. The outcome indicated that the model met the good fit criteria with only CFI (949) < (0.950). Good fit, however, met the acceptable fit criterion as illustrated in the above table. The construct was retained for the measurement model.

10.5.1.4 Measurement Model - Stakeholder Engagement (SEN)

Likewise, the SEN unidimensional model from the CFA is illustrated by analyzing 289 valid cases. It is observed that SEN had eight observed variables in the preliminary CFA test. These were the outcome of both the Delphi study and the EFA carried out showing good internal consistency and reliability. However, during the CFA test, two components emerged, and SEN Factor2 with a very low Cronbach's alpha of 0.336 below the 0.7 criterion was deleted. 'Organizing stakeholder workshops', 'conferences' and 'communication using telephone' indicators were rejected though theory suggests their positive influence.

SEN Factor1 has SEN2 'using open communication', SEN3 'using emails for correspondence', SEN7 'using social platforms', SEN8 'using planned communication and SEN1 'adopting proactive communication' with Cronbach's alpha 0.801 which were retained for the unidimensional model. Based on the criteria adopted for convergent validity for SEM measurement model, a five-indicator SEN measurement model is drawn (See Figure 10.4). The model consists of five dependents, six independent variables and ten free parameters. It is therefore overidentified and qualifies for the SM success measurement model.

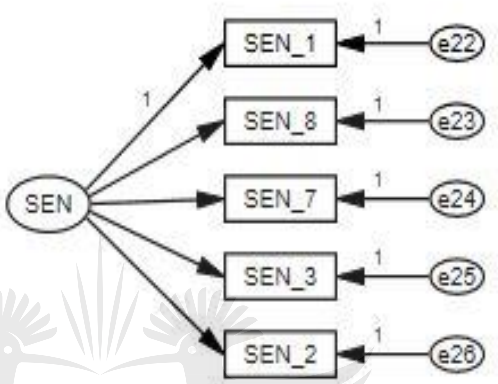


Figure 10.4: SEN Measurement Model

Similarly, a careful examination of the factor loading from the parameter estimates by the author reveals SEN1(.583), SEN8(.626), SEN7(7.624), SEN3(.740) and SEN2(.785). These factor loadings were above the 0.500 threshold recommendation. Likewise, the good fit indices assessed were df(5), x^2/df(4.778), RMR(.028), GFI(.967), CFI(.956), TLI(.912), and RMSEA(.115). Similarly, the unstandardized residual ranged between -.067 and .056 which is acceptable. The values indicate a good fit unidimensional model.

10.5.1.5 Measurement Model - Conflict Resolution (SCR)

The SCR unidimensional model was also evaluated using 289 valid responses. The initially observed items for this latent construct were eight (8). Similarly, the eight (8) were the outcome of the Delphi survey and revealed good internal consistency during the EFA test and the CFA test for reliability (KMO-0.809). However, SCR4 and SCR5 had low factor loadings of .404 and .426 respectively. Additionally, SCR Factor 2 of 'ensuring transparency between stakeholders' (SCR7), 'ensuring that conflict resolution process is transparent' (SCR8) and 'stakeholders being willing to resolve conflict' (SCR4) had a low internal consistency of .582 hence were discarded.

Therefore, the unidimensional model consists of 'having the ability to predetermine possible conflicts' (SCR1), 'having the ability to resolve conflicts' (SCR2) and 'embarking on early conflict resolution' (SCR5). Also included are 'ensuring fair play during resolution' (SCR6) and 'having the capacity to determine conflict type' (SCR3). With items deleted, the Cronbach's alpha of SCR improved to .808 and hence was retained. It was further observed that the SCR model has five independent, six dependents and ten free parameters, hence 'overidentified' (See Figure 10.5).

Furthermore, the model parameter estimates and good fit indices were critically examined. The SEM text output revealed factor loadings of SCR3(.541), SCR6(.707), SCR5(.734), SCR2(.814), SCR1(.854). Likewise, the good fit indices df(5), x^2/df(17.275), GFI(.891), CFI(.880), TLI(.761) and RMSEA (.238) were also examined. However, the model fit indices were not satisfactory, hence the need to consider the modification indices (MI).

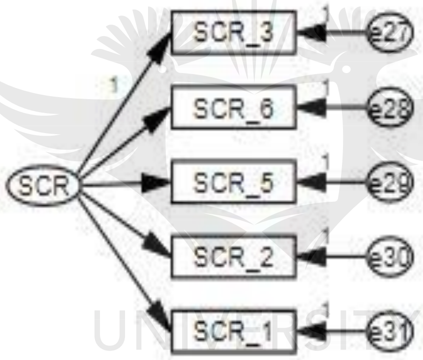


Figure 10.5: SCR Measurement Model

As per the advice of scholars, the error measurements were examined after finding the factor loadings as good. The MI suggested the covariance of e28-29(69.277) and e30-e31(13.876). The resulting model fit indices suggested a very good fit model without deleting any indicator variables. The model indices revealed the RMR(.007), GFI(.994), CFI(.998), TLI(.993) and RMSEA(.039) as meeting the adequate fit criteria. Likewise, the unstandardized residual covariances were -.015 to .018. Therefore, the unidimensional SCR postulated model was accepted.

10.5.1.6 Measurement Model - Implementation, Monitoring and Feedback (IMF)

Lastly, the unidimensional model for the last CSF construct, IMF, was analysed. The researcher evaluated 289 valid responses using the CFA method. The manifest variables for the IMF construct were nine from the EFA conducted. All the nine observed variables revealed high internal consistency (Cronbach's alpha 0.834) and reliability (KMO 0.840) during the CFA test conducted. Also, the two 'component' IMF Factor1 and IMF Factor2 representing implementation, monitoring and documentation factors had good alpha values of .792 and .713 respectively.

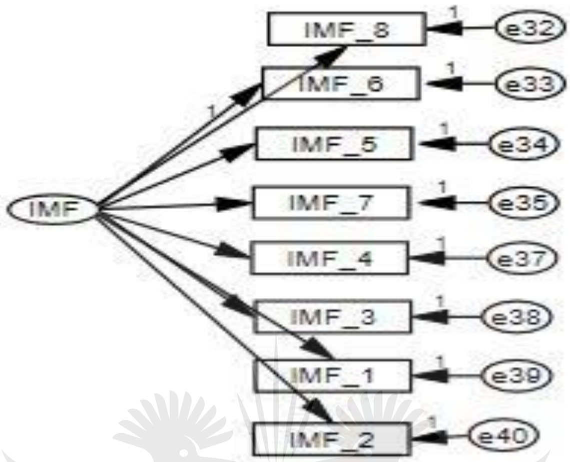


Figure 10.6: IMF Measurement Model

Drawing from Figure 10.6, the measurement model contains '*implementing fully, project feasibility brief*' (IMF1), '*implementing fully'*(IMF2), '*stakeholder needs plan'*, '*full implementation of stakeholder management objectives*' (IMF3) and '*implementation of stakeholder communication plan*'(IMF4). Also, are '*monitoring project objectives achievement*' (IMF5), '*monitoring stage activity and effectiveness*' (IMF6), '*monitoring stakeholders need achievement'*(IMF7), *'documenting the entire stakeholder process'* (IMF8) and '*implementing decisions on feedback'*(IMF9). The IMF unidimensional model has eight independent, nine dependent and 16 free parameters. It is considered as an 'overidentified' model (See Figure 10.6).

Following the model identification, the parameter estimates were examined as follows: IMF8(.621), IMF6(.341), IMF5(.507), IMF7(.620), IMF4(.705), IMF3(.455), IMF1(.839), and IMF2(.779). The factor loadings suggested the deletion of IMF6 and 1MF3 owing to low factor loadings. Since literature supports retaining them, they were subsequently evaluated in and out of the measurement model for assessment of impact. Also, the model fit indices did not meet good fit criteria; the MI suggested the covariance of e34-e35(42,709) and e32-e35(13.950) as the values were high. The modified model had df(7), x^2/df(2.935), GFI(.977), CFI(.980), TLI(.957) and RMSEA(.082) fit indices considered as good fit, hence the IMF construct was retained in the postulated SSM model. Also, the unstandardized residual covariance range was -.028 and .045 within the -.100 and .100 recommended. The approach is supported by studies (Martens, 2005; Byrne 2010, Khine, 2013).

10.5.2 Measurement Model for Stakeholder Management Success - CFA Test

The two measurement models evaluated for influence on SMS are CSFs and the CBF construct models. Both models together determine the project stakeholders' influence on SMS and address the research objectives. According to Ko (2015) and Hair et al. (1998), the approach adopted has the overall effect of minimizing measurement error of variables on the output precision.

The CSFs SMS measurement model (See Figure 10.7) initially entailed 34 indicators, 34 measurement errors and 6 latent constructs (74 overall). These are represented as PSI (pre-stakeholder identification), PSI1, PSI2, PSI3, PSI9, PSI10, e1, e2, e3, e4, e5, SIP (identification), SIP1, SIP3, SIP4, SIP5, SIP6, e6, e7, e8, e9, e10, SAC (assessment), SAC3, SAC4, SAC9, SAC11, SAC12, SAC14, SAC15, e11, e13, e15, e18, e19, e20, e21, SEN (engagement), SEN1, SEN2, SEN3, SEN7, SEN8, e22, e23, e24, e25, e26, SCR (conflict resolution), SCR1, SCR2, SCR3, SCR5, SCR6, IMF (implementation, monitoring, feedback) IMF1, IMF2, IMF3, IMF4, IMF5, IMF6, IMF7, IMF8, e32, e34, e35, e37, e39 and e40.

Table 10.22: Goodness-of-fit Indices of the Initial Measurement Model of SMS (CSFs)

Goodness-of-Fit Indices	Criteria	Value
x^2	N/A	1481.33
Degree of freedom (df)	N/A	512
x^2/df	<3	2.893
GFI	>0.9	.759
CFI	>0.9	.833
RMSEA	<0.08	.833
RMR	<0.05	.046
TLI	>0.9	.817

The initial assessment of the parameter estimates indicate PSI10(.621) PSI9(.680) PSI3(.589) PSI2(.695) PSI1(.839) SIP6(.770), SIP5(.835) SIP4(.783), SIP3(.716), SIP1(.541), SAC9(.504), SAC4(.434), SAC5(.293), SAC3(.418), SAC15(.644), SAC14(.742), SAC12(.903), SAC13(.922), SEN1(.638) SEN8(.656), SEN7(.621), SEN3(.710), SEN2(.756), SCR3(.547), SCR6(.714), SCR5(.735), SCR2(.790), SCR1(.865), IMF8(.626), IMF5(.484), IMF7(.598), IMF4(.729), IMF1(.861) and IMF2(.747). All the variables had factor loadings of above .500, except SAC5 and SAC3. The model fit indices were first examined (See Table 10.22).

The fit-indices as revealed by the measurement model are indicated (Martens, 2005). As observed (See Table 10.22), the goodness-of-fit statistics of x^2/df (2.893), GFI (0.759), CFI (0.833) were not satisfactory and were yet to achieve the desired criteria for goodness-of-fit. As such they were considered as non-significant (Khine, 2013). However, the RMR (0.045) value achieved the thresholds, suggesting the need for improvement. Figure 10.7 shows the model while the goodness-of-fit indices are illustrated in Table 10.22.

As stated, this study proceeded to modify the postulated measurement model. Martens (2005) informs that model modification results in a better fitting model. Following that, Khine, (2013) posits three steps to be followed. The first was to adjust the covariance after the researcher had examined the regression coefficients and the specified covariance. The research proceeded to modify the initial measurement model as all the fit indices were not satisfactorily. Firstly, the error measurements covariance was reviewed as a first step.

This is presented as follows: PSI (e1-e2), (e2-e4), (e4-e5), SIP (e6-e7), SAC (e20-e21), (e21-e22), (e20-e11), (e15-e11), (e14-e11), (e11-e13), (e12-e19), (e12-e18), (e12-e15), (e13-e21), (e13-e20), (e14-e21), (e14-e20), (e15-e21), (e15-e20), (e18-e20), (e18-e19), (e19-e20), SEN (e26-e22), (e25-e24), (e24-e22), SCR (e31-e28), (e31-e30), (e30-e28), (e29-e28), (e28-e27) and finally IMF (e40-e39), (e39-e35), (e40-e38), (e53-e34), (e35-e33), (e33-e32) and (e35-e32).

Following the advice of Marten (2005), the hypothesized model was modified and presented as Figure 10.8. It shows the covariance of indicated measurement errors only. Subsequently the fit indices were greatly improved and are presented as Table 10.23. Drawing from Table 10.23, it is observed that x^2/df(1.178), GFI(0.915), CFI(0.987), RMSEA(0.025), TLI(0.981) and RMR(0.023) meet the criteria for satisfactorily goodness-of-fit. However, based on the theory adopted, the Delphi study and preliminary analysis, SAC2, IMF3 and IMF6 were included in the model and tested. It is observed (See Table10.23) that their inclusion makes a positive rather minimal impact. The modified measurement model (See Figure 10.8) and the calculated estimates (See Figure 10.9) are presented. All the variables were thus retained.

Table 10.23: Goodness-of-Fit Indices of Modified Measurement Model of SMS (CSFs)

Goodness-of-Fit Indices	Criteria	Value with IMF6, IMF3 and SAC2	Value
x^2	N/A	582	492.337
Degree of freedom (df)	N/A	512	418
x^2/df	<3	1.155	1.178
GFI	>0.9	.909	.915
CFI	>0.9	.987	.987
RMSEA	<0.08	.023	.025
RMR	<0.05	.023	.023
TLI	>0.9	.982	.981

Note: GFI= Goodness-of-Fit; GFI=Goodness-of-Fit; SRMR=Standardized Root Mean Residual; RMSEA= Root Mean Square Error of Approximation; CFI=Comparative Fit Index; TLI=Tucker-Lewis Index

From Table 10.9, it is noted that all the factor loadings on factor covariance are above .70. Measured indicators and their latent constructs are also above .50. This indicates that the factor loadings are good and acceptable.

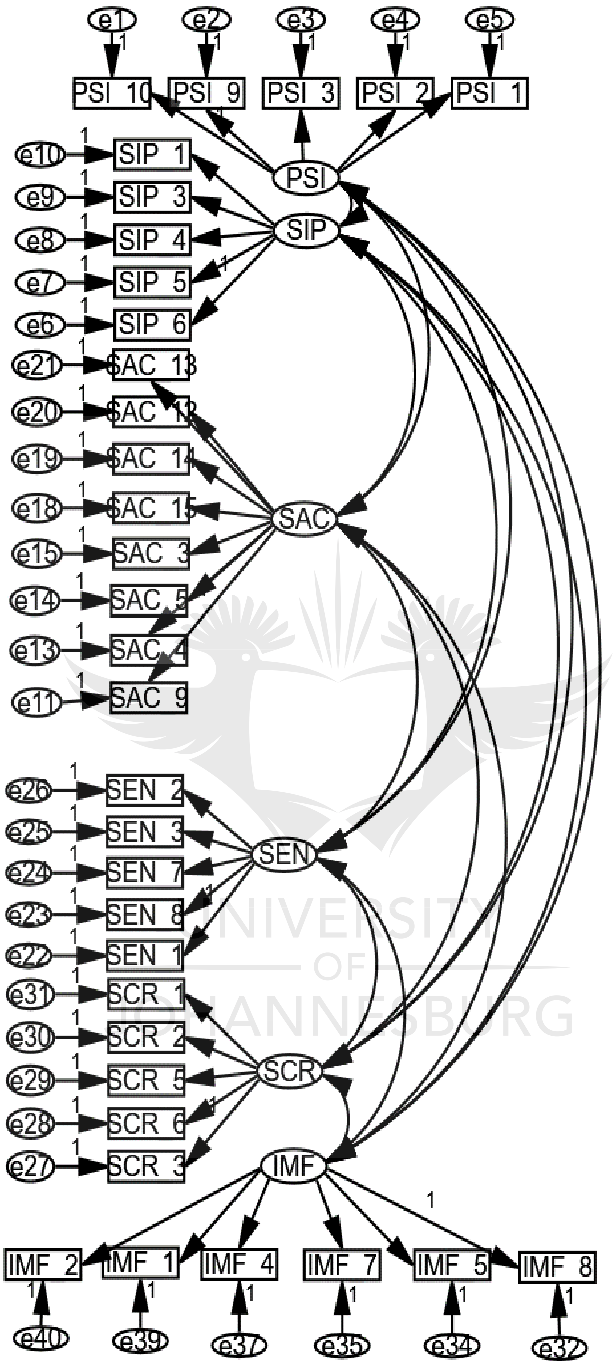


Figure 10.7: Measurement Model of Stakeholder Management Success (CSF)

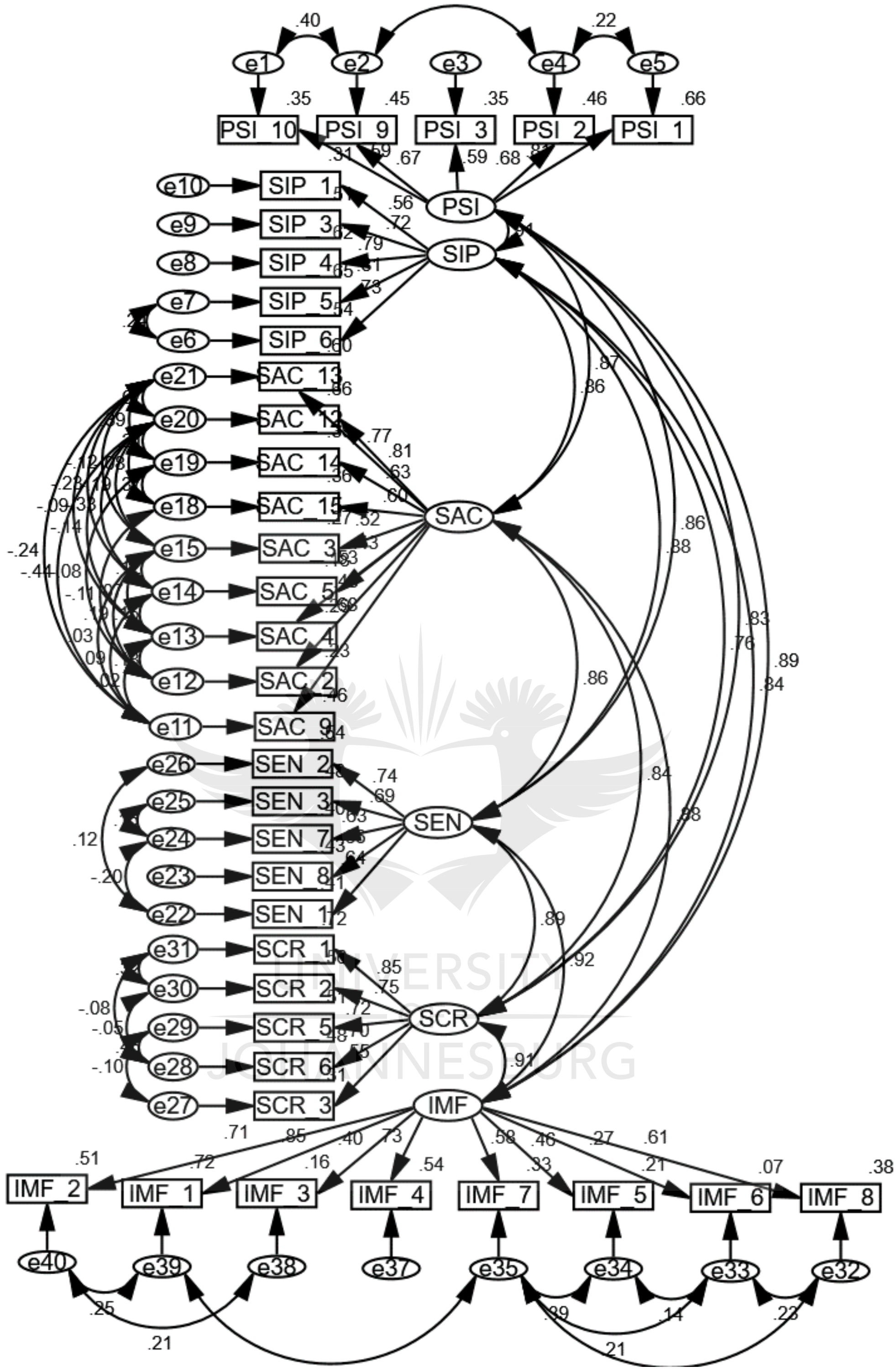


Figure 10.8: Modified Measurement Model of Stakeholder Management Success (CSF) with SAC2, IMF3 and IMF 6 Retained

