



## Assessing the Relationship between Project Planning Effort and Project Success in the Construction Industry of Ghana

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### ABSTRACT

The study sought to assess the relationship between project planning effort and project success in the construction industry. The study employed explanatory design of the quantitative approach in conducting the research activity. Management of Glenshire Hills Estate and Incept Architectural Consult were targeted for the study. Stratified sampling technique was employed to select 134 respondents to form part of the study. Questionnaire was the main data collection instrument used. The data was analysed by using descriptive statistics such as frequencies, percentages, means and standard deviations while Pearson r correlation and multiple regression formed part of the inferential statistics used with the aid of SPSS version 21. The study found that the projects constructed by selected companies were mainly residential buildings with few commercial buildings, health, educational structures and religious facilities. Also, project planning effort affects project success positively. Apart from organizational structure, human factors, technical factors and management factors affect project success positively. Moreover, factors inhibiting the contribution of project efforts to project success in the construction industry included; human factors, cost performance baseline, lack of clear goals and objectives among others. The study recommended that players in the construction industry should be critical about the experiences of team members as well as factors to boost the commitment of team members towards project planning process. Also, management of Glenshire Hills Estate and Incept Architectural Consult should provide appropriate project management software for keeping records and project management to project managers. Also, project team members of Management of Glenshire Hills Estate and Incept Architectural Consult should be encouraged or motivated to give more priorities or equal attention to planning activities as compared to their usual duties. Lastly, management of Glenshire Hills Estate, G-Hill Estate and Incept Architectural Consult should have clear and concise goals and objectives for project management.

Key words: Project Planning, Project Planning Effort, Project success, Construction Industry

### INTRODUCTION

#### *Background to the Study*

Infrastructure developments are intricate, may involve many stakeholders, large budgets and may span from just a few to several years. Managing construction projects is quite a challenge, particularly when the projects involve many stakeholders, very limited resources, instable or indistinct project necessities and new or unproven methods of execution (Park, Lee, Kwon & Wang, 2009). The Project Management Institute (PMI) refers to a project as to a specific set of temporary operations fashioned to accomplish certain goals. Project management, therefore is the application of techniques, tools, knowledge and skills, to perform various activities to meet project specifications (PMI, 2017). As a discipline, project management involves clubbing various important strands in the management continuum such as tasks to be performed, approaches to be deployed, resources to be used as well as the context and scope within which the project is being implemented (Venter, 2005).

Construction projects have a high rate of failure as many of them are either not completed on time or within budget. Aljohani, Ahiaga-Dagbui and Moore (2017) opine that nine out of every ten construction projects experience budget overruns. The construction industry has a poor reputation for timely project completion that is within budget. This usually stems from frequent design changes, payment delays, unreliable contractor financing and poor cost estimation among others. Many construction projects also suffer from weak material management, ineffective tendering documentation and inadequate or limited experience on the part of constructors (Aljohani et al., 2017).

The complexity of construction projects requires careful planning and effective scheduling of project tasks. Whilst management is known to be a science and an art that involves planning and controlling, construction management is heavily dependent on the economic consumption of resources available for timely project completion (Park et al., 2013). It suffices that effective planning of construction projects could increase the chances of project success by far, but there are no guarantees of success in construction projects.

Millions of cedis are wasted every time a construction project fails, not to talk of the wasted time and energy. Whilst no project manager sets out to fail, sometimes, project failure is controllable (Damoah, Akwei, Amoako & Botchie, 2018). Changes in policy, weather conditions and poor communication between stakeholders can lead to unexpected project failure. However, the failure rate of construction projects can be reduced with improved project planning.

An efficacious project is one that is completed on schedule, within budget, satisfies business requirements and delivers the expected value on investment. Collyer, Warren, Hemsley and Stevens (2010) opines that project success may be operationalized on four related but distinguishable levels; project proficiency, business success, impact on the customer and preparedness for the future (sustainability). The determination of project success is a slightly contentious issue because there are instances where project objectives are not met but the client is satisfied. In this study, however, project triumph is conceptualized as the ability of the construction project to meet broad business and enterprise objectives in addition to the meeting time, cost and quality goals.

Project planning refers to executive activities through decomposition, enunciation, and justification (Serrador, 2012). Planning is simply that which comes before action. In construction project management, project planning is preceded by business planning, which is the act of making the deal before project execution (Zwikael & Globerson, 2004). Planning can be conceptualized as a project phase and as project effort. Planning phase refers to the associated efforts that preceded project execution. The planning effort, on the other hand, refers to the amount of effort in work hours or money that is used in planning.

One cannot overemphasize the value of preparation to project success. Serrador (2013) argues that while preparation is not a silver bullet for ensuring automatic project success, there is a link between project planning and project quality. Wang and Gibson (2008) regard conventional wisdom as the connection between planning and performance because planning is the bedrock of all successful projects even from the time of the ancient pyramids. Careful planning reduces risks and increases project success rate because it helps project managers to consider different scenarios and prepare to prevent the worse from happening (Serrador, 2016).

On the other hand, inadequate planning of construction projects may result in loss of time, money and other resources; and it increases the possibility of adverse events, like personal injury, loss of potential contracts, or legal action (Wang & Gibson, 2008). Incidentally, these project-related problems are also compounded by their broad scale and complex characterization in the construction industry (Damoah et al., 2018).

### ***Problem Statement***

Building projects like building houses, roads, and office apartments play a significant role in every country's economic growth. And the literature is full of reports of abandoned and unfinished building projects. Though the reasons for the project failure or its causes, careful preparation is recognized as necessary for improvement project success (Serrador, 2012). Planning activities are the basic and assessable labor and other resources invested on successfully completing a phase of a project. Proper planning is fundamental to the success of a project, it is the basis for budget development, work schedule and other critical management tasks. Construction project planning is however quite challenging, as is the execution of such projects (Zwikael, 2009; Serrador, 2012).

