
The Use of Project Management Methodologies in Reducing Project Delays: Evidence from the Adentan Municipal Assembly in Ghana

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Abstract

The purpose of this study is to investigate the use of project management methodologies in the Metropolitan, Municipal and District Assemblies in Ghana to reduce project delays. To achieve this objective, a case study was conducted in the Adentan Municipal Assembly to determine whether the Assembly is applying the best practices of project management in its projects, to identify the factors causing delay in projects and recommend possible project management solutions to these issues. Projects in Controlled Environment 2 (PRINCE2) and Critical Path Methodologies were employed as the conceptual frameworks for the study. Adopting an exploratory approach, interviews were used to sample the experiences of staff in managing their projects. The results of the investigation provided evidence of the use of project management practices by the Adentan Municipal Assembly in managing projects within their jurisdiction; however, the identified practices did not fall within the context of best practice as described in PRINCE2, and the Critical Path Methodologies. Furthermore, cost, time and scope management were identified as the main project management knowledge areas that were used by the Assembly to ensure the completion of projects as scheduled. Absence of the use of Critical Path Method (CPM), poor stakeholder management, and quality issues emerged as the main setbacks in timely delivery of projects. The researchers, therefore, recommend the use of CPM, PRINCE2, and training of project team leaders in stakeholder and quality management at the Adentan Municipal Assembly. Also, creation of a quality assurance unit is recommended to address the issues regarding quality within the assembly.

Keywords: Critical path method, PRINCE2, Project delays, Project management.

1. Introduction

Cleland and Gareis (2006), recount that for centuries, project management has been used in

some rudimentary form to create change or deal with change in societies. This change, in a positive sense, is caused by the application of management actions that result in the consumption of resources to create a desired product, service, or organizational process. Another use may also be meeting uncertain situations to identify and implement actions to obtain the most favorable outcome. Project management, in whatever form, has been used for centuries to plan, implement, and meet the demands of change (Cleland & Gareis, 2006). The Project Management Institute (2010) indicates that the fulfillment of mutually agreed objectives of any project requires the application of specialized knowledge, skills, tools, and techniques to project activities; thus, summarizing the concept of project management. Causing an impact in the achievement of objectives, which is the main reason for the existence of an organisation, Modesto and Tichapondwa (2009) believe that planning, scheduling and controlling of activities is project management.

In Ghana, the public sector is deeply involved in the managing of projects. This is evident in the mandate provided in the Local Government ACT, 1993 (ACT462), and the National Development Planning System ACT, 1994 (ACT480). These laws designate the municipal assembly (Metropolitan, Municipal and District Assemblies-MMDA's) to plan, initiate, and implement development programs at local level. With a projected population of 92, 831, the Adentan Municipality, the case study area used in this investigation, is one of the 16 districts in the Greater Accra Region. Adentan, which previously had been a part of the Tema municipality, assumed a full municipal status in 2008 following the passage of LI 1888.

According to the District Assembly Common Fund (DACF) studies conducted in 2010 to 2013, almost half (45.7 %) of projects reported were not completed on time. The major causes for delay in project execution were delayed funds transfer (43.1%), long bureaucratic processes involved in awarding of contracts, deliberate effort to create situations that would compel contractors to offer bribes, and delayed project inspection by assemblies (43%). This list of practices identified by Awuah (2009) and the studies conducted by the District Assembly Common Fund, portray the need for the adoption of best methodologies in executing projects.

Majority of projects embarked on by most MMDA's in Ghana are not completed on time. This results in a rise in demand for claims, and to a larger extent, judgment debts, which create loss of revenue to the assemblies. Therefore, the key questions to be addressed are: is the Adentan Municipal Assembly (AMA) applying the best practices/methodologies of project management in its projects? what are the key factors that cause project delays in the AMA? and how can the causes of project delays be effectively managed? Thus, there is an urgent need for this research to investigate whether the Adentan Municipal Assembly is applying the best practices/methodologies of project management in its projects, to identify the key factors that cause project delays and to determine how key project delay issues can be managed.

This article begins with the background of project management, presentation of the statement of problem, the research questions and objectives. It is followed by a review of literature on the project management methodologies, and project delays. The next section culls the methods used in the collection and analysis of data, and finally the results, conclusions, recommendations, limitations and suggestions for further research are discussed.

2. Literature Review and Conceptual Perspective

2.1. Empirical Studies on Project Delays

There is a vast number of factors that may account for project delays of any sort. The following empirical findings of other researchers show some of the factors that have the tendency to delay projects. It is a well-known fact that decisions made early in the life of a project have the most profound effects on the project's objective of delivering a safe, quality project within the time and budget allocated. Sambasivan and Soon (2007) identified the factors causing delay and their impact on project completion. They identified the ten most important causes of delay from a list of 28 causes and six different effects of delay. The causes of delay are as follows: (1) contractor's improper planning, (2) contractor's poor site management, (3) inadequate contractor experience, (4) inadequate client's finance and payments for completed work, (5) problems with subcontractors, (6) shortage in material, (7) labor supply, (8) equipment availability and failure, (9) lack of communication between parties, and (10) mistakes during the construction stage.