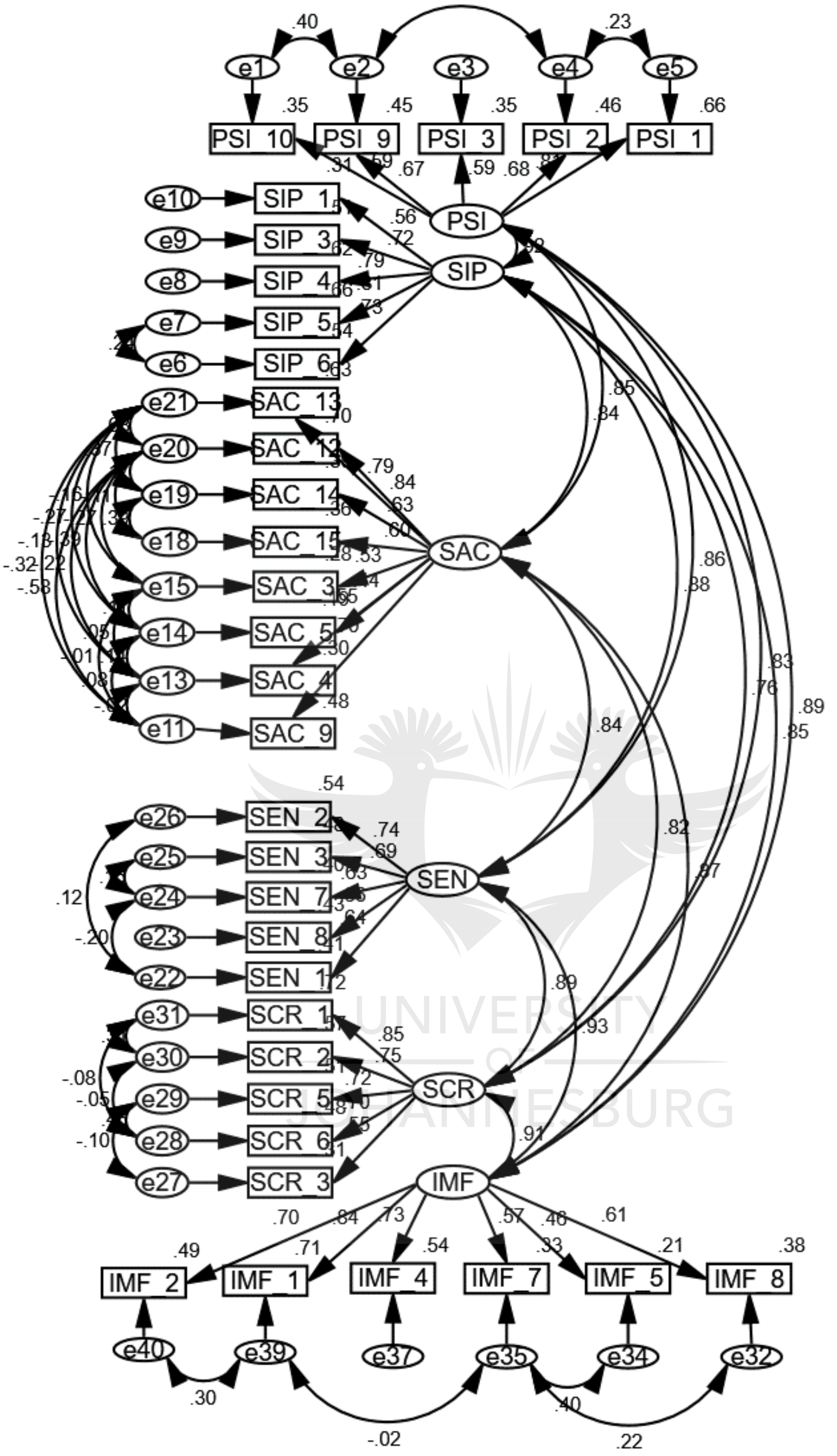


Figure 10.9: Modified Measurement Model of SMS with Standardized Estimates (CSF) without SAC2, IMF3 and IMF6

10.5.2.2 Reliability and Validity of the Critical Success Factor Measurement Model

Following the satisfactory evaluation of the measurement model for model fit, this study proceeded to evaluate the reliability and unidimensionality of each latent construct in the model. Also, the construct and content validities were assessed, although the preliminary CFA test had assessed the internal consistency of the constructs. The Cronbach's alpha test was used for measuring the internal consistency of reliability with an assumption of equal indicator loading (Hair et al., 2014). However, the use of composite reliability (CR) in SEM is known for measuring the internal consistency of reliability without assuming equal indicator loadings (Hair et al., 2014).

According to Ho (2015), composite reliability denotes the degree to which a set of heterogeneous but similar items is consistent with the latent variable they are intended to measure as well as the degree to which latent constructs can be explained by the measured items (Tseng and Tseng, 2006 Jauhar et al., 2016). This study adopts a criterion of 0.6 or greater CR as sufficient for scale reliability (Fornell and Larcker, 1981; Ho, 2015). Based on the reasons stated, the consideration of standardized loadings and measurement errors of each item by the CR test, this research adopts CR for the latent variables factors. It is observed (See Table10.23b) that the composite reliability of all the constructs are above the 0.6 thresholds with the minimum as 0.755 (PSI) and SIP (0.863) as the highest. The values also exceed the accepted 0.70 Cronbach's alpha used as a criterion for the preliminary test.

Similarly, the study further assessed the unidimensionality of the latent variables. Studies suggest that unidimensionality characterizes a set of indicators with one underlying concept in common (Hair et al., 1998; Ho, 2015). Thus, for a scale to be unidimensional, all the items on the scale must measure that particular latent variable. Fornell and Larcker (1981) posit the use of average variance extracted (AVE) to measure convergent validity. Furthermore, they suggest that AVE higher than 0.5 shows that the scale explains more than the error term but AVE less than 0.5 with a corresponding CR greater than 0.6 is satisfactory. It is illustrated in Table 10.23 that all the constructs had AVE of more than the 0.5 criterion. Hence all the constructs in the model are unidimensional with PSI (0.511) and SEN (0.638) as the maximum and minimum AVE respectively.

Table 10.23b: Reliability and Validity

Construct `	Variables measured	Parameter estimate	Composite reliability CR	Average Variance Extracted AVE
Stakeholder conflict resolution	SCR3 SCR6 SCR5 SCR2 SCR1,	.555 .696 .715 .751 .846	0.845	0.525
Pre-stakeholder identification	PSI10 PSI9 PSI3 PSI2 PSI1	.592 .669 .592 .676 .814	0.755	0.511
Stakeholder identification	SIP6 SIP5 SIP4 SIP3 SIP1	.734 .809 .787 .716 .557	0.863	0.560
Stakeholder assessment	SAC9 SAC2 SAC4 SAC5 SAC3 SAC15 SAC14 SAC12 SAC13	.677 .479 .534 .427 .520 .596 .627 .811 .773	0.840	0.580
Stakeholder engagement	SEN1 SEN8 SEN7 SEN3 SEN2	.639 .658 .630 .692 .736	0.795	0.638
IMF	IMF8 IMF6 IMF5 IMF7 IMF4 IMF3 IMF1 IMF2	.614 .274 .457 .578 .735 .399 .850 .714	0.814	0.575

Likewise, this study further assessed the construct validity and the content validity of the modified measurement model. It ascertained whether it measured what it purports before the full structural model test. Initially, the researcher used the Kaiser-Meyer-Olkin measure of sampling adequacy (KMO) and Bartlett's test of sphericity (BTS) for the preliminary test to measure the hypothesis from the theory for the extent of relevance (Bryman and Bell, 2008). Having proven the face validity and achieved high-reliability, content validity was examined for a deeper analysis of validity (Khine, 2013).

This section thus emphasises convergent and discriminant validities. Convergent validity denotes the correlation extent between two measures of construct relating to the same measure but discriminant validity considers how two latent constructs are unrelated and unique (Campbell and Fiske, 1959; Ko, 2015). Studies therefore suggest convergent validity > .7 as good, explaining 50% of the variance and > .5 as acceptable for explaining 30% (Comrey and Lee 1992; Hair et al., 2013). Similarly, Hair et al. (2013) advise the dropping of values <0.5 and scrutinizing <0.7 for enhanced AVE. Also, AVE should equally be >0.5.

It is observed (See Table10.23) that all the latent variables had AVE >0.5 criterion (Hair et al., 2013) with PSI (0.511) as the minimum and SEN (0.638) the maximum. All the latent constructs were therefore retained as enhancing AVE was not critical. Similarly, drawing from Table10.23c all the square root of AVE boldly indicated are >0.5. The model is thus considered as having satisfactory construct and content validities.

Table 10.23c: AVE and Squared Correlation of the Constructs

	SCR	PSI	SIP	SAC	SEN	IMF
SCR	**0.724**					
PSI	0.713	**0.715**				
SIP	0.659	0.714	**0.748**			
SAC	0.703	0.701	0.722	**0.762**		
SEN	0.708	0.655	0.668	0.747	**0.799**	
IMF	0.694	0.660	0.711	0.677	0.723	**0.758**

Finally, the research considered the parameter estimates as a model evaluation measure. Byrne (2010) informs that criteria of interest in the model parameter review are parameter estimates' feasibility, appropriateness of standard errors and statistical significance. As illustrated in Table 10.23, IMF6 (0.274) and IMF1 (0.850) are the minimum and maximum respectively with all the parameter estimates <1.0. Parameters with unreasonable estimates have correlations >1.0, negative variance and covariance not considered positive definite. Therefore, the model meets the good fit criteria. Similarly, a careful examination of standard errors shows that there is no presence of excessively large or small standard errors. There was therefore accuracy in parameter estimation.

10.5.3 Fit Statistics on Critical Barrier Factor Measurement Model

One of the objectives of the study is to evaluate the impact of critical barriers to SM success in the Ghanaian public sector construction industry. This study employs the CFA and SEM technique to analyse the causal effect of the external environment factor (EEF) as an independent factor on SSM as a dependent construct using IBM SPSS AMOS 22.0. Similarly, a two-step SEM approach was used, first determining the measurement model and then the structural model (Khine, 2013).

10.5.3.1 External Environment Factor Measurement Model

The EEF unidimensional model from the CFA is obtained by analyzing 289 responses without a missing value after a critical inspection. The EEF latent construct first had eight measurement indicators in the preliminary CFA test. However, EEF1, EEF2, EEF3, EEF4, EEF5, EEF6 and EEF8 variables were retained. EEF7 was deleted for low factor loading (0.495) and again cross loading during factor rotation. By adhering to the criteria for construct and convergent validity of SEM measurement model, a seven-indicator EEF measurement model is illustrated (See Figure 10.10). Furthermore, the model identification revealed that there are seven independent, eight dependent and 14 free parameters. Therefore, the model having free parameters is considered 'overjustified'.

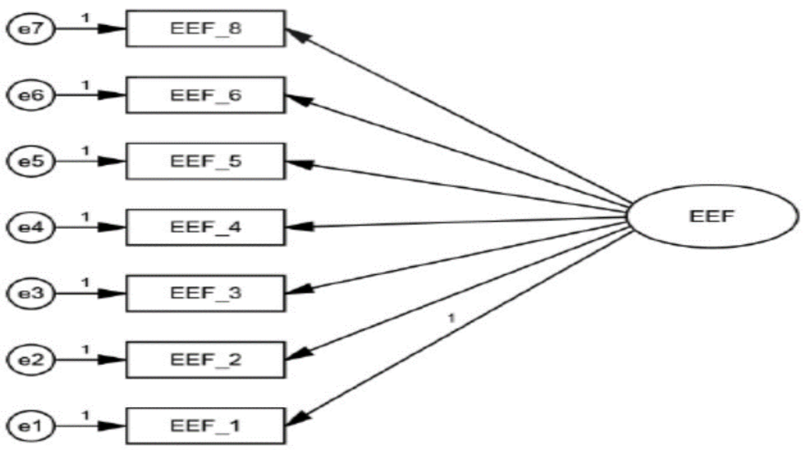


Figure 10.10: Hypothesized Measurement Model of External Environment factor

10.5.3.2 Measurement Model for the Critical Barrier Factors (CBF)

The hypothesized measurement model developed from the Delphi study was evaluated for SMS using the field data. The objective is to assess the influence of the CBF on the SMS process. Ko (2015) and Hair et al. (1998) state that the two-step approach used has the overall effect of reducing the measurement error of variables for the accuracy of the output. The measurement model for the CBF (See Figure 10.10) has seven indicators, one latent construct and seven measurement errors, totalling 15. These are identified as EEF (external environment), EEF1, EEF2, EEF3, EEF4, EEF5, EEF6, EEF8, e1, e2, e3, e4, e5, e6 and e7.

According to Martens (2005), researchers must indicate their fit indices. Following that, the fit-indices are presented (See Table 10.24). Drawing from Table 10.24, the goodness-of-fit statistics of x^2/df (3.354), GFI (0.866), CFI (0.834), are satisfactory, but the fit statistics fall short of the criteria for good fit. Subsequently, they are considered as non-significant (Khine, 2013). Equally, the RMSEA (0.090) and TLI (0.807) were below the set threshold, except for RMR (0.035), hence the need for improvement aimed at achieving a better fitting model (Martens, 2005; Khine, 2013).

Table 10.24: Goodness-of-Fit Indices of the Hypothesized Measurement Model of Stakeholder Management Success Critical Barriers Factors

Goodness-of-Fit Indices	Criteria	Value
x^2	N/A	345.483
Degree of freedom (df)	N/A	103
x^2/df	<3	**3.354**
GFI	>0.9	**0.866**
AGFI	>0.8	0.823
NFI	>0.9	**0.781**
CFI	>0.9	**0.834**
TLI	>0.9	**0.807**
RMSEA	<0.08	**0.090**
RMR	<0.05	0.035

To achieve that, the three recommended steps were followed (Khine, 2013). The first was to adjust the covariance after examination of the regression coefficients and the specified covariance. Following the introduction of covariance for the measurement errors, the fit statistics of the model improved significantly (See Table 10.24). The modified measurement model is illustrated in Figure 10.11.

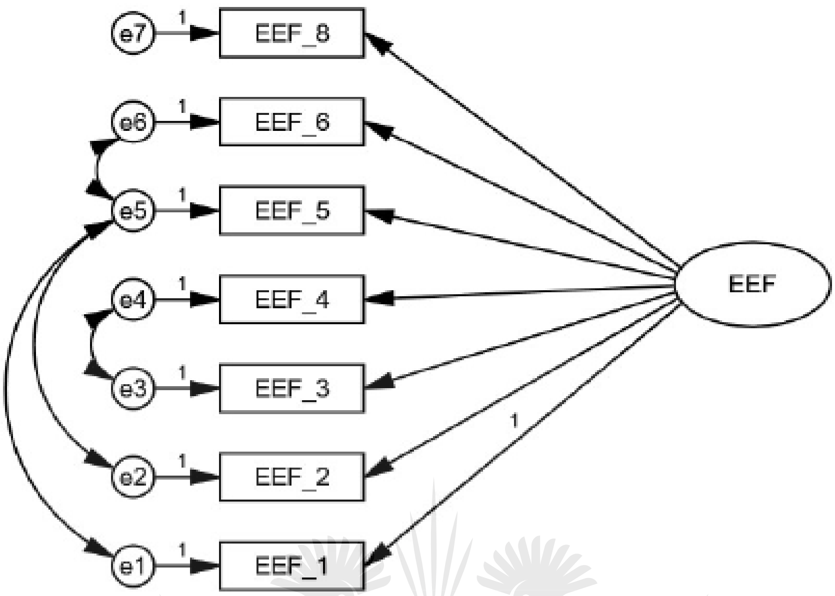


Figure 10.11: Hypothesized Measurement Model of External Environment Factor

Table 10.24b: Goodness-of-Fit Indices of the Modified Model of Stakeholder Management Critical Barriers

Goodness-of-Fit Indices	Criteria	Value
x^2	N/A	130.048
Degree of freedom (df)	N/A	89
x^2/df	<3	1.461
GFI	>0.9	0.949
AGFI	>0.8	0.921
NFI	>0.9	0.918
CFI	>0.9	0.972
TLI	>0.9	0.962
RMSEA	<0.08	0.040
RMR	<0.05	0.022

Similarly, this is illustrated as EFF (e1-e5), (e2-e5), (e3-e4) and (e5-e6). Following the advice of Martens (2005), the EEF measurement model was modified and presented in Figure 10.11. The researcher did not review the variables by exploration but only the covariance of indicated measurement errors. As a result, the fit indices improved significantly, yielding a better fitting model which meets the good fit model criteria (See Table 10.23). Drawing from the results (See Table10.23), it is observed that x^2/df (1.461), GFI (0.949), CFI (0.972), RMSEA (0.040) and RMR (0.022) meet the criteria for good fit model, hence confirming the postulated model.

10.5.4 Measurement Model for Stakeholder Management Success Output Variables

This study evaluated 289 valid cases without a missing value, having checked all the returned questionnaires. There were 14 indicator variables in the preliminary CFA test that measured the SMO construct using the Cronbach's alpha values, KMO test and rotated factor loadings. The eleven measurement items retained for the SEM analysis are SMO3 (improved project quality), SMO2 (reduced project time), SMO4 (increased stakeholder satisfaction), SMO5 (improved project delivery), SMO7 (improved stakeholder collaborations), SMO1 (reduced project cost) and SMO9 (reduced project conflicts). Also included are SMO6 (early identification of stakeholders and reduced conflicts), SMO14 (increased project socio-economic benefit/value), SMO12 (well considered external environment factors) and SMO8 (excellent communication). The other variables were removed owing to cross loading and low factor loadings (<.450). Adhering to the criteria for convergent and construct validity, an 11-indicator SMO measurement model was postulated for the SEM analysis. The model identification reveals 11 independent, 14 dependent and 22 free parameters. The model was considered overidentified.

10.5.4.1 Parameter Estimates and Diagnostic Fit Analysis

The unidimensional model was submitted for SEM analysis. However, the model will not run since SMO14 was cross-loading, hence the software recommendation for its deletion. Subsequently, the model run and the parameter estimates factor loadings were SMO1(.648), SMO2(.711), SMO3(.721), SMO4(.671), SMO5(.705), SMO6(.496), SMO7(.741), SMO8(.490), SMO9(.639) and SMO12(.676). These were considered as good for the model. Equally, the residual covariances examined indicated that all the values range from -.046 to.085, hence were acceptable as they met the -.1 and +.1 range and centred on zero (Byrne

2006, Aigbavboa, 2013). The critical ratio (z scores) examined were greater than +1.96 recommended (Khine, 2013)

Table 10.24c: Residual Covariances (Unstandardized)

	SMO 12	SMO 9	SMO 8	SMO 7	SMO 6	SMO 5	SMO 4	SMO 3	SMO 2	SMO 1
SMO12	.000									
SMO9	.026	.000								
SMO8	.068	-.022	.000							
SMO7	-.007	.074	-.018	.000						
SMO6	.133	-.003	.085	.001	.000					
SMO5	-.016	-.039	-.009	.016	-.014	.000				
SMO4	-.012	-.022	.002	.002	-.034	.041	.000			
SMO3	-.027	-.013	-.014	-.015	-.058	.005	.011	.000		
SMO2	-.046	-.029	-.034	-.020	-.036	-.003	.004	.063	.000	
SMO1	-.024	.008	-.014	-.027	-.021	-.006	-.019	.019	.066	.000

10.5.4.2 Goodness-of-fit statistics - RML

Likewise, the model was examined for model fit. As illustrated (See Table 10.25), the initial model fit indices were not satisfactory as values observed failed to meet good fit criteria. The values GFI(.822), CFI(.798), RMR(.034), TLI(.740) and RMSEA(.160) were below the required criteria but signify the likelihood of meeting the criteria for modification. Martens (2005) recommends that model modification produces a better fitting model (Byrne, 2010; Khine, 2013). The researcher decided to modify the model. The three-step process (Byrne, 2010) was followed for the model modification. The modification indices (MI) of the measurement errors were carefully checked for higher values after parameter estimates were found to be good.

Table 10.25: Goodness-of-Fit Indices for SMO Measurement Model

Goodness-of-Fit Indices	Criteria	Value
x^2	N/A	291.756
Degree of freedom (df)	N/A	35
x^2/df	<3	8.336
GFI	>0.9	.822
CFI	>0.9	.798
TLI	>0.9	.740

RMSEA	<0.08	.160
RMR	<0.05	.034

As suggested by the MI, large values were revealed for the following error measurements and indicated covariances: e48-e50(26.765), e47-e49(34.411), e46-e50(87.680), e46-e48(38.92), e43-e46(25.921), e42-e43(35.384) and e41-e46(18.173). The study proceeded to covariance the above error measurements without deleting any indicator. According to the results (See Table 10.26), the model fit indices were reconsidered and found to be very good and meeting the goodness-of-fit criteria. The values GFI(.959), CF(.974), RMR(.017), TLI(.959) and RMSEA(.064) were all very good. Similarly, the x^2/df value of 2.167 was below the recommended <3. The good fit values indicate that the SM success has an influence on the SM success outputs identified as performance, needs achievement, relationship enhancement, and gains.