Construction project managers have in their arsenal different planning approaches including the critical path method, operational planning and scheduling (Zwikael, 2009). Project Management systems such as agile have become increasingly prevalent. Besides the multiplicity of strategies, the preparation phase for construction is also complex and requires a solid understanding of industry best practices, software, legal considerations and resource management among others (Zwikael, 2009). As a result, the kind of planning effort that leads to particular levels of project success is not well understood.

Meanwhile, Maserang (2002) claims that each project is important in terms of the issues that exist, the priorities and resources assigned to it, the setting in which it functions, and the project manager's approach and style used to guide and track project operations. This implies that planning efforts may also differ for different kinds of construction projects. Not all investigators believe that proper preparation contributes to project success. Bart (1993) suggest that research and development planning could stifle innovation; Collyer, Warren, Hemsley, and Stevens (2010) also point out that excessive planning is bound to be counterproductive in destructible terrain, and long-term plans can be a waste of time.

This obvious disparity in the literature about the planning-project performance relationship indicates the need for further work in that direction. In addition, in a country such as Ghana, where every project failure continues to be reported by the construction industry (Damoah et al., 2018), the connection between project planning efforts and project success should be considered. Focusing on selected Accra construction firms such as Glenshire Hills Estate, Incept Architectural Consult and G-Hill Company Ltd, this study explores the correlation between project planning initiative and project success in the construction sector in Ghana.

### ***Objectives of the Study***

The study's main aim was to investigate the relationship between project planning initiative and project performance of selected construction companies in the real estate industry of Ghana. Specifically, the study sought to:

- examine the nature of project planning efforts in the construction industry in Ghana
- investigate factors which inhibit the contribution of project efforts to the construction industry's project success.
- assess the contribution of project planning efforts to project success in the construction industry.

### *Significance of the Study*

This research is valuable for having a sound knowledge of construction industry project planning activities in Ghana. This also helps to identify and build consensus in the construction industry on certain areas or dynamics of project planning essential to project success. This study also seeks to re-imagine and develop the planning process of project management in the industry by recognizing and analyzing the importance of planning to project performance in the construction sector. It's enough that the study is helping to minimize the rate of project failure in the local building sector. Moreover, the findings of this study will help improve the efficiency of construction projects by shedding light on the obstacles to successful industry planning. Finally, this research work adds to academic expertise already available in the construction field in Ghana about project management. Therefore, it may be the basis for further field work.

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## **REVIEW OF LITERATURE**

### *Overview of construction industry in Ghana*

The Ghana construction industry, as in other parts of the world, is huge, and a crucial segment in economic development (UNESCO, 2010). According to Anaman et al. (2007), adopted by Lange and Mills (1979), it is defined as a group of companies engaged with closely related activities in the construction of real estate, building, private, and public facilities. Civil engineering firms in Ghana, however, are undertaking projects involving heavily engineering features such as bridges, highways, railways and dams, while Building Construction Firms (BCF) are also undertaking projects such as developing schools, hospitals, health centres, hotels, and offices. Moreover, Ghana Construction Industry (GCI) is distinguished by large, medium and small construction firms and it is projected that large and medium- construction firms make up about 10 percent of the total number of construction firms licensed with the Ministry of Water Resources, Works and Housing (Egmond et al. 2007).

According to Egmond et al. (2007), these companies do not have the requisite technical resources, plant and equipment and key staff to manage properly awarded contracts, and the proof is that the very few large foreign contractors are awarded the major construction projects in the nation. The remaining 90 per cent are small businesses or 20 small businesses with a figure of 7095 in 1999, Such small companies perform basic construction work in public works with a contract volume of no more than US\$ 200,000 or GH400,000.00 and their average construction production ranges from 10% to 20% compared to large and medium-sized companies. Hence, building industry is the engine for the development of any economy. Ghanaian Construction Industry (GCI) therefore provides a viable industry in the country's economy, by making a major contribution to its development (Fugar&Agyakwa-Baah, 2010).

In order to promote local employment and increase economic output (Anaman&Amponsah, 2007), the construction industry should mobilize and make effective use of financial and human resources in housing and infrastructure growth and maintenance. In Field and Ofori's (1988) terms, the industry makes a major contribution to the economic production of a nation; it provides people with employment and income, and therefore the effect of building improvements on the economy is present at all levels and in virtually every area of existence. Therefore, the construction sector is considered to be a major and highly noticeable contributor to the development cycle (Field &Ofori, 1988).

Moreover, Ahadzie (2007) endorsed the above-mentioned statement that, in the early 1990s, the industry's contribution to GDP fell to a long-term low of about 2.7 percent, but reiterated that recent statistics suggest that it has once again appreciated a substantial 4.2 percentage point. At present, the share of GDP and contribution to development in the building sector is 10.5 and 11.2 per cent respectively (ISSER, 2012). A successful construction industry is well established to contribute to growth as it employs skilled and unskilled labour, from engineers and consultants to craftsmen and labourers (UNESCO, 2010).

### *Defining a Project*

A project is a series of tasks, which are performed over a definable period of time to accomplish a particular set of objectives. Provided that the project has the following characteristics, it is likely to be a one-time programme, it has a life cycle with clear start and end details, it has budget and is likely to involve the use of several resources, most of which may be scarce and need to be shared among others (Akwushola et al, 2012). Similarly, a project is any temporary effort to achieve a distinct objective or outcome. Meredith and Mantel (2012) also noted that a project is usually a one-time task, with a well-defined list of the desired end result. It may be divided into subtasks needed to achieve the project's goals. Therefore, a project is complex enough that the subtasks require careful preparation, precedent, coordination and monitoring of costs and outputs. Maylor (2010) also identified the project as a temporary entity needing to use predefined resources to achieve a particular and predefined result or result at a given moment.

In other words, project is a one-time, multitask job with a definite starting point, a definite end point, a clearly defined scope of work, a budget and, usually, a temporary team (Lewis, 2001). A project may be described as any set of activities and tasks; has a particular purpose to be achieved within specifications; has specified start and end dates; consumes human and non-human resources (i.e. money, personnel, equipment); has funding limits; and is multi-functional (Kerzner, 2013).

### *The Concept of Project Management*

The Institute for Project Management, the world's largest advocate for project management, believes that project management requires several common elements including project management processes and expertise areas for project management (Prabhakar, 2008). There are five method groupings for project management and ten (10) information fields for project management. The expertise areas of project management relate to the process classes,

which include project creation, project preparation, project execution, tracking, control and project closure. Those are the sequential stages each project is going through (Project Management Institute, 2018).

Project management has been a vital discipline in business for decades, but in the 1950s, modern project management started as a distinct discipline. Today it is well known that project management in almost all organizations is important for every industry in every role. With the rapid environmental, social, cultural, and technological changes on the horizon, it is even more important today (Ika, 2009; Williams & Samset, 2010). Industries that deploy project management practices include manufacturing, engineering and construction. Cooke-Davies and Arzymanow (2003) state that project management emerged in the construction industry where architects and master builders created plans, organized the logistics and collaborated with each other during the construction process.

### ***Construction Project Management***

Construction is one of many forms of program-centered development processes (Ballard & Howell 2003). Constructing project refers to a task of high-value, time-bound, and special construction with predetermined performance goals as specified by Chitkara (2005). He further states that the project mission is accomplished in different project environments by the convergence of human and non-human resources into a temporary body headed by a project manager. Building, Road Building, Commercial Development, and Special-Purpose Projects may be categorized into the main construction projects. Only Building Construction will be discussed further, due to the restricted scope of this study.

### ***Planning can be described as Project Planning***

determining which tasks to carry out to achieve the project's objectives. That means setting reasonable timetables and schedules, organizing resources to get the job done and, most importantly, ensuring everybody knows what the action plan is" (Pierce, 2013). The preparation begins right after a project has been started. Also important is the preparation process, which includes the creation of set plans to direct the project team through the subsequent stages of the project. The plans drawn up at this point will depend on the goals, scope, time and other elements previously identified. A project plan is fundamental to any project's success (Kerzner, 2013). The project plan acts as a project life-long roadmap and can be updated as much as appropriate. The project plan is a template by which the client and the project team will calculate performance (Kerzner, 2013).

Good preparation is useful in the management of time, costs, processes of transition, risks and quality issues. This also leads to appropriate workforce control and external stakeholders managing to ensure prompt completion of projects (Serrador, 2012). Efficient ventures have separate but interlocking plans for different components. For example, a general project plan, a resource plan, a financial plan, a quality plan, a risk plan, a communication plan, an acceptance plan, and a procurement plan need to be developed (Serrador, 2012). This is a daunting endeavor to develop project plans and not every project manager can produce all of these plans. However, for project performance extensive and thorough preparation is needed (Serrador, 2012).

Dvir et al (2003) points out that the planning of a project is at three levels, the first at the end user level, where planning focuses mainly on the functional characteristics of the project's end product. Next is the technical level, where the team that has to create the product working on the project provides the technical specifications needed to fulfill the functional requirements. Finally, at the project management level, focus is put on planning the activities and processes to be carried out to allow the technical work to be effectively carried out. Bell (2001) claims that 30% of the world economy has been projected to be focused on projects, but 70% of projects fail. That's a troubling figure, so we need to identify what success means to execute the project. Zilicus Solutions (2012) postulates that a project plan represents the goals and requirements of the project including scope, project schedule, resource requirement, project cost estimate, project quality and project risk management. Preparation of projects helps project managers turn project requirements into Job Breakdown Structure (WBS), Task List, Gantt Maps, Asset Allocation and Risk Register, among others.

### ***Challenges of Project Planning***

In quest to achieve effective and efficient project planning, engineers, contractors, project managers among others face a lot of barriers. Most of these blockages are further explained subsequently. Also, findings of empirical studies are added. Construction is quite an uncertain undertaken and the construction industry is unstable, particularly when focusing on economic and ecological aspects of stability. This is because, in contrast to other industries such as manufacturing, building projects are characterized by an insecure and complex project planning environment (Sunke, 2009). This in itself is a challenge because the unpredictability of environmental factors makes it difficult to plan effectively. Construction planning is technical and the techniques for planning construction projects are numerous. This often makes it difficult for project managers to agree on the construction which strategies and techniques would offer the best value for project plans. They have the option to choose between time-chainage chart, line of balance, Network analysis and Gantt chart just to name a few. Choosing from this set can be challenging for non-experienced project planner.

Factors such as risk, baseline cost-performance, organizational and environmental factors all influence the potential quality of the program. Poor quality plans bring about poor quality project outcomes. Such projects may miss their completion deadlines and exceed their budget. This is a major problem is it can cause the entire business case to be less attractive. This may also lead to stakeholder dissatisfaction. The project planning process is also susceptible to the influence of various factors. For instance, Techniques used in the planning of projects can influence the planning process. In comparison, the nature of the organization handling the project is also a valuable instrument for project planning outcomes. Personal or human factors also influence project planning outcomes. Changes in any of these factors may affect the quality of project plans.

In a recent review of construction projects in Israel, Dvir et al (2003) indicate that the source and implementation phase in which important decisions are made, such as assessing the project's goals and planning the project's execution, has the greatest effect on the project's progress. At the other hand, Munns and Bjeirmi, (1996) identified three trouble areas that suggest threatening a project's progress. Those are under-cost, over-expenses and late delivery. To solve these problems, they concluded that project planning is important. These include frameworks for the job breakdown, client information sheets and project plans, among others.