Table10.26: Goodness-of-fit Indices for SMO Modified Measurement Model

Goodness-of-Fit Indices	Criteria	Value	Comment
x^2	N/A	60.666	N/A
Degree of freedom (df)	N/A	28	N/A
x^2/df	<3	2.167	satisfactory
GFI	>0.9	.959	good
CFI	>0.9	.974	good
TLI	>0.9	.959	good
RMSEA	<0.08	.064	satisfactory
RMR	<0.05	.017	good

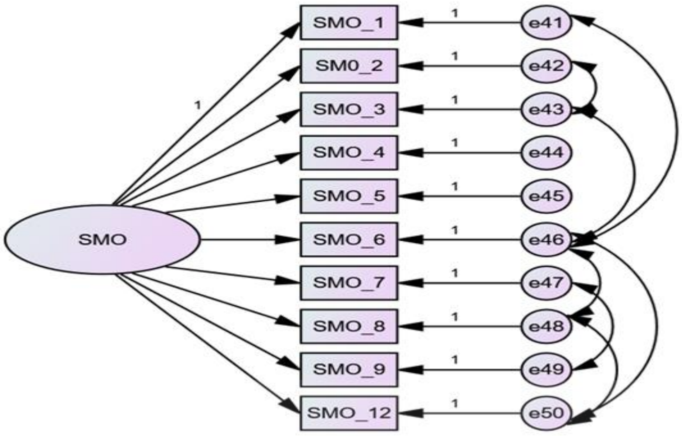


Figure 10.12: Modified Unidimensional Model of SMS Output

10.5.4.3 Reliability and Validity

After modification and achieving the model good fit criteria, the model was subsequently assessed for construct and content validity and unidimensionality for the SMO construct model. As assessed for all the other constructs, the measurement of the variables for reliability had been done during the initial pre-CFA test using KMO and the Cronbach's alpha test. However, the composite reliability of the modified model was of interest as it measures the degree to which the set of measured items in the solution is consistent with the latent construct it is intended to measure. (Ko, 2015). Hence the study used the composite reliability to examine the construct reliability for the advantage of considering the standardized loading and the measurement errors.

The formula employed are composite reliability $CR = (\Sigma\lambda i)^2 / [(\Sigma\lambda i)^2 + (\Sigma\theta i)]$where CR is composite reliability, λi is the ith standardized loading and θi is the *i*th error variance. The CR value should be greater than 0.6 for reliability. Similarly, the average variance extracted (AVE) was employed in assessing the convergent validity (Fornell and Larker, 1981; Ko, 2015). The formula used is as follows: For the AVE to be accepted, the value should be higher than 0.5, implying that the scale explains more than the error term. AVE = $\Sigma(\lambda i^2)$ / $[\Sigma(\lambda i^2) + (\Sigma\theta i)]$, whereby, λi is the *i*th standardized loading, and θi is the *i*th error variance. From the parameter estimates, the SMO model has AVE value of .772 and CR of .982 which are all above the 0.5 AVE and 0.6 CR thresholds. Therefore, the unidimensional ten variable SM0 model also demonstrated good reliability and validity.

10.5.4.4 Summary on Stakeholder Management Success (SMO) Measurement Model

The findings of the SEM analysis suggest there are varied outcomes for the statistical test and the model fit results. Some of the results were classified as 'well-fitting', 'good fit', and others as 'acceptable'. Overall, the SMO is considered as having adequate fit to the data after the modification of the measurement error covariances. Firstly, the model fit criteria of CFI and GFI are considered very good fit as they are close to 1.0. While .90 is a good fit (Hu and Bentler, 1999), the values were above 0.95. The RMSEA and RMR values were good as they were < .05 and close to .00. Byrne (2010) asserts that the RMR represents the average value of all the standardized residuals, ranging for 0 to 1 with values less than .05 as 'well-fitting' the model.

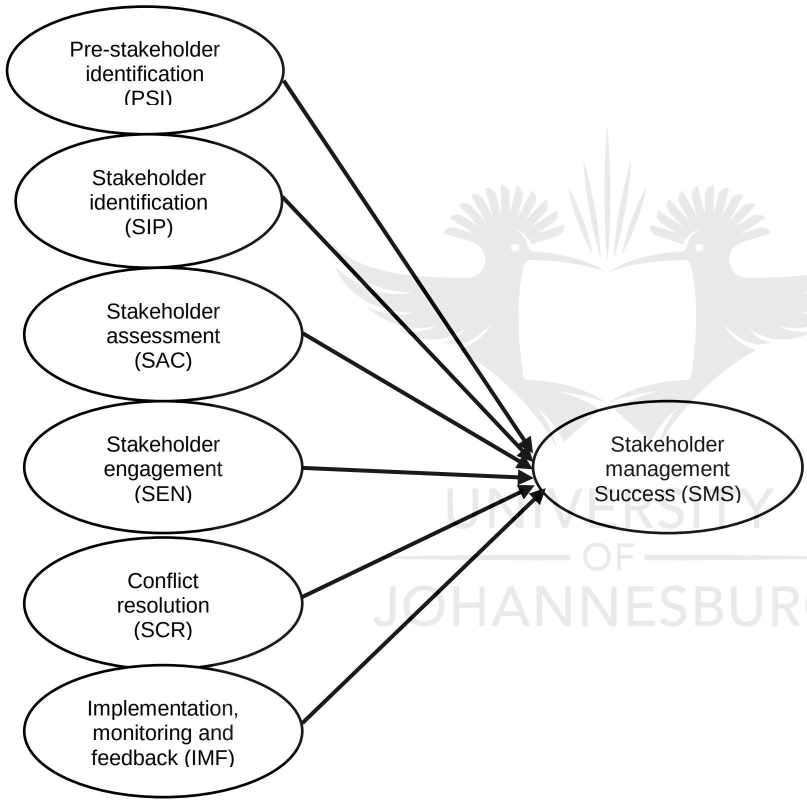
Secondly, the parameter estimates indicated good values of factor loading above .500, suggesting a good relationship among the variable and variance. Standardized residual values were acceptable as they were within -1.0 and +1.0 (Byrne, 2006). The summary estimates suggested high correlation values, indicating that the measured items have a higher degree of linear association.

Finally, the Tucker-Lewis Index (TLI) yield values between 0 and 1.0 just as the rho coefficient with values close to .95 as is? indicative of good fit (Hu and Bentler, 1999; Byrne, 2010). The composite reliability and construct validity values were assuring as they were close to 1.0 far above the 0.5 benchmark. Overall the indicator variables were found to be predictors of the SMO latent construct. Nonetheless, the full structural model is carried out to assess the influence of each latent construct on SM success and the SMO variables.

10.6 Hypothesized Relationship of the Stakeholder Management Success Model

According to the hypothesized model (See Figure 10.12b), the final items describing the model are the pre-stakeholder identification process (PSI), stakeholder identification (SIP), and stakeholder assessment (SAC). Also included are stakeholder engagement (SEN), stakeholder conflict resolution (SCR), and implementation, monitoring and feedback documentation (IMF). These factors contributing to SM output and hence project success were tested. The hypothesized model tested was founded on the fact that achievement of SM outputs for construction project delivery is in the public sector and is inherent in the significant influence of the unique constructs of project SM factors. The hypothesized relationship is diagrammatically represented as Figure 10.12b. Also, the structural model specified in Figure 10.13 is fitted to the sample from the field data as required by SEM (Kline, 2010, Byrne, 2010, Khine, 2013).

Figure 10.12b: Hypothesized Evaluative Model of Stakeholder Management Success



10.7 Structural Model Analysis

The study used the structural equation modelling (SEM) multivariate analysis technique to specify the relationship between the variables using mainly two sets of equations, namely measurement and structural equation (Byrne 2010; Carvalho and Chima, 2014). In assessing the measurement equations, the researcher examined the relationship between the measured items and their latent constructs. Likewise, the structural equation determines the assessment of the postulated relationship from theory among the latent constructs and aids the statistical hypothesis test for the study (Carvalho and Chima, 2014).

Thus, SEM was used to test the proposed theoretical conceptual SM constructs model for public sector projects in developing countries. Both directional and non-directional relationships among the observed and latent variables were analysed (MacCallum and Austin, 2000; Ko, 2015). According to Byrne (2010), SEM conveys two main aspects of using a series of structural equations to represent the causal relationship and modelling pictorially the structural relationships for the clear conceptualization of the theory being studied.

SEM further clarifies the observed concepts in the relationship, offering an explicit account of measurement errors variance parameters while estimating the model (Hair et al., 1998; Byrne, 2010). Lastly, the biggest SEM benefit is using both measurement and structural components while at the same time explaining both observed and unobserved variables (Hair et al., 1998, Byrne, 2010; Ko, 2015). These are among the reasons the researcher adopted SEM structural model in this study.

Following the SEM adoption for this research, the seven-step approach of SEM was considered and followed (Hair et al., 1998). The steps are: (1) Developing a theoretically based model, (2) constructing a path diagram of casual relationships, (3) converting the path diagram into a set of structural and measurement models, (4) choosing the input matrix type and estimating the proposed model, (5) assessing the identification of the structural model, (6) evaluating goodness-of-fit criteria, and lastly, (7) interpreting and modifying the model. A theoretically-based model was developed for SM success in Ghana. This was based on Freeman (1984; 2010) strategic management of stakeholders and Mitchell et al. (1997) stakeholder identification and salience concepts. Subsequently, the six-construct postulated model based on critical success factors was developed with a path diagram stated and converted into structural and measurement models. The two-step approach of analyzing structural and measurement models as two conceptually distinct models was also applied (Khine, 2013). This second step identifies the structural model, evaluates, interprets and modifies the model if necessary.

The structural model was analysed using the 289-case data for the measurement model. Following convention (Aigbavboa 2013; Khine, 2013; Kwofie, 2015), the maximum likelihood estimation (MLE) was used as a conventional approach. Studies suggest 150 as a minimum (Kline, 2005) as increased sample size also affects sensitivity to detecting data differences (Hair et al., 1998). Statistical significance and assessment of model fit are critical for the correct specification of models in using SEM.

Therefore, this study adopted the chi-square x^2, degrees of freedom (df), and x^2/df for the hypothesized model, Goodness-of-Fit (GFI) and the standardized RMR for the saturated model. Also, the comparative fit index (CFI), the Tucker-Lewis index (TLI) for independence model and root mean square error of approximation (RMSEA) were used (Byrne, 2010). The implications of using these criteria are explained in the methodology. As part of the assessment of model fit, variables suggested for deletion are deleted and covariances for error measurements considered until good fit criteria are achieved.

10.7.1 Structural Model

As stated, the SEM technique is a two-step approach entailing measurement and structural models. According to Khine (2013), the SEM approach stresses analyzing the two models as two separate models. This part of the study examines the structural model using the SEM approach. The structural model examined the relationship between the latent constructs independent of the observed variables (measurement model) though inclusive (Khine, 2013; Carvalho and Chima, 2014).

The study used the IBM SPSS AMOS Version 22 for the SEM analysis of the structural model. The initial hypothesized model structural model is thus represented (See Figure 10.13). It is illustrated as six latent constructs (PSI, SIP, SAC, SEN, SCR, and IMF) defining the stakeholder management success output SMO construct. The covariances signifying the relationship between the constructs are indicated.

The structural model fit is assessed using x^2/df, GFI, CFI, RMSEA and RMR good fit criteria. As shown (See Table 10.27), the initial assessment reveals that the x^2/df (2.671), RMSEA (0.076) and RMR (0.041) met the benchmarks, hence the model fits the data to some extent. However, the CFI and GFI failed. Therefore, the model test results are unsatisfactory and can be improved through modification (Marten, 2005; Byrne, 2013).

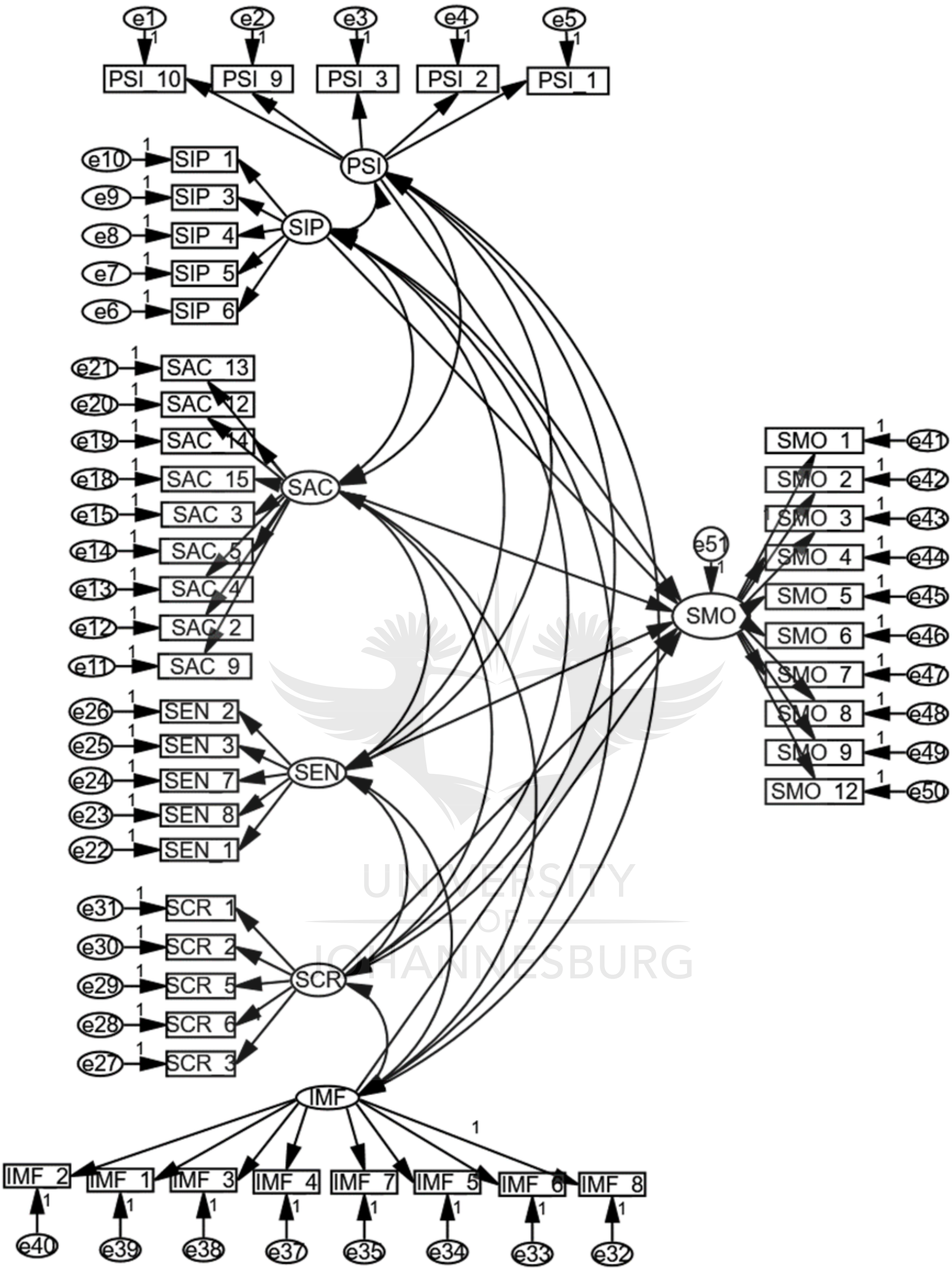


Figure 10.13: Hypothesized Structural Model

Table 10.27: Goodness-of-Fit Indices of the Initial Structural Model

Goodness-of-Fit Indices	Criteria	Value
x^2	N/A	2705.299
Degree of freedom (df)	N/A	1013
x^2/df	<3	2.671
GFI	>0.9	**0.706**
CFI	>0.9	**0.789**
RMSEA	<0.08	0.076
RMR	<0.05	0.041

Following the advice (Martens, 2005), the study proceeded with the modification of the initial model. Again, the parameter estimates were assessed and the constructs found as fit for the model. Since the latent model constructs had passed the CFA and measurement model assessment test, the measurement errors were assessed using the MI. There were 27 covariances of measurement errors suggested for correlation. These are e1-e2, e1-e5, e2-e4, e2-e5, e4-e6, e6-e7, e11-e13, e11-e14, e11-e15, e11-e20, e11-e21, e12-e13, e12-e15, e12-e18, e12-19, e13-14. Also, are e22-e24, e28-e29, e28-e30, e29-e30, e29-e31, e32-e33, e32-e35, e33-e34, e34-e35, e35-e39 and e39-e40.

Following the correlation, the model was reassessed for good fit. Drawing from Table 10.28, x^2/df (1.494), RMSEA (0.041) and RMR (0.031), CFI (0.947) and GFI (0.901), all the factors had good fit to the data. Thus, the critical success factors of the initial structural model consist of PIS, SIP, SAC, SEN, SCR, IMF and SMO constructs (See Figure 10.13).

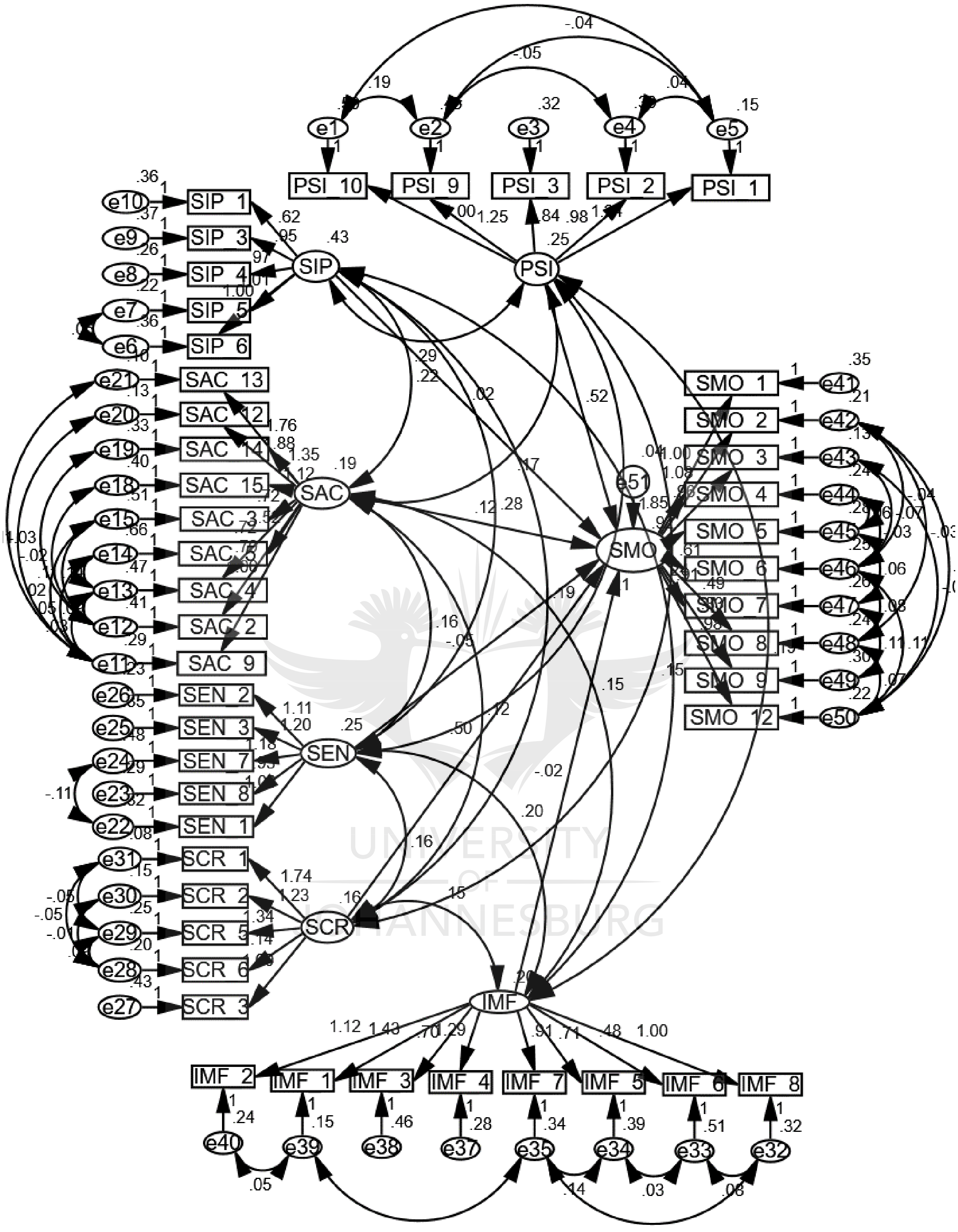


Figure 10.13: Hypothesized Structural Model

Table 10.28: Goodness-of-fit Indices of the Modified Structural Model

Goodness-of-Fit Indices	Criteria	Value
x^2	N/A	1283.591
Degree of freedom (df)	N/A	859
x^2/df	<3	1.494
GFI	>0.9	0.901
CFI	>0.9	0.947
RMSEA	<0.08	0.041
RMR	<0.05	0.031

Before the analysis of the model fit criteria, the study examined the analysis of the residual covariance estimate. The unstandardized off-diagonal residual values were mostly between -.10 and 1.0, except three values summing up to about 99.9 %. The model can be then described as well-fitting and symmetrical around zero as values were not above 2.58 (Byrne, 2006). Similarly, the path diagram (See Figure10.14) as illustrated shows that SIP, PSI, SAC, SEN, SCR, and IMF together explain 91.2 % of the variance in SMO as revealed by the squared multiple correlations (AMOS version 22).