Al Nasser and Aulin (2016) pointed out the following as primary obstacles to successful preparation of a given project in their work in the construction industry in Oman; lack of clear instruction; insufficient assistance to the production of plans and schedules from project stakeholders; bad decision taking about criticality of operation; lack of Planning and Scheduling curriculum and preparation; incompatibility of preparation strategies with the design (i.e. complexity and size) of the project schedule; absence of contingency timetable; trivial system of control and reporting among management levels; lack of resource-constrained schedule to address uncertainty issues; and lack of modern planning and scheduling tools and applications. They also highlighted and identified the following factors as enablers of successful project planning activities;

1. Proper understanding of the interrelationship between scope (alignment), Schedule
2. Rapid re-planning and recovery from unforeseen Baseline Schedule
3. Good recording of timetable delays in progress
4. Availability of alternate preparation approaches to fix problems with current methods
5. Maintain Quality Control schedule by eliminating unwanted organizational actions
6. Asset levelling performance in Scheduling
7. "Efficiency of the motivational and educational programs administrative help"
8. Focusing on a holistic approach rather than individual task completion
9. Detailed schedules are accurate
10. Cost-efficiency in the development and reworking of timetables and tasks
11. Unit expertise in handling planned operations, delays and remedial measures
12. Inputs, milestones and deliverables are recorded

Project planning in the construction industry also faces difficulties from incomplete data, poor estimates and poor scope definitions. These are basic inputs for the planning phase so when data is incomplete or estimates are not reliable, this reduces the quality of project plans. Tesfaye, Lemma, Berhan and Beshah (2017) considers these issues rather as risks facing project planning. Regardless of the label or descriptor, they are given the effectiveness of the project planning phase could be hampered by these factors. Another big problem related to building projects is the lack of specific goals. Stakeholders often don't know exactly what they want, other times they won't agree. Nonetheless, it's difficult to schedule and execute the project when the priorities are not apparent to a project manager. There may be shifts in reach along the way due to the lack of defined objectives. This phenomenon is known as scope creep, and is a notorious issue for project management due to its potential to unnecessarily prolong projects.

### ***Measures of planning effort***

The theoretical basis for this work is the review of previous research on main planning input factors for positive outcomes in planning. This section presents a description of the relevant studies. Important input preparation considerations would be classified as human factor, factor of management, technological considerations and structure of organisation. Human factors include the characteristics of individuals and groups affecting the efficiency of planning processes (including project managers, project team members, clients, parent company related personnel); although there are many stakeholders involved in a project, several studies have shown that typically only the project team and clients influence the success or failure of a project. As for the project team, the project manager's position and the project team's knowledge and experience are crucial. Customers are evaluated on the basis of their expertise, experience and project participation. Factors of management include support for management, preparation and establishing project objectives. Within the next parts the effects of these variables on the project outcomes are discussed (Sharew, 2016).

### ***Project Success***

A project's success has been described as carrying out an operation within the time, cost and performance constraints. Kerzner (2013) notes that the definition of project performance has been revised today to include completion with customer and/or consumer approval, within the accepted schedule, within the budgeted cost, at the appropriate level of production or specification, with limited or mutually agreed changes in scope and the list continues (Kerzner, 2013). Scholars have historically concentrated on the iron triangle: expense, time and quality when assessing project performance (Schwalbe, 2010). Ofori (2006) Follows the conventional approach by emphasizing the positive balance between cost (budget), time (schedule) and quality (specifications) of the project as a success. However, Ofori did not take all stakeholders into account when assessing what is project performance.

Recent scholars have in fact criticized this strategy for being limited, as the history of several projects that surpassed their budget has proven successful. For example, Mensah (2007) argued that a project's success is closely tied to both project efficiency and the objectivity of the project. Consequently, the progress of each project is measured by certain criteria which are based on the goals of the project from the beginning. Therefore, in addition to traditional project success factors (cost, time and quality), other measures frequently used to assess project success include project scope, benefit to end users, benefit national infrastructure, environmental impact, health and safety requirements, coordination with project teams and support for top management (Attarzadeh & Ow, 2008)

### ***Measures of Project Success***

Progress on a project ensures that particular needs are satisfied for a given participant, be it proprietor, organizer, designer, temporary worker or administrator. Performance for a particular member of the team as to how often team priorities and expectations are achieved. (Naeem et al). These indicators have generally equated success with meeting the project's budget and timeline and reaching a reasonable output standard (Dvir et al., 2003). Dvir et al (2003) citing Pinto and Mantel identified three aspects of project success as the indicators for assessing project success or failure: process of implementation, project value perceived and quality of service with the project delivered.

In earlier project management literature, the key emphasis was on defining common factors leading to project performance. Authors have stressed the presence of various success factors in recent years depending on the type of project. Beleiu et al (2016) citing Davis (2014) points out that a collection of nine concepts were introduced in her paper in order to explain project success factors: collaboration and coordination, timing, identify / agree with goals, stakeholder satisfaction, adoption and use of end products, aspects of cost / budget, the project manager's competences, the project's strategic advantages and support for senior management.

Dvir et al (2003) suggested that project success was assessed according to three criteria: Planning objectives (project manager success); End-user advantages (in terms of end-user success); and Construction firm benefits (contractor success, including the last two metrics: commercial project success and future possible income)

### ***Relationship between Project Planning and Project Implementation***

Project accounts for about fifty percent of all work performed, and is therefore considered the vehicle for organizational growth (Akweshola et al, 2012). Munns and Bjeirmi (1996) argue that comprehensive and exact planning is needed for any given project. In their report, they clarified that factors that could cause project management to fail include inadequate project basis; incorrect person as project manager; unsupportive top management; insufficiently defined tasks; lack of project management techniques; misused project closure techniques; paucity of project involvement; These factors can mean that successful project management requires planning with a commitment to complete the project; careful selection of a skilled project manager; spending time adequately defining the project; proper coordination of project activities; maintaining accurate and sufficient flow of information; adjusting activities to accommodate frequent dynamic changes; accommodating dynamic changes;.

Preparation of a project is synonymous with the use of a step-by-step method to help meet the aims and objectives of the project (Damian, 2012). Bad preparation has no clear mechanism for implementing the project. Workers and team participants therefore have no clear direction as to what to do, how and when during certain points of the projects (Bunyaminu & Mahama, 2016). The process of planning and what is more, rendering unambiguous the aims, priorities, and procedures necessary to bring the project to a fruitful end through its life cycle when the element, management, or process of the project assumes its legitimate role in the execution of project proprietor techniques (Cleland & Ireland, 2006).