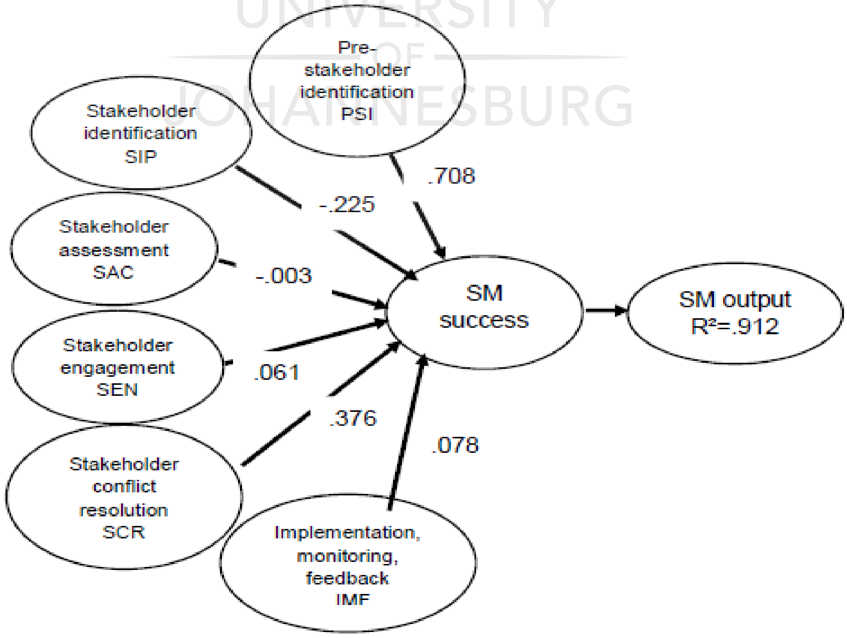


Figure 10.14: Path Diagram of Final Structural Model

10.7.2 Parameter Estimates - Structural Model (Hypothesis Testing)

Further to the goodness-of-fit of the structural model test, it was important to examine the statistical importance of the parameter estimates (Aigbavboa, 2013; Khine, 2013). Khine (2013) further asserts that a well-fitting model with few significant parameters is not desirable. An assessment of the statistics suggests that PSI (.666), SCR (.446), IMF (.083), SEN (.058) are the constructs with the highest regression weights on SMO in that order. The study identified PSI, SCR as two new gaps that are peculiar to developing countries such as Ghana. Similarly, the rejection of model depends on the parameter estimates' significance as the correlation values will have to be positive and greater than 1.00. Also, the test statistics tics have been greater than1.96 at the probability of 5% for hypotheses to be rejected.

10.7.3 Testing the Direct Influence of Independent Constructs on Overall Stakeholder Management Success

By convention, the study assessed the influence of each latent construct on the overall SM success of the full structural model. From the examination, the results of the CFA full structural model support the hypothesis. The relationship between the factors of the endogenous variable was found to be statistically significant at a 5% probability. The examination of parameter estimates reveals that most of the observed variables had coefficients around 0.5 or were close to 1.0, except SAC5(.270) SAC2(.431), SAC4(.423) SAC5(.270), SAC3(.417) standardized values. The SAC observed variables belonged to an initially separated construct during the Delphi study and a component during the CFA factor rotation. The unstandardized coefficients were significant as they were around 1.0. Similarly, the z-score which is equivalent to the critical ratio (Khine, 2013) were higher than the 1.96 thresholds (Byrne, 2010). Likewise, a test of the inter-factor correlation which in AMOS is an equivalent of squared multiple correlation was closer to 1.0. Thus, the independent constructs PSI, SIP, SEN, SCR and IMF had a direct influence on the overall SM, except for the SAC which had an indirect influence. There was a high degree of association between the observed items and the endogenous construct.

10.8 The Final Sustainable Stakeholder Management Success Framework

This study developed a final framework built on the conceptual model, the postulated SM success model and the full modified structural model analysed using the SEM. The factors evaluated as statistically significant to have a direct positive influence on SM success are the pre-stakeholder identification, stakeholder identification, stakeholder assessment, stakeholder engagement, stakeholder conflict resolution and implementation, monitoring and feedback. Thus, the final sustainable stakeholder management success framework consisted of six exogenous constructs (CSF), one exogenous construct (CBF), the SM success (endogenous variable) and the SM success output. As stated in the objective, this research adopted a management and not a process approach to explore and evaluate SM management factors that influence SM success.

The final developed framework for this study as validated by the field study has the client, project manager, architect, engineer, quantity surveyor, sponsor, contractor, suppliers, sub-contractors, end-users, local community and authorities, government statutory authorities (including political stakeholders), and representatives as the main stakeholders considered. The emphasis is on the critical success factors (CSF).

Table 10.29: Final SM Success Framework (Latent Constructs, Measured Variables)

Latent Constructs (Factors)	Measurement Variables (indicators)
Pre-stakeholder identification (PSI)	PSI1 Having adequate project feasibility study PSI2 Having clear stated project objectives PSI3 Having very detailed design PSI9 Employing the Design and Build method PSI10 Adopting the Management Contract
Stakeholder Identification (SIP)	SIP1 Identifying stakeholders at project inception stage SIP3 Reviewing an existing stakeholder register SIP4 Identifying stakeholder at every stage SIP5 Providing stakeholders with education SIP6 Repeating stakeholders’ education at every stage
Stakeholder Assessment (SAC)	SAC2 Stakeholder has a key role in the project SAC3 Stakeholder has some project responsibility SAC4 Stakeholder is committed to the project SAC5 Stakeholder contributes positively to project SAC6 Stakeholder has political influence

	SAC9 Stakeholder possesses power, urgency and legitimacy SAC12 Stakeholder map/template SAC13 Stakeholder position mapping SAC14 Power/Interest matrix SAC15 Power/ Influence matrix
Stakeholder Engagement (SEN)	SEN1 Adopting proactive communication SEN2 Using open communication SEN3 Using emails for correspondence SEN4 Communicating using telephone SEN5 Organizing stakeholder conferences SEN6 Organizing stakeholder workshops SEN7 Using social platforms SEN8 Using planned communication
Stakeholder Conflict Resolution (SCR)	SRC1 Having the ability to predetermine possible conflicts SRC2 Having the ability to resolve conflicts SRC3 Having the capacity to determine conflict type SRC5 Embarking on early conflict resolution SRC6 Ensuring fair play during resolution
Implementation, Monitoring and Feedback (IMF)	IMF1 Implementing fully, project feasibility brief IMF2 Implementing fully, stakeholder needs plan IMF3 Full implementation of stakeholder management objectives IMF4 Implementation of stakeholder communication plan IMF5 Monitoring project objectives achievement IMF6 Monitoring stage activity and effectiveness IMF7 Monitoring stakeholders need achievement IMF8 Documenting the entire stakeholder process

Table 10.30: Final SM Success Framework Output Variables

Stakeholder Management Success Output (SMO)	Measurement Variables (indicators)
Performance, needs achievement, relationship and gains	SMO1 Reduced project cost SMO2 Reduced project time SMO3 Improved project quality SMO4 Achievement of stakeholder satisfaction, needs SMO5 Improved project delivery SMO6 Early stakeholder identification SMO7 Improved stakeholder collaboration SMO8 Excellent communication SMO9 Reduced conflicts SMO12 Well considered external environment factors

Similarly, the study presented the stakeholder management success output (SMO) as the outcome of the six-factor model influence in the full structural model (See Table 12.2).

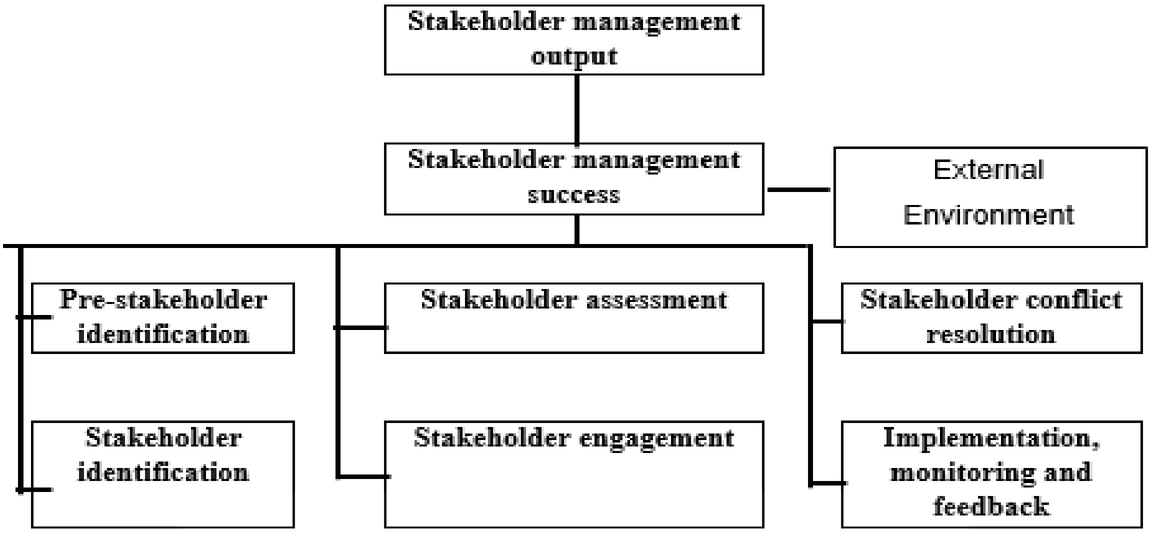


Figure 10.5: Sustainable Stakeholder Management Framework (Factors)

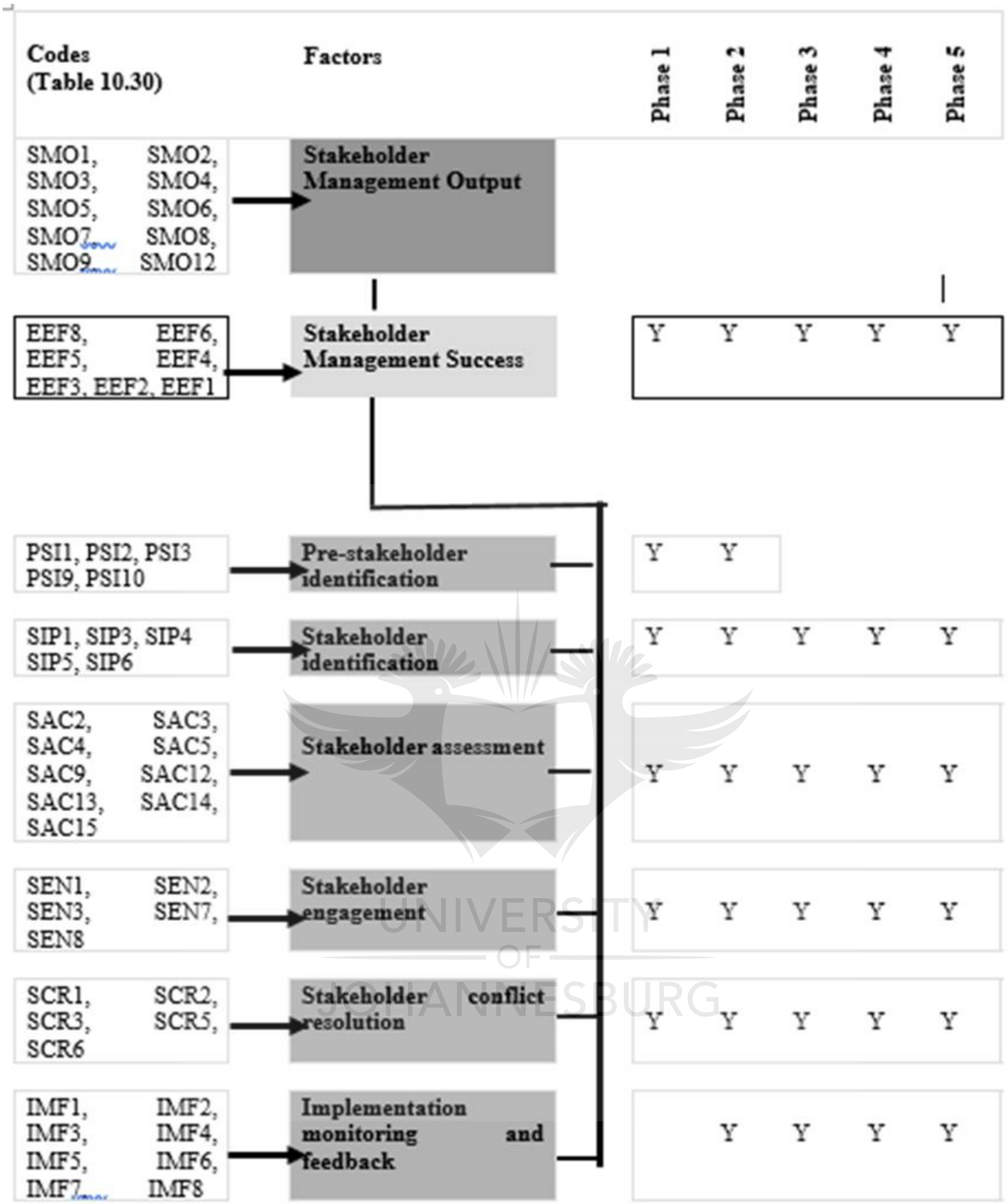


Figure10.32: Sustainable Stakeholder Management Framework (Factors and Indicator Variables)

Phases: 1 (initiating), 2 (planning), 3 (executing), 4 (monitoring and control), 5 (closing)

10.9 Conclusion

This chapter of the study presented the questionnaire survey findings with 289 valid responses serving as the data for the descriptive preliminary CFA and the SEM analysis conducted. Different tests were employed as a validation process for the validity and reliability of the findings. The study postulated that stakeholder management success has a direct relationship with the latent constructs (exogenous variables) which in turn determine stakeholder management output and project delivery in Ghana. The four steps of model specification, identification, estimation and testing were followed sequentially (Carvalho and Chima, 2014). The author presented the preliminary data analysis, measurement models, and modified and full structural models using CFA and AMOS SEM software. The aim was to determine whether the indicator variables from the hypothesized model and field data measured what they were supposed to measure by examining the construct, content validity and composite reliability of the model for good fit.

There were no challenges related to parameter statistics, multivariate normal or non-normal data owing to the reasonable sample size used. Following the measurement model's achieving goodness-of-fit criteria, the analysis of the full structural model was conducted and presented. All the factors achieved the 'good-fit' threshold except the CFI (0.901) which had 'acceptable fit'. Five of the constructs had a direct effect on SM success output while the last had an indirect effect. Drawing from a careful examination of the criteria values stated, there was no evidence of model misfit, hence the need for model re-specification or structural model improvement. The chapter concludes that the six-factor hypothesized model accounts significantly for SM success in the Ghanaian public sector construction industry.

CHAPTER ELEVEN

DISCUSSION OF FIELD SURVEY FINDINGS

11 Introduction

The previous chapter presented the descriptive and inferential statistics. Likewise, the structural equation modelling SEM analysis of the postulated model consisted of six latent constructs. The study analysed the measurement, modified and structural models for construct, content validity, composite reliability and Goodness-of-Fit of the models. The results indicated that while four constructs had a direct influence and are therefore very significant, two other factors had an indirect effect on stakeholder management success.

Therefore, this chapter discusses the questionnaire survey results relating to the influence of each exogenous variable on stakeholder management success. Also, it compares the Delphi survey and questionnaire summary results and enumerates any differences. Finally, it assesses the level of the postulated model fit in the identified factors and concludes the chapter.

11.1 Questionnaire Survey Results

The results of this study's postulated model testing established that the hypothesis that stakeholder management success and the output is predicted by pre-stakeholder identification, stakeholder identification, stakeholder assessment, stakeholder engagement, stakeholder conflict resolution, implementation, monitoring and feedback could not be rejected. Also, the 289 cases' valid responses sample was adequate for the SEM analysis (Comfrey and Lee, 1992; Kline, 2005, Khine, 2013).

The descriptive statistics revealed that 99.7% of respondents are professionals in the industry with good knowledge and experience in the field. About 56.1% are architects and quantity surveyors who are traditionally project team leaders and managers (Ahadzie et al., 2004; Eyiah-Botwe, 2015). Also, 65.4% respondents had above five years' experience which implies that their responses are based on both knowledge and experience, hence establishing the validity of the study outcome. Likewise, the respondents had projects and firms located geographically in all the three sectors of the country. In the absence of any formal stakeholder management SM framework in Ghana for the public-sector construction projects delivery, 99.3% supports the definition of project stakeholders in the industry as defined by this study. Also, an impressive 91.7% of respondents make efforts to manage stakeholders for reduced project failure, substantiating the aim of this study to have a formal process for enhanced project delivery in Ghana.

11.1.1 Pre-stakeholder Identification Influence on Stakeholder Management Success

A research sub-objective was formulated to determine the extent of influence of pre-stakeholder identification (PSI) related factors on SSM success. The objective considers project definition and planning, procurement methods and project stakeholder sub-factors. The descriptive statistics revealed that ensuring adequate project feasibility (61.6%), having a detailed design (61.3%), having clearly stated project objectives (60.1%), and employing the design and build method (52.6%) were the variables that had a significant influence on the PSI factor.

The results from the structural model establish the causal relationship between the exogenous variable (PSI) with the measured items and SM success (endogenous variable) as statistically significant at 5% probability. Similarly, the five indicator variables had high correlation values, implying that there was a high degree of linear association between the measured items and the endogenous construct. Furthermore, the squared multiple correlations (R^2) indicated that more than 50% of the indicator variables were predictors of SM success output. Therefore, it is suggested in summary that SIP variable has a direct influence in determining the overall stakeholder management success.

The summary results suggest that most variables obtained from the Delphi study and included in the model have a substantial influence on stakeholder management success. The impact of these factors agrees with previous studies which suggest the influence of project definition and planning, project manager and procurement factors (PMI, 2008; Rwelamila, 2009; Gudiene et al., 2013; Fewings, 2013; Aapaoja and Haapasalo, 2014). Ofori (2013) identified stakeholder involvement, clarity of purpose and goals as critical factors for project success in Ghana. Similarly, Razali and Anwar (2011) state that the central determination of any project are the project objectives and customer needs. Also, Yang (2009) identified defining project missions as a CSF.

However, the model outcome suggests that the project manager factor consisting of the project manager's competence, knowledge and good leadership skills are not key determinants of SM success. Although this finding agrees with the previous study on SM as these variables were not included as critical success factors (Yang, 2010), it disagrees with other research (Lock, 2007; PMI, 2008; Gudiene et al., 2013). That is because the project manager is the most referred stakeholder with the sole responsibility to ensure project success and whose competence and knowledge influence the management process (Lock, 2007; Davis, 2014). Since the project manager coordinates all activities related to successful stakeholder management and project success, project managers' performance is essential Gudiene et al., 2013; Eskerod and Jepsen, 2013). The need to correlate the covariance of measurement errors could be an indication of some of these variables deleted as a result of cross loading or poor variable correlation in the PSI solution.

The study also found that research participants ranked as low the impact of the Public Procurement Act as against the research finding (Eyiah-Botwe, 2016) but emphasized the method adopted (Rwelamila, 2009). The procurement approach determines the stakeholder's role, involvement and impact on management and project success (Love et al., 2002; Rwelamila, 2009). Studies have suggested the positive role of 'design and build' and management contract in determining the nature of relationships and project success (Oyegoke et al., 2009; Fewings, 2013). Furthermore, the findings support the large influence of pre-stakeholder identification features on stakeholder management success though previous research failed to state it as a principal factor.

Therefore, the findings indicate that public sector project delivery in Ghana and similar developing countries can be enhanced through stakeholder management success. To achieve that, project managers and the authorities responsible for project development in the public sector need to consider pre-stakeholder identification features. Good project feasibility studies, clarity of project objectives, and detailed design during project development and planning are essential (Ofori, 2012; Eyiah-Botwe, 2016). Also, choosing the appropriate procurement method ('design and build' and construction management) will enhance stakeholder participation and management for SM success and eventually enhance project delivery.

11.1.2 Stakeholder Identification Influence on Stakeholder Management Success

The stakeholder identification is derived from the underpinning theoretical concept and has been tested empirically by several authors, except in the developing countries. Freeman (1984) has stressed that strategic management should consider a stakeholder approach. The findings reveal that stakeholder identification (SIP) is a direct predictor having a causal relationship with stakeholder management success. Furthermore, the assessment of the parameter estimates reveals the significance of the construct at 5% probability indicated by the correlation scores and the critical ratios which conform to the >+1.96 and -1.96 range (Byrne, 2010). Also, the resulting parameter coefficient was above the threshold for the variance in the latent variable, confirming its prediction of the dependent factor.

Furthermore, the five items measured had high regression and correlation scores close to 1.0, indicating a high degree of correlation and influence on the endogenous factor. Also, there was a high degree of linear association between the measured items and the endogenous construct. Assessment of the indicators reveals that 'providing stakeholders with education' was the highest followed by 'identifying stakeholder at every stage' as causative indicators with 'identifying stakeholders at the project inception stage' as the least. The SEM analysis of the model findings supports both the Delphi study outcome and previous studies.

This study revealed fifteen SM models and processes for developed countries, from Karlsen (2002) to Aapaoja and Haapasalo (2014). Most scholars state stakeholder identification as the first and the main factor for SM success (Karlsen 2002; Young 2006; Bourne and Walker 2006; Yang, 2010). However, the emphasis has been on early stakeholder identification without defining 'how early' (PMI, 2008). Koster (2009) asserts that key stakeholders should be identified early, and therefore, supports the findings. Similarly, Jepsen and Eskerod (2009) mention identifying important stakeholders. Since project inception is the earliest stage, the study sought the opinion of research participants who rather preferred every stage identification, a stance that is supported by Eskerod and Jepsen (2013) who suggest stakeholder identification at all stages as well as education on the project benefits. That implies that for SM success in Ghana, project managers need to identify stakeholders early, at all stages and also provide them with education on how and what to contribute to secure project success (Eskerod and Jepsen, 2013). Chinyio and Olomolaiye (2010) advocate for identification and subsequent engagement while Bal et al. (2013) suggest identifying and relating stakeholders with issues. The essence of stakeholder identification at all stages relates to the different project phases and activities involved in project delivery (Fewings, 2005). It is necessary to repeat education as new stakeholders are identified, and engage them at the project formation, planning and execution stages (Eskerod and Jepsen, 2013). Similarly, the procurement system employed determines the stakeholder type, relationship and issues related to their involvement (Love et al., 2002; Rwelamila, 2009; Eyiah-Botwe, 2016).

Studies advocate for a review of the existing register for the identifying stakeholders from previous projects (PMI, 2008) and also for gathering information on new stakeholders. This item was supported against developing a stakeholder a list using expert staff and through brainstorming (Bourne, 2005). This variable was not retained as respondents preferred review and identification. The findings of this study therefore concur with the review of the existing register from possible previous projects (PMI, 2008). Yang (2009) had done similar research in developed countries and identified 'properly identifying stakeholders' as a critical success factor for SM success but with the emphasis on the importance of stakeholder identity.

Therefore, this finding suggests that for SM success to be achieved and the outputs realised, it is necessary to consider stakeholder identification at every stage of the project phase, and provide and repeat education for stakeholders to understand why what and how they need to support the project for success. Secondly, project managers can use a checklist, review stakeholder registers from previous projects with documentation on stakeholders and ensure that key stakeholders are identified early, at project inception and all the phases. The project manager must identify all those that will affect, influence, impact or be affected by the outcome of the project or the organisation's activities (Freeman, 1984; Bourne, 2005; Eskerod and Jepsen, 2013).

11.1.3 Stakeholder Assessment Influence on Stakeholder Management Success

Stakeholder assessment criteria (SAC) considered by this thesis entail the classification, prioritization and analysis of project stakeholders. Early studies on SM have proposed classification; others, prioritization (Bourne and Walker, 2006; Walker et al., 2008). Also, some scholars state analysis (Karlsen, 2002; Young, 2006) while others advocate assessment (Jepsen and Eskerod, 2009; Yang, 2010; Aapaoja and Haapasalo, 2014). The study adopted 'assessment' following a careful analysis and suggestions from Delphi experts.

According to von Meding et al. (2013), it is widely acclaimed that stakeholders have an interest or a claim and as a result, can affect or be affected by the project and its activities (Mitchell et al., et al. 1997; Nguyen et al., 2009). That is evident in developing countries where project development is a measure of political achievement and for socio-economic growth. Therefore, it is useful to classify stakeholders based on their relationship with the project as some can be proponents and others opponents (Newcombe, 2003). Several classifications have emerged, including internal/external (Calvert, 1995; Sutterfield et al., 2006), inside/outside (Newcombe, 2003; Chinyio and Olomolaiye, 2010), direct/indirect

(Smith and Love, 2004) and political stakeholders (Eyiah-Botwe, 2016). Similarly, stakeholders' project influence has been related to their role, contribution, interest, influence, potential, anh harm which are considered as non-power attributes (Chinyio and Olomolaiye, 2010). However, stakeholder involvement and influence in a project may be as a result of power, and the legitimacy and urgency of the claim (Mitchel et al., 1997). An assessment of the stakeholder influence may require an analysis of a matrix or mapping of one or more of these attributes (Newcombe, 2003; Bourne, 2005).

As a result of the dynamics of this SAC latent construct, 15 variables were identified under the classification, prioritization and analysis method. That was confirmed by the three-factor components that resulted from the CFA rotation test. From the CFA test, nine factors were retained. The rest had either low factor loading, cross loading or belonged to a component with low internal consistency and reliability. The structural model reveals the presence of a causal relationship between the latent variable (SAC), the measured items and SM success (endogenous variable) as statistically significant at 5% probability. However, a critical examination of the parameter estimates (Z score) shows that six indicators had high standardized factor values while the other five variables were low. Similarly, the squared multiple correlations (R^2) reveal six variables as performing good while four were very low, implying that only about 50% of the SAC variables predicted the SM success factor. Nevertheless, SAC as a latent variable had a high correlation with the other factors in the model. Therefore, it is suggested in summary that the SAC latent variable has a direct influence in determining the overall stakeholder management success but is not a strong predictor of the endogenous factor.

Furthermore, it was observed that the variables 'stakeholder map/template' and 'stakeholder position mapping for assessment' had the highest standardized regression scores. Studies have suggested these methods as effective in analysing stakeholder influence on SM success (Bourne, 2005; Bourne and Weaver, 2010). Similarly, 'power/interest matrix' and 'stakeholder possesses power, urgency and legitimacy' were the next highest ranked indicators in that order. Studies suggest that key stakeholders should be managed closely; those with high power but low interest should be kept satisfied; high interest but low power be kept informed, and the low interest, low power re-monitored with little effort (Aapaoja and Haapasalo, 2014).

Many studies have supported the use of this analysis method in assessing stakeholders (Newcombe, 2003; Chinyio and Olomolaiye, 2010; PMI, 2013; Eskerod and Jepsen, 2013). The findings suggest that considering a combination of stakeholder attributes impacts more than an attribute. Mitchell et al. (1997) further state that the 'definite' stakeholder is a key stakeholder because of the possession of the three power attributes of power, legitimacy and urgency of the claim. The non-power attributes of interest, role, project responsibility, affecting, commitment and contribution had low scores, suggesting that their impact is minimal.

This study therefore asserts that for SM success, the government, project managers and stakeholders should not only identify but consider the assessment of the stakeholder attributes and, more importantly, use a combination of attributes to assess their level of influence. The uniqueness of the indicator variables with high scores is that it offers the opportunity to monitor the stakeholder involvement.

11.1.4 Stakeholder Engagement Influence on Stakeholder Management Success

For the purpose of this study, engagement refers to engagement/communication. It considers the means of exchanging/imparting information, having stakeholders involved and participate in discussions related to project success. Studies have identified engagement as a critical success factor for project/stakeholder management success (Chan et al., 2004; Bakar et al., 2011; Yang et al., 2009; Alias et al., 2014). However, communication must be effective and requires appropriate timing, simplicity, clarity and relevance (Al-Khafaji et al., 2010). The study considers communication methods and channels for effective engagement of project stakeholders.

The structural model results reveal a causal relationship between the exogenous variable (SEN) with the measured items and SM success (endogenous variable) as statistically significant at 5% probability. Also, the SEM results indicate that the standardized factor values and squared multiple values were good and statistically significant. Likewise, the five indicator variables showed high correlation values. Also, is the degree of linear association between the measured items and the endogenous construct. Therefore, it is suggested that the SEN variable has a direct influence in determining the overall stakeholder management success but weak in terms of the assessment of the squared multiple correlations.

The further assessment shows that 'using open communication' had the highest standardized score followed by 'using emails for correspondence', 'using planned communication', 'adopting proactive communication', and 'using social platforms', in that order. For a project to survive developing and maintaining continuing relationship with project stakeholders is critical (Al-Khafaji et al., 2010). Al-Khafaji et al. (2010) further state that stakeholder communication is critical for project success. Many scholars in SM have identified communication/engagement as a key SM success factor (Karlsen 2002; Yang, 2009; Chinyio and Olomolaiye, 2010) to the extent that the PMI (2008) considers the entire SM as communication management. Open communication is transparent, interactive, involves meeting project participants using video conferencing, effective as a communication channel and critical for SM success. Planning communication is essential for it to be effective and must consider communication requirements, information to be communicated and the reason, stakeholders responsible and the time frame involved (PMI, 2008). Similarly, what, how, when, who and where to communicate should be considered (Eskerod and Jepsen, 2013). Project managers should aim at managing communication using proactive approach: by addressing issues before they occur, anticipate, communicate to mitigate. Likewise, informal communication can enhance effective SM as it promotes the unity of purpose which can 'make' or 'break' project success (Manowong and Ogunlana, 2010). The use of the 'social platform' is recommended as more stakeholders access timely information on social platforms rather than emails and this has been found to enhance social interaction.

This study also revealed that respondents ranked as low (Cronbach alpha .336) other stakeholder engagement variables though studies suggest their effectiveness. These include organizing seminars, workshops, conferences (removed for cross loading), using push and pull communication, and the upward/downward approach (PMI, 2008; Al-Khafaji et al., 2010; Jepsen and Eskerod, 2013). However, this study, based on the literature reviewed, posits that project managers should still consider stakeholder meetings as an effective way of engagement.

The outcome of this study supports the advice of PMI (2008) and Eskerod and Jepsen (2013) for stakeholder engagement/communication. Thus, from the SEM model analysis, for SM success to be realized, key stakeholders and project managers must plan, distribute and manage communication information and engage stakeholders in open, planned communication using a proactive approach and both formal and informal means. Likewise, achieving management success will lead to project success.

11.1.5 Stakeholder Conflict Resolution (SCR) Influence on Stakeholder Management Success

The outcome regarding SCR was that stakeholder conflict resolution had a strong direct positive influence on project performance, stakeholder satisfaction and project gains through stakeholder management success. Additionally, the relationship between SCR latent construct and SM success as endogenous variable is statistically significant at 5% probability. Eight indicator variables were pre-tested using the CFA test. For the full structural model, five indicator variables defined the SCR construct. These are ‘having the capacity to determine conflict type’, ‘having the ability to resolve conflicts’, ’ensuring fair play during resolution’, ‘embarking on early conflict resolution’ and ‘having the ability to predetermine possible conflicts’.

The SEM analysis findings indicate that project delivery can be influenced by conflicts associated with project stakeholders. Thus, the finding is consistent with Olander and Landin’s (2005) assertion that negative project stakeholders and opponents’ attitude can severely influence SM and obstruct project implementation. According to Olander and Landin (2005), two such projects had project stakeholders influencing the project beyond the project manager’s control, resulting in time, cost overruns and bad media publicity. These projects were the Sweden railroad and a housing project consisting of 60 apartments which were delayed for over six years. Similarly, in Ghana, the STX housing project by the NDC government in 2008 failed owing to the conflict between key stakeholders while the Atuoabo Gas project was delayed because of stakeholder conflicts on land issues. Conflicts in projects are the result of differences in objectives, interests, values, facts and personalities (Moura and Teixeira, 2010). Likewise, the diverse culture of nations, project stakeholders and the environment are a source of project conflict (Mok et al., 2015). Freeman (2010) also states that there can be conflict among top management and between directors and the external parties.

The parameter estimate analysis reveals that ‘having the ability to predetermine possible conflicts’ had the highest standardized score followed by ‘having the ability to resolve conflicts’ with the ‘having capacity to determine conflict type’ variable as the lowest. The other three variables failed owing to low internal reliability scores during the CFA pre-test though transparency among stakeholders and during the resolution process is critical. This outcome is consistent with other studies suggesting that conflicts may arise from external pressure (Waddock et al. 2002). Thus, it requires project managers' predetermination and capacity to manage conflicts, including social trends, and ethical and legal obligations inherent in the construction sector (Waddock et al., 2002).

Similarly, Olander (2003) posits that conflict must be resolved at a strategic level and consensus built. The two approaches require 'predetermining conflict', 'ensuring fair play during resolution', and 'embarking on early conflict resolution' for a timely solution. Also, conflict resolution impacts on time and cost (Olander, 2003). Therefore, this study states that conflict resolution has a direct influence on SM success. Project managers should have the capacity to predetermine possible conflicts and types and can resolve these and ensure fair play during resolution. The reason has been that conflicts are at the root of most project management challenges at strategic and implementation levels (Olander, 2007; Aapaoja and Haapasalo, 2014).

11.1.6 Implementation, Monitoring and Feedback (IMF) Influence on Stakeholder Management Success

The construct involves three important aspects of project and stakeholder management. Studies assert the need to carefully and fully implement decisions made regarding SM at every stage of the project execution. Freeman (2010) posits implementing and monitoring stakeholder strategies as a means of translating strategic plans into action plans. While Karlsen (2002) mentions follow-up, Cleland (1999) and Olander (2006) describe it as implementing stakeholder management strategy. Lock (2007) stresses monitoring and control.

Again, a research sub-objective was formed to assess the extent of influence of conflict resolution (SCR) related factors on SSM success. Three main factors considered and revealed by the CFA component rotation were implementation, monitoring and feedback documentation (feedback). However, implementing decisions on feedback had low communality (.352), hence was dropped. Implementing in full project feasibility plan had the highest score as the variable influencing most SM successes. Eight variables were thus submitted for CFA and SEM analysis.

The results from the structural model inform of a causal relationship between the latent variable (IMF) with eight indicators and SM success (endogenous variable) as statistically significant at a 5% probability. Likewise, the eight indicator variables had strong correlation values, implying that there was a high degree of linear association between the measured items and the endogenous construct. Also, the squared multiple correlations (R^2) indicators were predictors of SM success output. Therefore, this study asserts that that IMF variable directly influences the overall stakeholder management success.

The parameter estimates when assessed for the factors reveal that five factors had good standardised regression coefficient scores. The indicators were 'implementing fully, project feasibility brief', 'implementation of stakeholder communication plan',' implementing fully, stakeholder needs plan', 'documenting the entire stakeholder process' and 'monitoring stakeholders need achievement' in the order of the highest first. Similarly, the study found the critical ratios of the indicators as good, except the squared multiple correlations that only two indicators were very strong while others were good.

Previous studies in SM tend to support this study. For instance, Newcombe (2003) found that project managers tend to please construction clients only; a situation that affects the full implementation of the feasibility brief. Also, failure by managers to implement strategies fully can change stakeholder perceptions, attitudes and contributions which is critical for project success (Eskerod and Jepsen, 2013). Likewise, stakeholder participation in the process will be influenced if they should perceive non-implementation of their needs plan (Olander, 2006). Therefore, it is not enough to have strategies for stakeholders without a follow up on implementation (Karlsen, 2002).

Furthermore, as studies inform of the unique role of communication in SM success, it is expedient to fully implement a communication plan. The PMI (2008) maintains that SM should entail managing stakeholder expectations and report performance. It thus requires a good documentation and feedback system. That is acknowledged by Cleland (1999) as the need for an ongoing, up-to-date report on stakeholder position for managers and professionals to use in evolving and implementing project plans. In support of this view, South African Construction (2013) claims keeping complete documentation on project decisions and development helps to resolve conflicts. Similarly, they consider monitoring of communication for control of the environment and risks for decisions on the implementation of a risk mitigation plan as critical success factors.

This study therefore posits that implementation, monitoring and feedback (IMF) latent construct and the indicator variables must be well considered by project managers for SM success. From the summary, the results suggest that most variables obtained from the Delphi study and included in the model have a substantial influence on stakeholder management success. The impact of these factors corroborates previous studies which suggest the influence of project definition and planning, project manager and procurement factors (PMI, 2008; Rwelamila, 2009; Gudiene et al., 2013; Fewings, 2013; Aapaoja and Haapasalo, 2014). Ofori (2013) identified stakeholder involvement, clarity of purpose and goals as critical factors for project success in Ghana.

11.2 Extent of Hypothesised Relationship Fitting the Identified Factors

The standardised direct effect of the SEM results revealed that all six exogenous variables (constructs) had a direct effect on SM success. The PSI, SCR, IMF, and SEN had a direct positive and strong influence, but the SIP and SAC had direct weak scores. Also, a check on the standardised indirect effect of the endogenous variables revealed that no construct had an indirect impact. Therefore, the general hypothesis proposed by this study, namely that the overall SM success output regarding project performance and achieving stakeholder needs and project gains is the outcome of the direct influence of the six exogenous variables if confirmed.

The outcome of the SEM findings is supported by the two main stakeholder theories which also underpin the model (Freeman 1984; Mitchell, 1997). Freeman (2010) has suggested the need to consider the stakeholder approach as a means of achieving successful strategic management. That implies that if the Ministry of Works and Housing in Ghana, which is responsible for public sector construction projects in Ghana, is aiming at successful project delivery, then at the strategic level there should be an SM framework to provide a guideline for project SM. Studies have confirmed that using hard skills cannot guarantee project performance, hence the need for a soft SM skill (Davis, 2014). In Australia, the construction industry has depended on innovation for industry improvement. Likewise, Eskerod and Jepsen (2013) have stated that projects cannot be established, accomplished and the benefits realised without project stakeholders' management.

The PMI (2013) relates project success to achieving stakeholder needs and satisfaction as well as project performance targets. The structural model analysis has confirmed that the proposed model, when implemented in Ghana, can lead to the achievement of these mentioned targets. The model reveals that the exogenous variables have a direct effect on all the SMO variables. The similar study argues that SM is crucial in achieving project targets and that pre-project planning effort with stakeholder participation can save 20% on cost and

30% of the time. Williams (2015) has identified the majority of public sector projects in Ghana which have failed. Similarly, the Audited Report on GETFund projects in 2013 also identified project failures which were related to pre-stakeholder identification issues (project definition, procurement approach and stakeholder factor). In addressing this issue using the SM approach, Aapaoja and Haapasalo (2014) advise the need to consider project definition. Finally, contemporary SM scholars have maintained the need to address all the factors identified but not collectively in a single model. The need to manage antagonistic stakeholders to avoid conflicts and a negative impact on the project has been stressed (Newcombe, 2003; Olanden, 2003). Many empirical studies have discovered the positive and direct effect of the SM factors identified by this research (Karlsen 2002; Elias et al. 2002; Young 2006; Bourne and Walker 2006; Olander 2006; Lock 2007; Yang, 2010; Chinyio and Olomolaiye, 2010; Eskerod and Jepsen; 2013). For enhanced project delivery, the focus must be on SM in Ghana and the Finland approach must be adopted (Chinyio and Akintoye, 2008; Chinyio and Olomolaiye, 2010).

11.3 Questionnaire and Delphi Survey Relationship

This Delphi survey explored latent constructs and variables that influence SM in Ghana in the absence of any formal SM model. The factors from the study that can influence SM success were pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring, and feedback. Following that, a field survey questionnaire was tested to validate the Delphi study's outcome.