Thomas, et al (2008: 105) states that "the most effective team can't fix a poor project plan," and projects that have started the wrong way can result in the project's most drastic failures. Blomquist et al (2010: 11) Note "Plans are the basis of every project; thus, planning is a prevailing activity within the context of a project." This is a recurring theme: preparation is essentially important for project success otherwise one might argue that there will be no project management. Pinto and Prescott (1990) found that there was a 0.47 correlation between a schedule or plan and project results, while basic operational tasks had a 0.57 correlation and a 0.70 correlation to task definition. Shenhar (2001) says better preparation is the norm for high and super-high technology projects. This was found to apply consistently to the deliverables normally produced during the planning stage. Dvir and Lechler (2004) found that the planning production had a performance impact of +.35 on R2, and +.39 on R2 for customer satisfaction.

Dvir, Raz and Shenhar (2003), in a comprehensive paper, noted the connection between aspects of the planning process and the performance of a project. It has been found that the dedication to design procedures is less important to project performance than defining functional and technical requirements of the project. The ratio was -297 for functional requirements and -256 for technical requirements-The Project Efficiency Impact of Planning. Zwikael and Globerson (2006: 694) said: "Organizations that scored the highest on project performance have also earned the highest score on planning efficiency."

In addition, Nzioka (2017) conducted a report on project planning's role in project performance in Kenya: a case of Kenya power infrastructure construction projects. The study found that cost planning plays a major role in the performance of Kenyan infrastructure development projects. Furthermore, the study also revealed that Time Preparation significantly contributes to the success of Kenya infrastructure development projects. From the results it was concluded that quality planning plays an important role in the success of infrastructure development projects in Kenya. The study results showed that the effect of scope planning is statistically meaningful but negatively related to the success of Kenya's investment infrastructure projects.

### ***Conceptual framework***

The study adapted a model proposed by Tesfaye, Lemma, Berhan and Beshah (2017) to research the contribution of project planning to project performance. The model serves as a flow chart where project preparation affects the progress of the project. Nonetheless, project preparation is often hampered by factors such as human errors, operational and environmental factors, the lack of advanced preparation and scheduling technologies and software, the lack of specific project priorities and objectives, inadequate support from project stakeholders and risk factors among others. The model illustrates the connection between project planning and project progress by defining four factors or indexes for measuring planning and three indexes for evaluating project success. The model is presented in Figure 1.

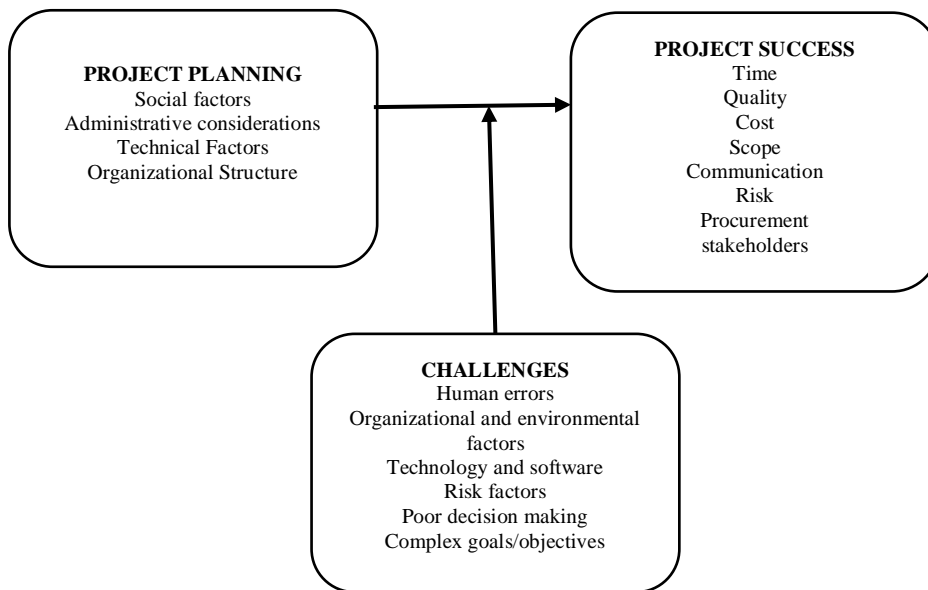


Figure 1. Conceptual framework on effect of planning process on project success

Source: Adapted from Tesfaye, Lemma, Berhan and Beshah (2017)

## METHODOLOGY

The study employed explanatory design of the quantitative approach in conducting the research activity. The research had been aimed at the management of Glenshire Hills Estate, Incept Architectural Consult, and G-Hill Company Ltd in Ghana. With regards to the number of employees in each company, Glenshire Hills Estate had 52, G-Hill Estate has 82 and Incept Architectural Consult has 46 making 180 in all. Considering the population of 180 employees, a sample size of one hundred and twenty (136) was obtained using Krejcie and Morgan's (1970) Sample Size Determination Formula at 95 per cent confidence point. Stratified sampling methodology was used for selecting 134 respondents to form part of the research. Questionnaire was the key instrument used as a primary source of data collection. Other information included documents, progress reports, monitoring and evaluation reports, published and unpublished articles as well as website information among others. The data were analyzed using descriptive statistics such as frequencies, percentages, mean and standard deviations while Pearson's correlation and multiple regression were part of the inferential statistics used with the aid of SPSS version 21. All ethical issues were observed to ensure that respondents were safe before, during and after the study by encouraging informed consent, free consent, confidentiality and anonymity.

## RESULTS AND DISCUSSION

### Demographic Information of Respondents

Data on the respondents' demographic characteristics has been obtained. Demographic details included the sex, age, level of education, number of projects involved, type of project and ownership of the project. Most of the respondents (92, 68.7%) were males while 42 (31.3%) were females. Males also dominated among the various companies except Incept Architectural. Males dominated in this study and it reflects the gender status in the construction industry.