The survey findings validated the Delphi results as the latent constructs, namely pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring, and feedback were found to have a direct causal relationship with SM success (endogenous variable). Likewise, the SEM findings failed to reject the overall hypothesis that the exogenous constructs have a direct influence on SM success output. That is because the results were statistically significant.

Using a statistical SEM approach did not only validate the Delphi study results but enhanced its validity and reliability. Furthermore, the study justified the inclusion of pre-stakeholder identification and conflict resolution as peculiar to developing countries. Also, the two factors had a strong positive direct relationship with the SM success factor.

11.4 Conclusion

The chapter concludes that the field survey (quantitative) findings using the SEM statistical procedure supports the Delphi technique (qualitative) approach results. The factors identified as pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring, and feedback were validated as having a direct and positive influence on SM success and the output variables. Similarly, the SEM findings are supported by theory and previous studies which recommend all the factors but failed to test them empirically in a developing country.

Thus, pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution, implementation, monitoring, and feedback are a prerequisite for SM and project delivery success in Ghana. That is because construction projects delivery cannot be realized without first successfully managing the project stakeholders involved.

CHAPTER TWELVE

CONCLUSIONS AND RECOMMENDATIONS

12 Introduction

This current study evaluates project stakeholders' management as an innovative soft skill for improved public-sector construction project delivery in Ghana as a developing country. The overall objective was to develop a sustainable stakeholder management (SM) framework that will ensure SM success and subsequently project delivery. Therefore, the study assessed the causal relationship between the identified exogenous factors and SM success output.

Firstly, the research outlined the background, project definition, justification for the study, the objectives, research approach and chapters organization. Then followed a review of the development of SM, existing and contemporary theories, models and frameworks. The outcome was the identification of gaps in this research. Secondly, the thesis embarked on case studies of three selected developed and three developing countries aimed at identifying factors and good practices related to SM. That enabled the researcher to develop a conceptual model for the research underpinned by the stakeholder concept and salience theories.

To achieve the general and sub-objectives of the study, a mixed methodology of a literature review, qualitative Delphi survey technique and quantitative field questionnaire survey was adopted. The research aimed at validating the qualitative study with the field study and the use of confirmatory factor analysis (CFA) and structural equation modelling (SEM) approaches. Lastly, the hypothesised model was tested for goodness-of-fit, and a final framework developed.

12.1 Revisiting the Research Objectives

The success of construction project delivery today requires an innovative approach to project management. This study considered the SM approach as a soft skill innovation in the Ghanaian construction industry. Six research objectives were formulated to evaluate the possible impact of the proposal, and are discussed as to how the objectives have been achieved.

12.1.1 Research Objective RO1

The study first set out to evaluate stakeholder theories, stakeholder management (SM) models, and frameworks to identify key factors and gaps. It was also aimed to document the historical development of the Ghanaian construction industry and the influence on SM. That necessitated a literature review to achieve the objective. The findings are that SM has developed since George Freeman's publication of a book titled *Strategic Management: A Stakeholder Approach* in 1984. Strategic management, stakeholder identification and salience are major underpinning concepts. Also, SM has developed through seven stages from the stakeholder concept at Stanford Research Institute (1963) to the current empirical studies stage focused on organisations, sectors and government activities.

Furthermore, the fourteen reviewed stakeholder theories and models identified the following key factors: stakeholder identification, classification, prioritisation, analysis, assessment, communication, engagement, and monitoring as the established factors influencing SM success. Finland, the UK and Australia are some of the developed countries where SM is advocated and embraced, resulting in increased construction project delivery.

The historical development of the construction industry in Ghana and SM were documented in a conference publication as *Stakeholder management: A literature review of the historical development and current trend established twelve major developments aimed at managing project stakeholders and regulating the industry for enhanced project delivery*. These developments are the Architects Act, 1969; the Local Government Act, 1993; the Building Regulation Act, 1996; Ghana Vision 2020 (1995); and Ghana Education Trust Fund, GETFund Act, 2000. Also included are the Public Procurement Act of Ghana, Act 2003; the GETFund Consultative Report 2000-2009; the Engineering Council Act, 2011; the National Urban Policy Framework and Action, 2012; the National Housing Policy, 2015 and the proposed Construction Industry Development Bill, 2015. Likewise, the study found that the Ghanaian construction sector is not stakeholder focused. Also, it is challenged by disintegration, conflicts, procurement issues, and poor project development, hence the need for a formal approach to managing the project stakeholders.

However, stakeholder management has been embraced in recent years as a result of the direct and positive influence of SM in achieving project success in developed countries. Thus, there are several processes aimed at managing stakeholders who can influence project outcomes for enhanced project success. The construction industry in developed nations has embraced SM, resulting in enhanced project delivery.

12.1.2 Research Objective RO2

The second objective aimed at establishing the influence of pre-stakeholder identification as a latent construct and a gap in SM research. Pre-stakeholder identification also influences SM implementation, SM success and project successful delivery. To achieve the objective, a literature review and Delphi surveys were conducted for related factors and experts' knowledge and experience. The findings are that many factors influence SM success and outputs achievement in Ghana and these include pre-stakeholder identification activities. That is because all activities related to project stakeholders' influence SM and must be managed for SM success. That calls for adequate project feasibility considering both project stakeholders' needs and satisfaction.

Failure to consider stakeholder interest during the project definition stage leads to scope and site changes and eventually the involvement of the stakeholder community. Their conflicting needs and interest then impact on the project management plan. The project definition and planning must state the project objectives and what constitutes stakeholder satisfaction and prescribe achievable targets. The reason has been that stakeholder attitudes and commitment in achieving success are influenced by their need consideration. In addition, project stakeholder-related factors were identified, including the consultants preparing of detailed designs, indicating the stakeholders involved and extent of needs achievement. Late introduction of key stakeholders impacts negatively on the entire SM process as stakeholder needs and management plans are affected.

Similarly, the project manager factors also influence SM success. The findings are that not all project managers have the qualification and experience to manage project stakeholders. Their competence, skills, leadership qualities and knowledge regarding SM influence the extent of SM success. In an environment where resources are inadequate, the project manager's ability to timeously procure the needed resources, anticipate and resolve conflicts is vital. Also, to implement, monitor and document the process is critical for public sector projects in Ghana.

The findings of the study included adopting the design and build and management contract procurement systems as enhancing project SM. Similar studies have also identified the adoption of these two methods and partnerships as enhancing stakeholders' participation at project early stages. These procurement systems ensure that all issues, needs and interests of stakeholders are addressed and signed off at the initial project stages. A careful consideration of pre-stakeholder activities is essential as the factor predicts SM success and the outputs.

12.1.3 Research Objective RO3

The third objective was to establish and evaluate the influence of conflict resolution/ management as a key factor in stakeholder management success. Similarly, the study established conflict resolution as a key factor that predicts SM success. Many mega-projects have failed in Ghana owing to project conflicts and their late resolution. The study identified the ability to pre-determine and early conflict resolution as enhancing SM success.

Similar studies have revealed that project stakeholder conflicts have impacted negatively on SM and project outcome in Swindon and Lund. Also, having the ability to resolve an early conflict resolution is crucial. Moreover, dissatisfied, antagonistic and affected stakeholder are likely to broaden their power support to impact negatively on the SM success. However, previous studies reviewed failed to include the factor as an exogenous construct, rather as a variable. The study established that 'having the ability to predetermine possible conflicts', 'having the ability to resolve conflicts' and 'having the capacity to determine conflict type' are variables that influence the latent construct.

Likewise, research and theories have mentioned implementation, monitoring and feedback but have not considered them together. This study therefore identified pre-stakeholder identification, conflict resolution and the combination of implementation, monitoring and feedback one construct as the gaps and included them as constructs predicting SM success. Thus, for SM success to be realized in Ghana, project managers and team leaders should consider these factors as peculiar to our industry in addition to established factors.

12.1.4 Research Objective RO4

Next, the critical success factors (CSFs) were identified and evaluated for the extent of their influence on the proposed sustainable stakeholder management framework in Ghana. The literature review identified latent factors and observed variables. The six CSFs identified by the study are pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution with implementation, and monitoring and feedback as the last construct.

The identification of stakeholders at every stage and educating stakeholders were identified by previous studies and were confirmed in the context of the Ghanaian environment. This is necessary as identification and education will ensure that stakeholders contribute to the project success as their needs are planned and met. Stakeholders are to be assessed using both non-power and power attributes. The non-power variables included stakeholder interest, role, commitment and involvement in the project. Similarly, using 'power/interest matrix' and assessing stakeholders based on power, urgency and legitimacy were found as key factors to any successful assessment. Studies have recommended using the power/interest matrix as effective in deciding on the level of engagement of every stakeholder group with key stakeholders as the most important. Similarly, stakeholders possessing all the three power attributes are definite participants with considerable influence on the SM success outcome, followed by two and only one attribute. Stakeholder assessment require monitoring stakeholder position during the project implementation.

Moreover, effective communication is strongly influential. Previous studies identified open, planned and proactive communication implemented timely, simple and with clarity as effective. These factors were confirmed by the study and further recommended the use of emails and social platforms. The two methods allow the same information to be communicated and accessed at the same time, thereby enhancing interaction and transparency. The factors were selected ahead of workshops and conferences as site meetings are conducted regularly. The dispersed nature of projects and stakeholders suggest a communication approach which is effective irrespective of project and stakeholder location.

The last factor considered in addition to the gaps was combining implementation, monitoring and feedback as one key construct. The study found that full implementation of decisions at every stage is critical for stakeholders' continuous support. More importantly, having a good feasibility plan and implementing it fully will ensure that stakeholder commitment to project success is sustained. Also, implementing fully, needs and communication plans are vital to maintaining stakeholder interest.

Likewise, monitoring and the consideration of feedback ensure that negative stakeholder power bases are not developed and that new stakeholders and needs are catered for timeously. Finally, feedback and documentation are essential as they serve as a basis for learning, education and the provision of a register for subsequent projects. Project success is defined as achieving stakeholder needs and satisfaction. Hence team leaders, project managers and policy makers should prepare a comprehensive stakeholder plan which details how stakeholders are to be managed for their positive influence on project delivery.

12.1.5 Research Objective RO5

The fifth objective of the study was to evaluate the critical barrier factors (CBF) and the extent of the influence on the proposed sustainable stakeholder management framework for Ghana. These CBFs mitigate against SM success, hence must be managed for reduced impact. Again, eight factors were identified as having a possible negative influence on SM success. These factors are unstable economic conditions, differences in culture, firms' and individuals' ethics, and social behaviour. Also included are political influences, the absence of an industry regulatory body, and the negative impact of the Public Procurement Act (PPA).

The findings revealed that the biggest challenge is the unstable economy. Similar studies on SM success have identified the economic impact as a pre-condition for stakeholder management. Ghana, like many developing countries, depends on external funding for capital infrastructure projects and a joint venture in the form of the public-private partnership procurement system. The project development defines the stakeholder community and project goals which in some instances are opposed by the local community and end users who may be key stakeholders. Similarly, inflation, inadequate funding, and the collapse of funding institutions can impact on project development, leading to a revision of the project brief, hence meeting stakeholder needs and satisfaction.

Also, it was discovered that differences in culture, firms' and individuals' ethics also have a strong negative influence on achieving SM success outputs. Thus, these factors confirmed those of previous studies' findings. Differences in culture and ethics can lead to conflicts, poor human relationships and negative attitudes toward achieving SM success. In Ghana, unlike developed countries, traditional chiefs are key stakeholders as custodians of the land, coupled with traditional beliefs, hence must be considered as such. Also, findings reveal that culture and work ethics can result in some stakeholders are reluctant to work long hours or on particular working days in addition to making legitimate demands which will influence stakeholder relationship. Thus, project managers must be creative in bringing stakeholders together and resolving cultural differences that will impact negatively.

In summary, critical barrier factors identified manifest as external environment factors which the project manager must consider alongside the critical success factors to ensure SM success. Their negative influence can be minimized when carefully managed. Foreknowledge and planned mitigation can reduce their impact.

12.1.5 Research Objective RO6

The final objective of this thesis was to develop and validate a sustainable SM framework aimed at SM success for public sector construction projects in Ghana and enhanced project delivery. That was achieved through the appraisal of literature and experts' contributions from the Delphi survey. Following the Delphi survey, a refined conceptual model was developed and hypothesized that stakeholder management success is a six-factor construct. The factors are pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback. A quantitative field survey using a questionnaire for industry participants' responses was conducted to ascertain the extent of influence and validate the model. The study used structural equation modelling SEM AMOS Version 22 to analyse the results.

Furthermore, the model fit assessment revealed that the theorized model of pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback factors have a direct and positive causal relationship with stakeholder management success. Also, the constructs pre-stakeholder identification, engagement, conflict resolution, implementation, monitoring and feedback were found to have a strong direct influence while stakeholder identification and assessment showed a weak relationship with SM success output.

To conclude, the study revealed that the construction industry requires innovation to meet the current challenges. The best approach to increase project delivery is by implementing stakeholder-focused policies and encouraging stakeholder participation and engagement. Project managers, team leaders and policy makers would have to consider a formal SM approach.

12.2 Significance and value of research

The findings of this thesis have theoretical, practical and methodological contributions and value. Therefore, the researcher deliberates the contribution at these three levels. Also, it is worth noting that the most significant contribution of the study is the approach towards the development of refined conceptual and validated models for stakeholder management success which no other study had employed.

12.2.1 Theoretical Significance and Value

The SEM analysis conducted revealed that sustainable stakeholder management success is predicted by six constructs. Similarly, consideration of critical barrier factors would enhance the achievement of stakeholder management success as it has a direct effect on SM success outcome. The significance of this study is drawn from the theoretical information on the most important constructs that predict stakeholder management success for public-sector construction projects in a developing country. Hitherto, there was a lack of research on factors that predict stakeholder management success in the area researched by this study.

The study found that previous studies by scholars in recent years have been conducted in developed countries. Apart from Yang (2010), scholars have also focused on selected factors influencing project stakeholder management. The SEM results revealed that the factors of pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback have a direct and positive influence on stakeholder management success. Previous studies have never included the two factors of pre-stakeholder identification and conflict resolution as key factors in the full model.

Also, of significance is that this study using SEM analysis determined the unidimensional influence of critical barrier factors on stakeholder management success which is an innovation. The emphasis on adopting SM models for projects' success will not be on critical success factors only but will include a consideration of the negative but direct influence of external environment factors. Similarly, the results further confirm the stakeholder identification, assessment, engagement and monitoring factors as generic and influencing the overall SM success and that stakeholder management theory is multifaceted. Lastly, the pre-stakeholder identification and conflict resolution constructs have been retained in the final model, having been suggested by Delphi experts and empirically proven. They constitute a major contribution to the stakeholder concept. The model is consistent and effective, hence it can be generalized and used as a basis for understanding SM success for construction projects in the public sector of a developing country.

12.2.2 Methodological Significance and Value

Firstly, this study employed a methodological approach that has never been used for stakeholder management study. Most previous studies have used other methods such as network analysis, content analysis, univariate statistical methods (ANOVA and MANOVA) and case studies of selected projects. Rather, this study adopted a more robust methodological approach using SEM for the analysis as it surpasses all traditional regression models. With the SEM approach, the researcher could include multiple exogenous and endogenous factors to test the hypothesis about the relationships among the observed variables and the latent constructs. Similarly, the study could identify which constructs had direct, positive and strong relationships, hence influencing the most stakeholder management success outcomes as against indicating a general outcome.

Secondly, the study employed an innovative mixed-method approach involving a literature review, the Delphi survey (qualitative) and the use of a questionnaire survey (quantitative) for the validation. Most previous studies in stakeholder management have used a literature review, interviews and observation for the research. The advantages of the mixed method relating to in-depth information and a generalization of results, content and construct validities were all utilized. The high internal reliability values of the data suggest its usefulness for other similar and future studies offering a practical significance as well.

12.2.3 Practical Significance and Value

The practical significance of stakeholder management has been highlighted over two decades but not adopted by the developing countries' construction sectors. Every construction project has unique stakeholders who affect project outcomes, hence they should be managed. The results have indicated that ten stakeholder management outputs can be achieved if project managers and team leaders use the stakeholder management approach. The Delphi study and the SEM analysis both confirmed the likely achievement of project performance targets and stakeholder needs, satisfaction and gains by using the SM approach.

Similarly, the study presents the first formal stakeholder management approach for industry practitioners in Ghana and developing countries of similar industry features. The development of a formal model further addresses the challenge of a lack of a formal SM process for the public sector as is done in Finland. Project managers, team leaders and government and development officers at the various institutions can enhance project delivery in the public-sector by considering the six-factor SM success model. It becomes a useful tool for the professional institutes as it can be used to educate members on steps to adopt for improved project output. Thus, by preparing stakeholder management plan using the factors identified stakeholder participation can be enhanced. Stakeholders attitude, influence, interest, commitment and position on the project can be monitored and mitigated.

Similarly, the model has planning significance for the Metropolitan, Municipal and District Assemblies (MMDA) in Ghana as it can be used in project development, especially in reducing the negative influence of stakeholders which results in a high rate of project failures. The model presents activities to be considered for the beneficiary community and key stakeholders to ensure their continuous support, role, achievement of needs and satisfaction.

12.3 Recommendations

Following the outcome of this study and the interesting issues emanating from it, the researcher would like to conduct further research in line with theoretical, methodological and practical aspects of the study's significance.

12.3.1 Theoretical Recommendation

Regarding theoretical significance, first, the researcher would like to consider the combined influence of the critical success factors and the barrier factor. That will result in a complex model which entails the positive causal effects as well as the negative. The model fit can then be re-examined. Secondly, there are observed variables that have been tested empirically and found to influence the constructs confirmed. However, some of these indicators proved otherwise in this study. These variables include those of project managers' factor, communication methods and non-power attributes. Therefore, the researcher intends using a different sample to investigate their influence.

Also, in this study and based on the Delphi study outcome, classification, prioritization and analysis method were combined. The factor rotation resulted in identifying them as components. However, the final model has variables mainly belonging to the analysis methods. A future study considering the three factors as separate constructs will be theoretically useful. Similarly, the study found the direct positive influence of stakeholder identification and assessment as having a weak influence though previous studies have identified them as having a strong influence. Lastly, this study aimed at a management approach but a future study can aim at an SM process approach.

12.3.2 Methodological Recommendation

Methodologically, the study found the approach as very efficient. Nevertheless, since other studies suggest the need for empirical validation after testing the goodness-of-fit of the model, the study recommends a future study that can validate the model. There is the likelihood that additional variables may be found using selected experts which could lead to an improvement of the model and its validity. Further studies employing the same mixed-method approach could also commence with a quantitative study and end with validation using a Delphi study technique. However, the study found the use of SEM as having an advantage over all other used statistical methods for similar studies, hence its use is recommended for further studies.

12.3.3 Practical Recommendation

The study makes a recommendation for both practical and policy implications. That follows the convincing results and findings that emerged as follows:

- The public-sector project delivery in Ghana can be enhanced by first ensuring that project stakeholders are managed successfully. That will require a conscious consideration of the pre-stakeholder identification, stakeholder identification, assessment, engagement, conflict resolution and implementation, monitoring and feedback factors.
- In considering these factors which were identified as critical success factors for stakeholder management success, it is important that the indicator variables are carefully examined concerning their impact on the construct. For pre-stakeholder identification, for instance, having an adequate and good project feasibility study must be the most important factor to be considered.
- Similarly, the project development and planning departments responsible for project realization must give thoughtful consideration to all the critical factors by their impact on the full model. Therefore, the most important factor to look at is the pre-stakeholder identification, followed by conflict resolution, implementation, monitoring and feedback, engagement, identification process and assessment. However, efforts should be made to improve the stakeholder identification process by educating stakeholders on gains as it was found to be weak. Also, the stakeholder register should be improved and made accessible to project managers and development officers. Similarly, stakeholder engagement should be improved as communication is essential both in achieving project success and in conflict resolution.

- Furthermore, the Metropolitan, Municipal and District Assemblies in Ghana should ensure that for each project embarked upon, there is stakeholder involvement and participation. Officials should engage the stakeholder community, especially the key participants and the local community, and agree on their needs and what will constitute stakeholder satisfaction.
- Likewise, project managers should pay attention to the critical barrier factors identified. That is because they can influence the achievement of SM success. More importantly, the impact of the economic performance should be considered as that will determine whether projects targets can be achieved relative to the cost target. Also, for mega projects involving stakeholders of diverse nationalities, their differing cultures, ethics, social and legal issues must be well addressed. Stakeholder integration must be pursued as well as teamwork for enhanced SM success.