On age, most of the respondents are within the ages of 20 – 29 years as they constitute 44.8 percent of the sample. Respondents who had attained 30 – 39 years constitute 41.8% (56) while those who had obtained 40 – 49 years formed 9 percent. Moreover, 4 (3%) of the respondents had obtained 50 – 59 years. They all employed more than 20 years people except Incept.

On educational background of the respondents, secondary education leavers had the least number of respondents of 4(3%), followed by Diploma education 34(25.4%) and degree attainment was 40(29.9%). However, most 56(41.8%) of the respondents had Masters in the various engineering and construction fields of study. All the companies employed workers who had higher qualification, thus, from Diploma to Masters except Glenshire Hills that employed even SHS graduates. This means that majority of the respondents have had at least a secondary form of formal education. Therefore, they were also able to read and answer to the demands of the questions asked in the study. Also, they understood issues concerning project planning commitment and successful project.

Also, 39 (28.4 percent) of the respondents participated in 1 to 3 projects, 54 (38.8 percent) of the respondents were interested in 4 to 6 projects, while 45 of the respondents participated in more than 6 projects. Therefore, the majority of the respondents engaged in more than 3 projects, indicating that they are equipped with adequate expertise on project preparation and project performance issues.

More than half of the respondents (59.7 percent) were in residential building construction, followed by 38 respondents in commercial buildings, 12 (9 percent) in educational structures, 2 in health and religious buildings. And most of the respondents were in residential buildings.

On project ownership, majority of the respondents were building or constructing buildings for local people and firms, followed by 14 respondents who have the opportunity to build for foreign companies. However, only 2 respondents from Incept Architectural build as joint stock companies. Thus, majority of the respondents build structures that were owned by local people or companies.

**Table 2. Reliability Test**

Variables	No. of Items	Alpha	Mean	Standard Deviation
Human factors	5	0.633	3.93	0.548
Management factors	7	0.629	3.73	0.442
Technical factors	6	0.702	3.95	0.529
Organizational structure	6	0.669	3.93	0.445
Project success	4	0.778	3.27	0.795

The reliability check was carried out using a Cronbach alpha to assess how accurate the instrument used to collect data was. Table 2 shows that most of the constructs were good and consistent with the research instrument. Human factors (alpha = 0.633), management factor (alpha = 0.629), technical factor (alpha = 0.702), organizational factor (alpha = 0.699) and project success (alpha = 0.778). Cronbach's alpha ( $\alpha$ ) < 0.6 demonstrates unsatisfactory reliability of internal accuracy (Malhotra & Birks, 2007). The results show that all the variables have an Alpha value of Cronbach more than 0.6 which means that reliability of internal consistency existed.

Also, there were four customer project planning effort dimensions that were assessed on how they influence project success. Human factors had a mean of 3.93, management factors had a mean of 3.73, technical factors had 3.95 and organizational structure had a mean of 3.93 showing that somehow, they influence project success. Technical factors had the highest mean of 3.95 indicating an agreement level towards project success. On other hand, project success had the lowest mean 3.27 which depicts that majority of the respondents agreed that project success is somehow moderate among these construction companies.

### **Project Planning Effort**

This section explains the aspects of the project plan effort such as human factors, management factors, technological factors and organizational structure. Data were gathered on all these factors and the results are illustrated in Table where the percentage of agreement, means and standard deviations for each item were assessed. The scale of agreement used was 1-5 where "1=strongly disagree; 2=disagree; 3=somewhat; 4=agree and 5=strongly agree" respectively. The responses between 1.0- 2.4 were concluded to be Strongly Disagree, 2.5 - 2.9 to be Disagree whilst 3.0 - 3.4 were concluded to be Undecided. Additionally, 3.5 - 4.4 were concluded to be agreed whilst 4.5 - 5.0 were concluded Strongly Agreed. The result on human factors is presented in Table 3.

**Table 3. Human factors**

Statement	% of agreement	Means	Std Dev.
Project managers was well experienced in planning processes	96(69.6)	3.78	0.898
"More effort was put into the planning phase compared with other phases"	106(76.8)	3.93	0.722
Group members have deep expertise in organizational processes	110(79.7)	4.13	0.774
Team leaders were well involved during the planning stage	100(72.5)	4.04	0.857
Customers/users was involved in planning stage	98(71)	3.79	1.019

Human factors in project preparation include expertise and abilities of the project manager, knowledge of the team members, abilities and responsibilities as well as participation of customers / users. The result in Table 3 shows that the mean value of project managers experienced in planning process is very low (mean = 3.78, SD=0.898) and this was followed by customers involvement in planning stage (m=3.79, SD= 1.019). This means that both project managers and customers are somehow or moderately involve in the project planning process. Thus, only 69.6 percent of project managers are involved in the planning process. On the other hand, team members experience in planning had the highest mean value (mean= 4.13, SD= 0.774), thus, 110 (79.7%) of the respondents were committed during the planning stage of the project.

This was followed by team members commitment in planning stage (mean= 4.13, SD= 0.774), thus, 110 (79.7%) of the respondents were committed during the planning stage of the project. Also, 106 (76.8) of the respondents who agreed that more effort was spent in planning stage compared to other stages of the project (mean= 3.93, SD= 0.722). The results show that some project managers and customers do not have experience in project planning which affect project success, though, team members were experienced and committed to the project planning stage.



**Table 4. Management Factors**

Statements	% of agreement	Means	Std Dev.
Parent organization's functional departments were involved in the planning stage	94(68.1)	3.87	0.865
Client's functional team was active in planning process	80(57.9)	3.54	1.101
The project manager received full supervisory authority	88(57.9)	3.93	0.633
Delegates of the company's functional divisions took an active part in the planning stage as team leaders	76(55.1)	3.61	0.917
There were no contradictory goals in the planning stage between the project team and the client to define the target identification process	72(52.2)	3.40	1.202
The scope of the project was established well during the planning process	112(81.2)	3.93	0.633
All resources (qualified staff and infrastructure) have been allocated;	106(76.8)	4.06	0.773

The management factors consider the functional department of the organization, authority of project manager, participation of delegates of the functional departments, objectives of project team, project scope and resources allocation. Table 4 shows that the mean value of the statement "in the planning stage there were no conflicting objectives between the project team and the customer to describe the process of goal definition" was the least rated item (mean = 3.40, SD= 1.202). The standard deviation shows that there were variance views on this decision.

On the other hand, the majority of respondents agreed that all resources be allocated for project preparation, including trained staff and services (mean= 4.06, SD= 0.773). This is followed by 88 (57.9%) of the respondents who agreed that full project manager authority was granted by top management (mean=3.93, SD=0.633) as well as project scope in the planning process (mean=3.93, SD=0.633). In the planning process, 81.2% accepted that the scope of the project was well defined.

**Table 45. Technical factors**

Statement	% of agreement	Means	Std Dev.
Organizational previous project data warehouse was available	86(62.3)	3.70	0.867
Work break down structure was used	86(62.3)	3.81	0.888
Gant chart was used	104(77.6)	4.12	0.823
Critical path method(CPM) was used	104(77.6)	4.12	0.823
Project Evaluation and Review Technique(PERT) was used	96(69.6)	3.93	0.742
Mechanisms for project control and reporting is included in planning stage	106(76.8)	4.03	0.867

With regards to technical factors, it consists organization storage of project data warehouse for some period, work break down structure, Gant chart, critical path method as well as project monitoring and evaluation. Table 5 shows that the mean value of the statement "organizational previous project data warehouse was available" was the least rated item (mean = 3.70, SD= 0.867). Thus, 62.3 percent of the respondents agreed that organization kept previous project data on warehouse or building. This means that respondents' organization poorly keep previous or records on project data. This was followed by using work break down structure (mean = 3.81, SD=0.888). Thus, respondents poorly use work break down structure for project planning. Nonetheless, most respondents firmly accepted that the Critical Path Model (CPM) was used in the process of project planning (mean=4.12, SD=0.823) as well as the Gant Chart (mean=4.12, SD=0.823). In addition, frameworks for project control and reporting were used in the planning stage (mean= 4.03, SD= 0.867).

**Table 6. Organizational Structure**

Statement	% of agreement	Means	Std Dev.
Project management software was used	94(70.1)	3.82	0.872
Team leaders give their regular duties more priority than organizing activities	72(53.7)	3.49	1.102
Training was given for project team member	104(75.4)	4.06	0.979
Appropriate project managers was assigned	110(82.1)	4.12	0.766
Project managers was involved in planning stage	104(77.6)	4.01	0.725
Throughout the preparation process project managers and organisations interacted well	106(79.1)	4.03	1.026

Project management software, training of project team members, signing of project managers, project managers involvement as well as communication between project manager and organizations all form part of the organizational structure. "Results in Table 6 show that the mean" value allocated to the correct project managers is high (mean=4.12, SD=0.766), followed by 104 (75.4 percent) of the respondents who agreed to arrange training for project team members. At the other hand, the organizational structure's least valued component was team members who gave more attention to their normal duties than planning tasks (mean=3.49, SD=1.102) and use of project management software (mean=3.82, SD=0.872). This means that despite the hiring of suitable project managers for the project and the training of project team leaders, team members give their regular tasks more priority than planning activities and less use of project management tools like Microsoft Project.

**Table 7. Project success factors**

Statement	% of agreement	Means	Std Dev.
The project executed on the original schedule(planned)	48(35.8)	2.97	1.049
The project completed with the planned budget	48(35.8)	3.11	0.924
In the design process the delivered product met all the requirements	72(53.7)	3.27	1.054
The project result satisfies the customer needs	80(59.7)	3.59	1.075

The progress of the project was measured in terms of completion of the project on the original timeline or scheduled period, completion of the project with the expected budget and production of the product in the planning stage. The average mean project progress score (mean= 3.27, SD= 0.795) indicates that most respondents do not agree or disagree that project success has been achieved. This also shows that project progress among the selected construction firms was poorly achieved. In particular, only 35.8% of respondents accepted that the project was completed on the initial (planned) timeline (mean=2.97, SD=1.049) and 35.8% accepted that the project was completed with the approved budget (mean=3.11, SD=0.924). This means that most respondents decided that programs are not finished on schedule and with the budget expected.

#### ***Examining the connection between project planning and project performance.***

The research that sought to explore the impact of the dimensions of project planning activity and project performance. The association between the variables must be ascertained for any regression analysis to be carried out. The findings for the analysis are reported in Table 8. The thesis went on to conduct the regression analysis once the correlation was ascertained. Karl Pearson's correlation coefficient (r) is used to determine the relationship between those variables. It also indicates the path and the degree to which the variables have a relation. The correlation value lies between the positive to the negative.

**Table 8. The correlation between project planning effort dimensions and project success**

Variables	Social factors	Administrative considerations	Technical Factor	Organizational Factor	Project effort	Project Success
Social Factor	-					
administrativeconsiderations	0.257*	-				
Technical Factor	0.543*	0.266*	-			
Organizational Factor	0.339*	0.166	0.297*	-		
Project effort	0.763*	0.577*	0.775*	0.592*	-	
Project Success	0.209*	0.104	0.284*	0.026	0.198*	-

In this analysis the matrix of pair-wise correlation is shown to be important at 5 percent point. It shows the relation between the different variables. The lowest correlation (Table 8) is 0.026. The highest correlation between technological factor and human factor (independent variables) was therefore 0.543. Because the maximum value was 0.543, between the independent variables there was no problem of multicollinearity.

### *Effects of project preparation on project success*

Multiple regression was used to analyze the impact of project-planning variables on project performance. It also reveals the intensity and variability the model is causing. In addition, it also explores the contribution of each person. Tables 4.9 and 4.10 show the regression diagnostic measures and Table 4.9 shows the multiple regression analysis in practice.