Finally, as it pertains in the UK, project managers and team leaders must produce a stakeholder plan which should provide information on how they intend to manage project stakeholders for successful project delivery. The plan must outline the pre-stakeholder activities, stakeholders identified, stakeholder mapping to indicate those considered as key stakeholders, and a communication/engagement plan. Similarly, possible conflicts should be anticipated as well as how to resolve them and plans should be put in place for the implementation and monitoring of strategies, stakeholder needs and objectives. Support from the Ghana Institute of Architects, the Ghana Institution of Engineers and Surveyors and the Project Management Body will enhance government efforts in achieving SM success and increased project delivery.

12.4 Limitations

Though the study's results are credible, there are participants were sampled hence not the entire population was used. Firstly, in the absence of a SM model and the lack of research in the SM field in Ghana, the literature on the variables was limited, hence the study had to rely on experts' knowledge and contributions. Thus, practitioners either manage stakeholders based on experience in project management or have adopted any of the generic models. Stakeholder management understanding and knowledge was inadequate. That must have contributed to variance in experts' contributions and the outcome of the field data.

Secondly, the study employed structural equation modelling for the field data analysis. The raw field data were used in the analysis of the causal model with results supporting a priori causal model. While the confirmatory factor analysis (CFA) suggested strong causal relationship for all the factors, the SEM analysis had two factors manifesting weak relationship. The modification index (MI) revealed the need for correlation among many error measurements. That was an indication that certain variables predicting the construct were likely absent. An analysis method that includes many variables may have improved the model fit. Furthermore, there is the likelihood that reliability and validity would have been enhanced.

Finally, though the sample size was adequate in meeting the minimum criteria together with the unidimensional models found as overidentified, the presence of many parameters suggests an increased sample size could have improved the model good fit results. Thus, any future research must aim at a much larger sample size.

12.5 Conclusion

This section of the thesis concluded the development of a sustainable SM success framework which was underpinned by the stakeholder strategic management, salience and a review of existing SM theories and models. The summary considered the extent of accomplishment of the study objectives which indicated that all the study objectives were achieved.

The study postulated that stakeholder management success is directly influenced by a six-latent factor (exogenous variables) in achieving SM outputs for improved project delivery. The postulated model which was analysed using SEM revealed it to be significant and that four exogenous factors had strong, positive and direct relationships while the remaining two had positive but weak direct relationships.

To achieve the study objectives, the researcher supported the literature review with a Delphi survey, which included experts from the industry and the academia, for variables that influence SM success. Similarly, the postulated model validation employed the field survey technique involving experienced industry practitioners from all three sectors of the country, hence increasing the research validity, reliability and generalizability.

The results contributed to the field of knowledge in stakeholder management in three areas. Firstly, an empirically tested SM model for developing countries has been developed. The indicator variables could act as a baseline for the academic in any future studies owing to the high level of internal consistency and the reliability of data. Thus, the developed SM model can also be a basis for further theoretical review in SM.

Secondly, the methodological approach is innovative in the SM field. The researcher adopted a mixed-method approach of a qualitative Delphi technique and a quantitative questionnaire survey for data collection and validation. Subsequently, the robust SEM analytic approach was used to analyse the model for goodness-of-fit. That proved that the exogenous variables have a direct relationship with SM success and result in the SM output variables.

Thirdly, the study had practical implications for project managers, team leaders, policy makers and development officers at the MMDAs and the public-sector institutions in Ghana. These included identification of critical success factors, critical barrier factors, indicators with the strongest influence and the need for a stakeholder management plan for public sector projects, especially involving diverse stakeholders. Likewise, if project managers should adopt the SM model for project development, there is the likelihood of achieving SM success and eventually project success.

However, policy initiatives should consider improving the influence of engagement and assessment factors which in the opinion of project stakeholders will enhance the factors' influence. Project managers who are responsible for the overall SM success and project delivery can employ the stakeholder management success strategies proposed in this study to successfully manage project stakeholders for the enhanced success of public sector construction projects.

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APPENDIX A

Department of Construction Management & Quantity Surveying
University of Johannesburg
P. O. Box 17011
Doornfontein 2028
South Africa
March 2016

Dear Sir/Madam

LETTER OF INVITATION TO PARTICIPATE IN DELPHI SURVEY AND REQUEST FOR EXPERTS' CURRICULUM VITAE

RESEARCH TITLE: SUSTAINABLE STAKEHOLDER MANAGEMENT FRAMEWORK FOR CONSTRUCTION PROJECTS IN GHANA

I am undertaking a PhD research at the University of Johannesburg. The research aims at developing a sustainable stakeholder management framework for improved construction projects success in Ghana and developing countries.

The methodology used for this study adopted a Mixed-Method approach. Since there is no existing framework for developing countries and also Ghana, the study explores factors for sustainable stakeholders' management success. Subsequently, a qualitative method using Delphi technique is adopted to explore factors from experts based on their knowledge and experience. As Delphi study employs a panel of experts for their judgement, invited experts are prequalified based a on a set of pre-outlined criteria.

Please you have been shortlisted for participation and I shall be grateful that based on your experience and knowledge in project management, you accept this invitation to participate in this study. Please attach your CV to your acceptance letter with emphasis on the following areas:

- Extensive professional experience as a Project Manager in the Ghanaian construction industry. A minimum of five years' experience (Chan et al., 2010)
- Detailed knowledge in construction project stakeholder management, procurement systems and project communication management area
- Authorship of at least five articles in well-rated journal in project management (Roger and Lopez, 2002)

- Conference presenter, second peer-reviewed conference. Please, indicate a minimum of 10 conferences attended (Roger and Lopez, 2002)
- Please indicate if you are Faculty Senior Member/Head of Department related to construction, involved in construction projects, advanced research in the related field
- Qualified member of a professional body, Ghana Institute of Architects, Institution of Surveyors or Engineers.
- Participated in professionally related forums, workshops, demonstrated the desire to advance the discipline or have been a Council Member of the professional body
- Currently/Having managed a mega construction project with diverse participants such as shopping malls, hotel, hostel complex, stadia, hospitals and other public projects
- Advanced degree in the field of project management, a minimum of MSc, PG (Arc) or equivalent

All the University of Johannesburg ethical considerations will be adhered. Summary results will be available at the Department of Construction Management and Quantity Surveying. The research is under the joint supervision of Professors W. D. Thwala, J. H. Pretorius and Professor C.O. Aigbavboa co-supervisors.

Should you have any questions, please do not hesitate to contact me on the following:

Email: ebotwe123@yahoo.com, ebotwe123@gmail.com.

Tel: +27735639372. +276-616886752

Kindest regards.

Yours sincerely,

Emmanuel Eyiah-Botwe (Arc)

APPENDIX B
DELPHI METHOD AND APPLICATION TO THIS STUDY
BACKGROUND INFORMATION

The Delphi Method

The Delphi technique is a process used for gathering data and expertise information to solve non-analytical problems. Developed in 1959is is a research tool for soliciting opinions of experts (panel members) in a field on subject area.

The Process

The desire expertise information is solicited using a series of questionnaire survey called rounds. The first round involves requesting for key factors, related factors and selecting factors to be evaluated in the subsequent rounds. It is exploratory in nature as much information in the area remains unknown. The subsequent rounds present to the panel the group response and the personal response of the preceding round. However, the participants remain unknown to each other. The participant may alter his/her answer to correspond with the group median or state reasons for maintaining the answer. The round three may serve as a final round if consensus is reached summarizing the group's response.

Delphi Study Advantages

The Delphi technique has four advantages over other data collection methods as outlined below:

- The anonymity of Delphi participants: allows the participants to freely express their opinions without undue social pressures to conform from others in the group. Decisions are evaluated on their merit, rather than who has proposed the idea;
- Iteration: allows the participants to refine their views in light of the progress of the group's work from round to round;
- Controlled feedback: informs the participants of the other participants' perspectives, and provides the opportunity for Delphi participants to clarify or change their views; and
- Statistical aggregation of group response: allows for quantitative analysis and interpretation of data.

The Application of Delphi

You have been selected to participate in a Delphi survey for a doctoral study on Stakeholder Management (SM) success for public-sector construction projects in Ghana as a developing nation, to explore and assess key factors and related factors influencing SM success. The study aims at identifying the key factors responsible for SM success for enhanced project delivery success. The round one will involve answering a set of questionnaires to explore factors and request for additional factors which will be evaluated in the subsequent rounds. The rounds two and any additional will seek for consensus on the group median.

Time Commitment

Each round will require about 30 minutes for completion and submission. Your participation in all the rounds will be required until consensus is reached commencing on April, 2016

APPENDIX C

DELPHI ROUND ONE INSTRUCTIONS, QUESTIONNAIRE AND REQUEST FOR FACTORS FOR STAKEHOLDER MANAGEMENT STUDIES

Many thanks for accepting to be a Delphi Expert for this study. Please email your response in Word format to ebotwe123@yahoo.com. You will have the chance to modify your response later after all the Delphi participants have completed the particular round of survey until we achieve group consensus.

AIM OF THE STUDY

This study aims at developing a Sustainable Stakeholder Management (SSM) Framework for public-sector construction projects in Ghana by addressing the gaps identified in the literature reviewed.
The purpose of the Delphi survey technique employed is to collect data from experts in the field and by analysing and combining the information, obtain a group consensus on Key factors and related-factors. The study has so identified the following:

- Main factors responsible for achieving SSM success and related factors
- Outputs which can result from SSM success

MAIN FACTORS

1. Pre-stakeholder identification (PSI)
2. Stakeholder Identification Process (SIP)
3. Stakeholder Attributes Classification (SAC)
4. Stakeholder Attributes Prioritisation (SAP)
5. Stakeholder Analysis
6. Stakeholder Engagement (SE)
7. Implementation, Monitoring, Feedback (IMF)
8. External Environment Factors (EEF)

SM

STAKEHOLDER MANAGEMENT SUCCESS

SM OUTPUT (4)

Project performance achievement
Needs achievement
Improved relationship
Gains
Environment consideration

DELPHI SURVEY SPECIFIC OBJECTIVES:

The sub-objectives of the Delphi survey technique employed are:

- DSO1: To evaluate the critical barrier factors (CBFs) of SSM from literature review and Delphi experts represented as External Environment Factors (EEF).
- DSO2: To determine sub-attributes and the extent of influence of pre-stakeholder identification related factors on SSM. The sub-attributes are project definition and planning, procurement method and stakeholder factor.
- DSO3: To evaluate the influence of stakeholder identification (SIP) on SSM success
- DSO4: To evaluate the influence of stakeholder types, prioritize and analyse for SSM success
- DSO5: To determine the extent of influence of stakeholder communication/engagement on SSM
- DS06: To determine the factors and evaluate the influence of conflict resolution consideration for SSM framework
- DSO7: To determine the extent of impact of implementation, monitoring and feedback documentation on SSM success
- DSO8: To evaluate the SSM output attributes as a result of SSM success
- DSO9: To seek and also confirm or otherwise key factors identified from the literature review and those formulated as gaps.

INSTRUCTIONS

1. Please consider the listed factors from literature as important or otherwise.
2. For additional related factors, please add new/provide in the blank rows
3. Tick 'Yes' if the factor is important and should be included in the set of factors to be ranked
4. At least 50% of experts must tick "Yes" for the factor to be considered important for the next round of the process.
5. The subsequent round will evaluate the influence of the variables or related factors using a five–point Likert scale.

Q1.0 External Environment Factors (EEF)

	External factors	Yes	No
EEF1	Economic issues		
EEF2	Cultural practices/influences		
EEF3	Legal policies/legislation		
EEF4	Ethics of firms/stakeholders		
EEF5	Social behaviour/practices		
EEF6	Political influences/policies		

B. Pre-Stakeholder Identification Factors (PSI).

Q2. Project Definition-related attributes

	Project definition	Yes	No
PSI1	Excellent project feasibility study		
PSI2	Clearly stated project objectives		
PSI3	Good project location		
PSI4	Detailed design		
PSI5	Resisting project scope changes		
PSI6	Clearly stated stakeholders needs		

Q3. Project Stakeholder Factor

	Project stakeholders-related attributes	Yes	No
PSF1	Level of Project manager's competence		
PSF2	Project manager's knowledge in the SMP		
PSF3	Project manager's leadership skills		
PSF4	Project Team's experience in SMP		
PSF5	All project stakeholders must have previous experience in SMP		

Q.4 Procurement Methods

	Procurement methods	Yes	No
PMF1	Separating design and build stages		
PMF2	Integrating design and build stages		
PMF3	Separate project management and design		
PMF4	Working with the same project team		
PMF 5	Varying the procurement methods		

Q.5 Stakeholder Education and Training

	SM Education and Training	Yes	No
SET1	Stakeholders receive education on SMP at project inception		
SET2	Education is repeated at every stage		
SET3	Stakeholders receive training on SMP gains only		
SET4	Stakeholders need formal training		
SET5	Professional bodies must promote SMP gains to their members		

C. Stakeholder Identification Process (SIP):
Q6. Early Stakeholder Identification

	Early Stakeholder Identification	Yes	No
ESI1	Stakeholder identification occurs at the project definition stage		
ESI2	All interested parties are identified before project design sign off		
ESI3	Excluding all late stakeholders		
ESI4	Reviewing an existing stakeholder list		
ESI5	Having a directly designed register		

D. Stakeholder Attributes Classification (SAC)
Q8. Stakeholder Classification Criteria

	Stakeholder classification criteria	Yes	No
CCF1	Formal contract		
CCF2	Positive contribution to the project		
CCF3	Negative project influence		
CCF4	Positive project influence		
CCF5	Affected by project outcome		

Q9. Stakeholder Composition Factors

	Stakeholder composition attributes	Yes	No
SCF1	High internal/low external relationships		
SCF2	Low internal/high external relationships		
SCF3	Similar internal/external relationships		
SCF4	More proponent/ low opponent		

Q10. Project Involvement

	Project Involvement Impact	Yes	No
SPI1	Role in the project		
SPI2	Responsibilities in the project		

SPI3	Level of participation		
SPI4	Level of commitment		
SPI5	Level of contribution		

E. Stakeholder Attributes Prioritisation (SAP)
Q11. Stakeholder attributes

	Stakeholder Power Attributes	Yes	No
SPA1	Power to influence decisions		
SPA2	Urgency of need		
SPA3	Legitimacy to demand need		
SPA4	Delegated power to influence		
SPA5	Power, legitimacy, and urgency		

Q12. Non-**power attributes**

	Stakeholder Non-power Attributes	Yes	No
SNP1	Interest in the project		
SNP2	View of project's importance		
SNP3	Impact on the project		
SNP4	Influence on the project		
SNP5	Needs and expectations		

Q13. **Analysis Methods**

	Stakeholder Analysis Method	Yes	No
SAM1	Stakeholder matrix		
SAM2	Stakeholder mapping		
SAM3	Stakeholder network analysis		
SAM4	Stakeholder circle method		

F. Stakeholder Engagement (SE)

Q14. Stakeholder engagement-communication approaches

	Communication Approach	Yes	No
SEC1	Adopting proactive communication		
SEC2	Adopting reactive communication		
SEC3	Using open communication		
SEC4	Using more verbal communication		
SEC5	Using more non-verbal communication		
SEC6	Using "top-down" communication		
SEC7	Using "bottom-up" communication		

Q15. Communication Method

	Communication Method	Yes	No
SCC1	Using emails for correspondence		
SCC2	Communicating using telephone		
SCC3	Using posters and signage at project sites		
SCC4	Organising stakeholder conferences		
SCC5	Organising stakeholder workshops		
SCC6	Meeting one-on-one with stakeholders		
SCC7	Using social platforms for communication		

Q16. Conflict resolution-related attributes

	Conflict resolution attributes	Yes	No
SCR1	Having the ability to predetermine and possible conflicts		
SCR2	Ability to determine conflict type		
SCR3	Understanding stakeholder willingness to resolve conflict		
SCR4	Embarking on early conflict resolution		
SCR5	Ensuring fair play during resolution		
SCR6	Stakeholders transparency		
SCR7	Transparency in the resolution process		

G. Implementation, Monitoring and Feedback (IMF)

Q17. Decisions Implementation:

	Decisions Implementation	Yes	No
DIF1	Project feasibility plan		
DIF2	Stakeholder education plan		
DIF3	Stakeholder management objectives		
DIF4	Stakeholder analysis plan		
DIF5	Stakeholder conflicts analysis plan		
DIF6	Stakeholder engagement communication plan		
DIF7	Stakeholders needs		

Q18. Progress Monitoring.

	Progress monitoring	Yes	No
SMF1	Monitoring daily implementation of all plans		
SMF2	Assessing the project objectives achievement regularly		
SMF3	Monitoring the effectiveness of SMP at every SM stage		
SMF4	Assessing the level of achievement of stakeholder satisfaction and needs		
SMF5	Monitoring every stakeholder daily		

Q19. Feedback: documentation and feedback-related factors

	Documentation and feedbacks	Yes	No
SDF1	Documenting the entire stakeholder management process		
SDF2	Documenting only successes and failures		
SDF3	Asking for feedback at the end of every stage implementation		
SDF4	Reviewing and implementing decisions on feedback		
SDF5	Communicating decisions on feedback to all stakeholders		

Q20. Stakeholder management outputs?

	SM process output	Yes	No
SMO1	Meeting project targets		
SMO2	Meeting stakeholder needs and satisfaction		
SMO3	Improving project delivery		
SMO4	Improving stakeholder relations		
SMO5	Reducing project conflicts		

Based on your knowledge and experience, please suggest any additional Key or related factor necessary for stakeholder management to be a success in Ghana.

Please send all correspondences to ebotwe123@yahoo.com or ebotwe123@gmail.com.

Many thanks for participating in this Delphi Round One. Feedback will be emailed to you as soon as all respondents have sent their response.

APPENDIX D

DELPHI INSTRUCTIONS FOR ROUND TWO AND EXAMPLE OF ANSWERED QUESTIONNAIRE

Many thanks for participating in Delphi Survey Round One. Factors and related factors qualified for the Round 2 are grouped and presented for your evaluation. Please email your response in Word format immediately after answering all questions in this Round Two to ebotwe123@yahoo.com. You will have the chance to modify your response later after all the Delphi participants have completed this particular round of survey.

AIM OF THE STUDY

This study aims at developing a Sustainable Stakeholder Management success framework for public sector construction projects in Ghana.

DELPHI SURVEY OBJECTIVES:

The objectives of the Delphi survey technique employed remain the same. The specific objectives are:

- DSO1: To evaluate the critical barrier factors (CBFs) of sustainable stakeholder management (SSM) from literature review and Delphi experts as External Environment Factors (EEF).
- DSO2: To determine sub-attributes and the extent of influence of pre-stakeholder identification related factors on SSM. The sub-attributes are project definition and planning, procurement method and stakeholder factor.
- DSO3: To evaluate the influence of stakeholder identification (SIP) on SSM success
- DSO4: To evaluate the influence of stakeholder types, prioritize and analyse for SSM success
- DSO5: To determine the extent of influence of stakeholder communication/engagement on SSM
- DS06: To determine the factors and evaluate the influence of conflict resolution consideration for SSM framework
- DSO7: To determine the extent of impact of implementation, monitoring and feedback documentation on SSM success
- DSO8: To evaluate the SSM output attributes as a result of SSM success
- DSO9: To seek and also confirm or otherwise key factors identified from the literature review and those formulated as gaps.

This Round Two survey is to seek for consensus by evaluating the majority's ranked response of:

- The main factors identified to be responsible for achieving successful SSM and related attributes
- The related factors or variable responsible for the factors influence
- The main proposed outputs which can result from SSM success

INSTRUCTIONS

1. Please endeavor to answer all the following questions to the best of your ability.
2. Please place an "X" for your choice in the box provided and by the score indicated. X
3. Please take note of the legend as used in round two survey:

NAAI	LI	N	MI	EI
Not important at all	Low importance	Neutral	Moderately Important	Extremely Important

A. External Environment Factors (EE**).** These are factors outside the organisation, project owner or clients control which can impact negatively on the SM process. They are considered as Critical barrier factors CBFs

Q1. From your experience, how important is each of the following **external environment-related factors** for ensuring the stakeholder management is a success?

	External factors	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
EEF1	Economic issues				X	
EEF2	Cultural practices/influences				X	
EEF3	Legal policies/legislation				X	
EEF4	Ethics of firms/stakeholders				X	
EEF5	Social behaviour/practices				X	
EEF6	Political influences/policies					X
EEF7	Construction industry practices			X		
EEF8	Labour agitations				X	
EEF9	Absence of industry regulatory body				X	

B. Pre-Stakeholder Identification Factors (PSI). These are factors to be considered during the project planning stage before formally identifying project stakeholders.