**Table 9. Anova Statistics**

Model	Sum of squares	df	Mean square	F	Sig.
Between groups	7.709	4	1.927	3.255	0.014
Within groups	76.385	129	0.592		
Total	84.094				

The outcome of ANOVA is according to Table 9 ( $F(4, 129) = 3.255$ , sig. 0.014) indicates that the independent variables varied substantially, and that the model is also important. It means that the predictors and the independent variable vary. The model registered an R<sup>2</sup>-Adjusted of 0.35, as per Table 10. This indicates that project planning effort (dimension) such as human factors, management factors, technological factors, and organizational structure may explain about 35 percent of the variations in the project performance. Therefore, other variables not included in this model influence 65 percent of the variations. On human factors human factors have had a positive impact on project progress. Human factors impact project performance by 0.347, and this is important statistically.

**Table 10. Multiple regression analysis of CRM dimensions and performance**

Variables	Std. Coefficient	Std. Error	t-statistic	Probability
(Constant)			2.067	0.041*
Human Factor	0.347		2.047	0.043*
Management Factor	0.027		0.303	0.762
Technical Factor	0.051		2.460	0.015*
Organizational Structure	-0.085		-0.939	0.349

\*p<0.05; R-squared= 0.39; Adjusted R Square= 0.35 ; S.E. of regression=0.2869

The results indicate that in assessing the effect of the management variables on project performance, there was a beneficial impact of management factors on project success. It means a change of one unit or a half in management variables will result in an increase of 0.027 in project efficiency. Currently, this effect was not statistically significant. The findings indicate that there was a beneficial impact of technical factors on project success in assessing the influence of the technical factors on project success. Implies that an increase in technological factors or a percentage change in project performance by 0.051. With regards to organizational structure, the result shows that there was a negative effect of organizational structure on project success. Thus, a unit or a percent increase in organizational structure will lead to reduction of 0.058 in project success. However, this effect was not statistically significant.

### *Challenges of Project Planning Effort*

The study also sought to examine the challenges or barriers linked to project planning efforts. The project managers have gathered data on these challenges, and the results are presented in Table 11.

**Table 11.Challenges of Project Planning Effort**

Challenges	% of Agreement	Means	Std Dev.
Difficulty in selecting a strategy that would offer the best value for project plans(poor decision making)	72(53.7)	3.58	0.904
Risk factor affect project planning	100(74.6)	3.81	0.741
Cost performance baseline affect project planning	116(86.6)	4.04	0.611
Organizational and environmental factors affect project planning	96(71.6)	3.90	0.852
Human factors may affect project planning	112(83.6)	4.10	0.759
Insufficient project stakeholder involvement in implementation planning and timetable	98(73.1)	3.93	0.782
Lack of modern planning and scheduling tools and applications	100(74.6)	3.94	0.669
Trivial system of control and reporting among levels of management	88(65.7)	3.91	0.770
Lack of clear goals and objectives affect project planning	114(85.1)	4.01	0.660
Incompatibility of preparation approaches with design (complexity and size) of the project schedule	86(64.2)	3.87	1.024

The results in Table 11 shows that almost all the respondents agreed that there were challenges with the various dimensions of the project planning effort and the organization as a whole in an attempt to execute successful project on time and with stipulated budget and specifications by all standards. Among these challenges, the least mean value item was difficulty in selecting a strategy that would offer the best value for project plans (poor decision making) (mean=3.5, SD=0.904), followed by Risk factor affect project planning (mean=3.81, SD=0.741). However, majority of the respondents agreed that Human factors may affect project planning (mean= 4.10, SD=0.759), followed by Cost performance baseline affect project planning (mean=4.04, SD=0.611) and lack of clear goals and objectives affect project planning (mean=4.01, SD=0.660).

## Discussions

Of the ventures, more than half (59.7%) were residential buildings, accompanied by commercial buildings, educational system, health and religious buildings at a decreasing rate respectively. Also, majority (88.1%) of these projects are for local or indigenous people and companies with few being owned by foreigners and only 2 were joint stock companies.

There was moderate positive correlation among all the dimensions of project planning effort (human factors, management factors, technical factors and organizational structures) with the lowest being  $r = 0.026$  and the highest correlation was  $r = 0.543$  between technical factor and human factors.

Human factors have been having a positive impact on project success. Human factors influence the success of a project by 0.347 and this is statistically important. Additionally, strategic factors had a positive impact on project performance. This means that an improvement in management factors per unit or per cent would lead to an increase in project performance by 0.027. Nevertheless, this effect was not statistically significant. Moreover, there was positive effect of technical factors (0.051) on project success. Furthermore, there was a negative effect of organizational structure (-0.058) on project success. However, this effect was not statistically significant.

The least mean value item was difficulty in selecting a strategy that would offer the best value for project plans (poor decision making) (mean=3.5, SD=0.904), followed by Risk factor affect project planning (mean=3.81, SD=0.741). However, majority of the respondents agreed that Human factors may affect project planning (mean=4.10, SD=0.759), followed by cost performance baseline affect project planning (mean=4.04, SD=0.611) and lack of clear goals and objectives affect project planning (mean=4.01, SD=0.660).

## Conclusions and Recommendations

The projects constructed by selected companies were mainly residential buildings with few commercial building, health, educational structures and religious facilities. Project planning effort affect project success positively. Apart from organizational structure, human factors, technical factors and management factors affect project success positively. Moreover, factors that hinder the contribution of project efforts to building market success included: human factors, cost efficiency benchmark, lack of specific priorities and objectives among others. Based on these, it is recommended that players in the construction industry should be critical about the experiences of team members as well as factors to boost the commitment of team members towards project planning process. Also, managements of the construction industry should provide appropriate project management software

for keeping records and project management to project managers. Moreover, project Team members of Management of the industry should be encourage or motivated to give more priorities or equal attention to planning activities as compared to their usual duties. Lastly, real estate industries should make sure they have clear and concise goals and objectives for project management.

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