Q2. From your knowledge and experience, how important is each of the following **Project Definition-related attributes** for ensuring the stakeholder management is a success?

	Project Initiating and Planning (Definition)	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
PSI1	Excellent project feasibility study					X
PSI2	Clearly stated project objectives					X
PSI3	Good project location				X	
PSI4	Detailed design					X
PSI5	Resisting project scope changes				X	
PSI6	Clearly stated stakeholders needs					X
PS17	Project Planning and Control				X	

Q3. Based on your experience, how important is each of the following factors relating to **Project Stakeholders** for ensuring the stakeholder management is a success?

	Project Stakeholders Factor	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
PSI8	Level of Project manager's competence					X
PSI9	Project manager's knowledge in the SM				X	
PSI10	Project manager's leadership skills					X
PSI11	Project Manager's experience				X	
PSI12	Project Team's experience in SMP				X	
PSI13	All project stakeholders must have previous experience in SMP				X	

Q4. From your knowledge, how important is the role of each of the following **Procurement Methods** for enhanced **stakeholder identification** and successful stakeholder management?

	Procurement Method Factor	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
PSI12	Separating design and build stages			X		

PSI13	Integrating design and build stages				X	
PSI14	Separate project management and design		X			
PSI15	Working with the same project team				X	
PSI16	Using design and management combined				X	
PSI17	Not using the Public Procurement Act, Act 663			X		

Q5. From your experience, how important are each of the following **Stakeholder Education and Training-related factors** for ensuring the Stakeholder Management is a success?

	SM Education and Training	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SIP1	Stakeholders receive education on SM at project inception					X
SIP2	Education is repeated at every stage				X	
SIP3	Stakeholders receive training on SM gains only			X		
SIP4	Stakeholders need formal training			X		
SIP5	Professional bodies must promote SM gains to their members					X

C. Stakeholder Identification Process (SIP): Carefully identifying all stakeholders can enhance the stakeholder management process.

Q6. Based on your experience, how important are each of the following in ensuring **Early Stakeholder Identification** and successful stakeholder management?

	Early Identification and register	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SIP6	Stakeholder identification occurs at the project definition stage					X
SIP7	Identify stakeholders at the design stage				X	
SIP8	Identify stakeholders at the tender stage		X			
SIP9	Having an expert staff to identify stakeholders				X	
SIP10	Identify stakeholders at every stage					X
SIP11	All interested parties are identified before project design sign off				X	
SIP12	Excluding all late stakeholders			X		
SIP13	Reviewing an existing stakeholder list				X	
SIP14	Having a directly designed register				X	

D. Stakeholder Attributes Classification (SAC): Stakeholder attributes can impact on the stakeholder management process.

Q7. From your experience, how will you rank the importance of using each of the following **Stakeholder Classification Criteria** for ensuring the stakeholder classification is a success?

	Stakeholder classification criteria	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
CCF1	Formal contract					X
CCF2	Positive contribution to the project					X
CCF3	Negative project influence			X		
CCF4	Positive project influence				X	
CCF5	Affected by project outcome					X

Q8. Based on your experience, how important is each of the following incidence of stakeholder classification composition for ensuring the stakeholder management is a success?

	Stakeholder composition attributes	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SCF1	High internal/low external relationships			X		
SCF2	Low internal/high external relationships			X		
SCF3	Similar internal/external relationships				X	
SCF4	More proponent/ low opponent					X

Q9. Based on your experience, how important is each of the following classification of stakeholders based on their **Project Involvement** for ensuring stakeholder management is a success.

	Project Involvement Impact	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SPI1	Role in the project					X
SPI2	Responsibilities in the project					X
SPI3	Level of participation					X
SPI4	Level of commitment					X
SPI5	Level of contribution					X

E. Stakeholder Attributes Prioritisation (SAP): Prioritising project stakeholders can determine their engagement approach.

Q10. Based on your knowledge, how important is each of the following prioritisation of stakeholders based on **stakeholder attributes** for ensuring stakeholder management process is a success?

	Stakeholder Power Attributes	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SPA1	Power to influence decisions					X
SPA2	Urgency of need					X
SPA3	Legitimacy to demand need					X
SPA4	Delegated power to influence				X	
SPA5	Power, legitimacy, and urgency					X

Q11. What level of priority will you give to the following stakeholder **non-power attributes** as having an impact on the stakeholder management success?

	Stakeholder Non-Power Attributes	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SNP1	Interest in the project					X
SNP2	View of project's importance					X
SNP3	Impact on the project					X
SNP4	Influence on the project					X
SNP5	Needs and expectations					X
SNP6	Dynamism and salience to project				X	
SNP7	Has shares in the project				X	

Q12. Based on your experience, how important is using each of the following **Analysis Methods** for ensuring stakeholder management is a success?

	Stakeholder Analysis Method	1 lowest	2	3	4	5 Highest
SAM1	Stakeholder map template					X
SAM2	Stakeholder position mapping				X	
SAM3	Stakeholder network analysis					X
SAM4	Stakeholder circle method				X	
SAM5	Power/ Interest matrix					X
SAM6	Power/ Influence matrix				X	
SAM7	Influence/Impact matrix			X		
SAM8	Importance/Influence- salience model			X		
SAM9	Help/Harm-potential matrix				X	
SAM10	Power/Proximity			X		
SAM11	Power/ Importance matrix					X

F. Stakeholder Engagement (SE): The following questions aim at identifying the engagement and communication approaches for the active participation of stakeholders.

Q13. Based on your knowledge, how important is using each of the following **stakeholder engagement-communication approaches** for ensuring stakeholder management is a success?

	communication approach	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SEC1	Adopting proactive communication					X
SEC2	Adopting reactive communication		X			
SEC3	Using open communication				X	
SEC4	Using more verbal communication			X		
SEC5	Using more non-verbal communication				X	
SEC6	Using "top-down" communication			X		
SEC7	Using "bottom-up" communication				X	
SEC8	Using push communication				X	
SEC9	Using planned communication				X	

Q14. Based on your experience, please rank the importance of using each of the following stakeholder **communication means** for ensuring stakeholder management process is a success?

	Communication channels/means	1 Lowest	2	3	4	5 Highest
SCC1	Using emails for correspondence					X
SCC2	Communicating using telephone					X
SCC3	Using posters and signage at project sites				X	
SCC4	Organising stakeholder conferences					X
SCC5	Organising stakeholder workshops				X	
SCC6	Meeting one-on-one with stakeholders				X	
SCC7	Using social platforms for communication					X

Q15. An aspect of the stakeholder engagement process is conflict resolution. Based on your knowledge, how important is each of the following **conflict resolution-related attributes** for ensuring stakeholder engagement process is a success?

	Conflict resolution attributes	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SCR1	Having the ability to predetermine possible conflicts					X
SCR2	Ability to resolve conflict					X
SCR3	Ability to determine conflict type					X
SCR4	Understanding stakeholder willingness to					X

	resolve conflict					
SCR5	Embarking on early conflict resolution					X
SCR6	Ensuring fair play during resolution					X
SCR7	Stakeholders transparency					X
SCR8	Transparency in the resolution process					X

G. Implementation, Monitoring and Feedback (IMF): Implementing decisions, monitoring stages, documenting and using feedback are part of the stakeholder management process.

Q16. Decisions Implementation: Based on your knowledge, how important is the project manager's full implementation of each of the following **decision implementation- related attributes** for ensuring the SM process is a success?

	Decisions Implementation	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
DIF1	Project feasibility plan					X
DIF2	Stakeholder education plan					X
DIF3	Stakeholder management objectives					X
DIF4	Stakeholder needs plan					X
DIF5	Stakeholder conflicts analysis plan					X
DIF6	Stakeholder engagement/communication plan					X
DIF7	Stakeholders decisions from feedback					X

Q17. Progress monitoring. Based on your experience, how important is using each of the following **progress monitoring-related factors** for ensuring stakeholder management process is a success

	Progress monitoring	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SMF1	Monitoring daily implementation of all plans					X
SMF2	Monitoring project objectives achievement					X
SMF3	Monitoring the effectiveness of SMP at every stage and effectiveness					X
SMF4	Monitoring stakeholder satisfaction and needs achievement					X
SMF5	Monitoring stakeholder needs daily				X	

Q18. Feedback: Based on your knowledge, how important is each of the following **documentation and feedback-related factors** for ensuring stakeholder management process is a success?

	Documentation and feedbacks	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SDF1	Documenting the entire stakeholder management					X
SDF2	Documenting only successes and failures					X
SDF3	Asking for feedback at the end of every stage implementation					X
SDF4	Reviewing and implementing decisions on feedback					X
SDF5	Communicating decisions on feedback to all stakeholders					X

Q19. Based on your experience, how important is the role of stakeholder management process in ensuring the achievement of the following **stakeholder management outputs**?

	SM process output	1 Not at all important	2 Low importance	3 Neutral	4 Moderately important	5 Extremely important
SMO1	Meeting project cost					X
SMO2	Meeting project time					X
SMO3	Meeting project quality					X
SMO4	Meeting stakeholder needs					X
SMO5	Meeting stakeholders' satisfaction					X
SMO6	Improving project delivery					X
SMO7	Improving stakeholder relations					X
SMO8	Reducing project conflicts					X
SMO9	Increasing profit for stakeholders				X	
SMO10	Increased socio-economic benefits				X	

Q20. Based on your knowledge and experience, please suggest any additional independent factor that will be necessary for the stakeholder management to be a success.

……

Please send all correspondences to ebotwe123@yahoo.com or ebotwe123@gmail.com.

Many thanks for participating in this Delphi Round Two. Feedback will be emailed to you as soon as all respondents have sent their response.

APPENDIX E

LETTER OF INVITATION TO PARTICIPATE IN A FIELD SURVEY

UNIVERSITY OF JOHANNESBURG

Department of Construction Management & Quantity Surveying
University of Johannesburg
P. O. Box 17011
Doornfontein 2028
South Africa

October 2016

Dear Sir/Madam

LETTER OF INVITATION TO PARTICIPATE IN A FIELD SURVEY

RESEARCH TITLE: SUSTAINABLE STAKEHOLDER MANAGEMENT FRAMEWORK FOR CONSTRUCTION PROJECTS IN GHANA

I am undertaking a PhD research at the University of Johannesburg. The research aims at developing a sustainable stakeholder management framework for improved construction projects success in Ghana and similar developing countries. Stakeholder management is a project management "soft skill" developed and used in developed countries to enhance project success.

Construction project stakeholders refer to individuals, firms and groups with interest, can affect be affected or impact on a project outcome. These stakeholders include the project manager, client, architect, engineer, quantity surveyor, contractor, subcontractor, specialist, end-user, government authorities and the local community. Stakeholder management involves a systematic effort to coordinate all the activities related to the project stakeholders to ensure successful project outcome. This research after a Delphi survey has identified Seven Factors, Related Factors, Critical Success Factors and Critical Barrier Factors for your evaluation.

Based on your experience and knowledge in project management, I kindly request you to complete the following short questionnaire which will take no longer than 20 minutes of your time. Your full completion and submission will be very much appreciated.

To protect your anonymity, you are not required to enter your name or contact details on the questionnaire. All the University of Johannesburg ethical considerations adhered. Summary results will be available at the Department of Construction Management and Quantity Surveying.

The research is under the joint supervision of Professors W. D. Thwala, J. H. Pretorius (HOD) and Associate Professor C.O. Aigbavboa as a co-supervisor. Should you have any questions, please do not hesitate to contact me on the following:

Email: ebotwe123@yahoo.com, ebotwe123@gmail.com.

Tel: +233244278642, +27735639372

Thank you for your participation.

Emmanuel Eyiah-Botwe (Arc)

PhD Student

APPENDIX F
QUESTIONNAIRE FOR THE DEVELOPMENT OF SUSTAINABLE STAKEHOLDER MANAGEMENT FRAMEWORK FOR CONSTRUCTION PROJECTS IN GHANA

PLEASE ANSWER THE FOLLOWING QUESTIONS BY CROSSING (X) THE RELEVANT BLOCK/WRITING DOWN YOUR RESPONSE IN THE PROVIDED SPACE

SECTION A: BACKGROUND DATA

1. What is your **gender**?

1. Male	X	2. Female	

2. What is your **current profession**?

1.Project Manager	X	2.Construction manager		3.Architect		4.Engineer	
5.Sub- contractor		6.Quantity Surveyor		7.Contractor		8.Specialist	

Others, please specify ………………………………………………………………

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

1.Doctorate		2. Masters		3.BSc	X	4.HND/National Diploma		5.Other	

4. How many **years of work experience** do you have in managing construction projects?

1.1-5years		2.6-10years		3.11-15 years		4.16years and above	X

5. What is your **current employment status/area**?

1.Full-time employed	X	2.Part-time employed		3.Unemployed	
4.Public sector		5.Private sector	X	6.Both Public and Private sectors	

6. Where is your **firm/institution located** in Ghana?

1.Southern Sector	
2.Middle Sector	X
3.Northern Sector	

7. Where are your **main construction projects located** in Ghana?

1.Southern Sector		2.Middle Sector	X	3.Northern Sector		4. All applicable	

8. Do you consider the **following as part of your project stakeholders**: The client, architect, engineer, quantity surveyor, sponsor, contractor, sub-contractor, supplier, end-user, local community and government statutory authorities?

1.Yes	X	2. No	

9. Have you been **managing** these your project stakeholders?

1.Yes	X	2.No	

10. How satisfied are you managing these your project stakeholders?

1.Very Dissatisfied		2.Dissatisfied	X	3.Neutral		4.Satisfied		5.Very satisfied	

SECTION B

Stakeholder management is a process involving various stages of coordinated activities related to project stakeholders for successful project delivery**. Based on your experience or knowledge,** kindly indicate the extent of influence of the following factors/related factors on stakeholder management process.

11. PRE-STAKEHOLDER IDENTIFICATION (PSI)

Below is a list of pre-stakeholder identification related factors. Based on your knowledge or experience, what influence does each related factor has on achieving successful stakeholder management?

Code	Related factors	Extent of influence				
		1 No influence	2 Low influence	3 Moderate influence	4 Large influence	5 Very Large influence
PSI1	Having adequate project feasibility study					X
PSI2	Having clear stated project objectives					X
PSI3	Having very detailed design					X
PSI4	Having clear stated stakeholders needs					X
PSI5	Project manager with high competence					X
PSI6	Project manager with good knowledge		X			
PSI7	Project manager with good leadership skills				X	
PSI8	Maintaining project teams			X		
PSI9	Employing the Design and Build method					X
PSI10	Adopting the Management Contract					X

12. STAKEHOLDER IDENTIFICATION (SIP)

Below is a list of stakeholder identification process related factors. Based on your experience/knowledge, what influence does each related factor has on achieving successful stakeholder management?

Code	Related factors	Extent of influence				
		1 No influence	2 Low influence	3 Moderate influence	4 Large influence	5 Very Large influence
SIP1	Identifying stakeholders at project inception stage					X
SIP2	Identifying stakeholders using an expert staff					X
SIP3	Reviewing an existing stakeholder register					X
SIP4	Identifying stakeholder at every stage				X	
SIP5	Providing stakeholders with education				X	
SIP6	Repeating stakeholders education at every stage				X	
SIP7	Using register provided by the professional bodies				X	
SIP8	Preparing a new register of stakeholders					X

13. STAKEHOLDER ASSESSMENT (SAC)

Below is a list of stakeholder classification-related factors. Based on your experience or knowledge, what influence does each factor used as criteria have on achieving successful stakeholder management?

Code	Related factors	Extent of influence				
		1 No influence	2 Low influence	3 Moderate influence	4 Large influence	5 Very Large influence
SAC1	Stakeholder affects/has formal contract					X

SAC2	Stakeholder has a key role in the project					X
SAC3	Stakeholder has some project responsibility				X	
SAC4	Stakeholder is committed to the project				X	
SAC5	Stakeholder contributes positively to project				X	
SAC6	Stakeholder has political influence					X
SAC7	Stakeholder affects/has the power to influence project					X
SAC8	Stakeholder has a legitimate demand			X		
SAC9	Stakeholder possesses power, urgency and legitimacy					X
SAC10	Stakeholder has needs and expectation			X		
SAC11	Stakeholder is dynamic and salient				X	
SAC12	Stakeholder map/template				X	
SAC13	Stakeholder position mapping				X	
SAC14	Power/Interest Matrix					X
SAC15	Power/ Influence matrix				X	

14. STAKEHOLDER ENGAGEMENT (SEN)

Below is a list of stakeholder engagement methods that could influence effective communication. Based on your knowledge, what influence does each method have on successful stakeholder management?

Code	Engagement-related methods	Extent of influence				
		1 No influence	2 Low influence	3 Moderate influence	4 Large influence	5 Very Large influence
SEN1	Adopting proactive communication					X
SEN2	Using open communication				X	
SEN3	Using emails for correspondence				X	
SEN4	Communicating using telephone		X			
SEN5	Organizing stakeholder conferences			X		
SEN6	Organizing stakeholder workshops				X	
SEN7	Using social platforms				X	
SEN8	Using planned communication					X

15. CONFLICT RESOLUTION (SCR)

The following list of factors relates to conflict resolution. Based on your experience/knowledge, what influence does each related factor have on successful stakeholder management?

Code	Related factors	Extent of influence				
		1 No influence	2 Low influence	3 Moderate influence	4 Large influence	5 Very Large influence
SCR1	Having the ability to predetermine possible conflicts				X	
SCR2	Having the ability to resolve conflicts				X	
SCR3	Having capacity to determine conflict type				X	
SCR4	Stakeholders being willing to resolve conflict					X
SCR5	Embarking on early conflict resolution					X
SCR6	Ensuring fair play during resolution				X	
SCR7	Ensuring transparency between stakeholders				X	
SCR8	Ensuring that conflict resolution process is transparent				X	

16. IMPLEMENTATION, MONITORING AND FEEDBACK (IMF)
The following list of factors relates to implementation, monitoring and feedback actions. Based on your experience/knowledge, what influence does each of these related actions have on successful stakeholder management?

Code	Related actions	Extent of influence				
		1	2	3	4	5
		No influence	Low influence	Moderate influence	Large influence	Very Large influence
IMF1	Implementing fully, project feasibility brief					X
IMF2	Implementing fully, stakeholder needs plan					X
IMF3	Full implementation of stakeholder management objectives					X
IMF4	Implementation of stakeholder communication plan					X
IMF5	Monitoring project objectives achievement				X	
IMF6	Monitoring stage activity and effectiveness				X	
IMF7	Monitoring stakeholders need achievement				X	
IMF8	Documenting the entire stakeholder process				X	
IMF9	Implementing decisions on feedback				X	

17. EXTERNAL ENVIRONMENT FACTORS, EEF (CRITICAL BARRIER FACTORS)
These are external environment factors that mitigate against sustainable stakeholder management process usually beyond the project manager's control. Please indicate your level of agreement on the impact of the following on sustainable stakeholder management.

Code	Related factors	Level of agreement				
		1	2	3	4	5
		Strongly disagree	Somewhat disagree	Neutral	Somewhat agree	Strongly agree
EEF1	Unstable economic conditions					X
EEF2	Differences in stakeholders' culture				X	
EEF3	Legal policies and legislations			X		
EEF4	Firms/Individuals ethics				X	
EEF5	Stakeholders social behaviour				X	
EEF6	Stakeholders political influences					X
EEF7	Absence of industry regulatory body				X	
EEF8	Negative impact of the Procurement Act			X		

SECTION C

This section aims at identifying critical success and barrier factors to successful and sustainable stakeholder management process for construction projects success. Based on your experience and knowledge, please indicate your level of agreement.

18. STAKEHOLDER MANAGEMENT SUCCESS/OUTPUT (SMO)
Below is a list of possible indicator outputs of successful stakeholder management process. Based on experience or knowledge, what extent can each of the outputs be achieved, by adopting sustainable stakeholder management?

Code	Possible outputs	Extent of influence				
		1	2	3	4	5
		To no extent	Low extent	Moderate extent	Large extent	Very large extent
SMO1	Reduced project cost					X

SMO2	Reduced project time					X
SMO3	Improved project quality					X
SMO4	Achievement of stakeholder satisfaction and needs					X
SMO5	Improved project delivery					X
SMO6	Early stakeholder identification				X	
SMO7	Improved stakeholder collaboration					X
SMO8	Excellent communication				X	
SMO9	Reduced conflicts				X	
SMO10	Continuous key stakeholders support				X	
SMO11	Good relationship and trust					X
SMO12	Well considered external environment factors				X	
SMO13	Increase profit for stakeholders					X
SMO14	Increased project socio-economic benefit/value					X