The six main effects of delay were time overrun, cost overrun, disputes, arbitration, litigation, and finally, total abandonment of project. They went on further to establish an empirical relationship between each cause and effect. These studies, however, did not indicate a link between the already established cause and effect of delay to project management. When projects are properly managed through the use of proper project management methods, tools and techniques, these issues of delay will be minimized, limiting them to highly complex issues. Sambasivan and Soon (2007) further categorized major causes of delay as client-related, contractor-related, consultant-related, material-related, labor related, contract-related, contract relationship-related, and external factors. They, however, admitted that identification of causes and effects alone do not help the project managers to take appropriate remedial or preventive steps. This leads to the need for project managers to know which tools and techniques to use in order to avoid these issues. Also, surmounting delay issues are not done by tools and techniques due to their interrelated nature. It is, therefore, important to adopt good practices to reduce the factors leading to delay.

Furthermore, Ochoa (2013) and Ahmed et al, (2003) argued that delays in projects can be

classified as excusable, non-excusable and concurrent. In support of these findings, Trauner et al. (2009) asserted that delays in construction projects in particular can be grouped as concurrent or non-concurrent, critical or non-critical, excusable or non-excusable, and compensable or non-compensable.

2.2. Project Management Methodologies (PMM)

As explained by PMI (2010), a PMM is “an application of knowledge, skills, tools and techniques to meet or exceed the project requirements”. Murch (2001) made it simple by saying “it is the road map to get you from where you are to where you want to be”. A simpler interpretation of PMM is that, it is the engine that moves you towards your project goals. These explanations are important since it the practice of using a ‘one size fits all’ approach, as identified by Ika (2012) in his study of international development (ID) projects, is discouraged.

Regardless of the industry or project sizes, utilizing an appropriate PMM is widely believed to enhance the probability of completing projects on time, within budget, and to deliver the product to the satisfaction of all stakeholders (Josler & Burger 2005; Milosevic & Patanakul, 2005). However, this condition only applies if the project manager understands the nature of the project, and is able to “reshape and scale” it to fit the project (Chin *et al.*, 2012). It is also stressed that being careful not to “copy and paste” these methodologies to projects, but streamlining them carefully to suit the context and physical characteristics of the project is important. Chin *et al.*(2012) also stated that a methodology must be flexible; yet it should provide guidelines, which leverage both best practices and past experiences to ensure the project goals are achieved. It should help the project team to clearly understand the scope of their work, what to accomplish, and how to accomplish it using the tools and techniques available within the methodology (Charvat, 2003). Chin *et al.* (2012) stated, “a PMM must provide the project team with a set of processes which can be scaled or substituted as required on a project to assist the management of projects throughout their entire lifecycle. By using a PMM, project teams will be able to clearly understand their scope of work, what each of them needs to accomplish, how their work fits in and contributes to the project as a whole and to provide the tools and techniques to help them make the project successful”. Thus, adopting and maintaining a proper methodology in the practice of project management is important for the success of any institution.

2.3. Conceptual Framework

2.3.1. PRINCE 2 Methodology

Projects in Controlled Environments (PRINCE) was established and was grown as the United Kingdom (UK) standard for all government projects for information systems. PRINCE2 has its roots as far back as 1975 in the PROMPTII methodology. PRINCE replaced PROMPTII in 1989, becoming the UK standard for all government information systems projects. In 1996, the methodology was re-launched as a generic project management methodology for all UK government projects, hence the birth of PRINCE2. Project management PRINCE2 methodology system is a well-structured method for effective and efficient project management. PRINCE2 method has been well recognized across the UK, for a generic, standard, process-based approach to project management. It focuses on seven principles, seven themes and seven processes (Bentley, 2002).

The public sector, tinged with its inability to deliver projects on time, within budget, scope and of the right quality led to the introduction of PRINCE 2 method to address the common causes of project failure. The seven principles that must be applied when using PRINCE2 methodology are: (1) continued business justification, (2) learn from experience, define roles and responsibilities – the PRINCE2 project team should have a clear organizational structure and involve the (3) right people in the right tasks, (4) manage by stages,(5) manage by exception (6) focus on products and (7) tailor to suit the project environment. The following themes describe aspects of project management that must be addressed parallel with the principles throughout the project. These themes are business case - what value would delivering the project bring the organization, Organization - how will the project team's individual roles and responsibilities be defined in order for them to effectively manage the project, quality - what are the quality requirements, measures and how the project will deliver them, plans - the steps required to develop the plans and PRINCE2 techniques that should be used, risk - how the project management will address the uncertainties in its plans and the project environment, change - how the project management will assess and act on unforeseen issues or requests for change progress - the ongoing viability and performance of the plans, how and whether the project should proceed.

The PRINCE2 processes are as follows: starting up a project, directing a project, initiating a project, controlling a stage, managing product delivery, managing stage boundaries, and closing a project. PRINCE2 is not a 'one size fits all' solution, but it is a flexible framework that can readily be tailored to a project any type or size. PRINCE2 significantly offers an easily adaptable and scalable method for the management of every project. Uncertainty and transformation are the key significant factors that strengthen the implementation of PRINCE2

methodology by the professional organizations (Hall, 2003). One advantage of using PRINCE2 is the adaptability of the system, and how it can be employed in almost all types of projects irrespective of the scale. PRINCE2 methodology includes equitable management of costs, timescales, scope, quality, risk and benefits. The adaptation of PRINCE2 in the MMDAs in Ghana will enhance project management practice.

2.4. Critical Path Method (CPM)

This is a scheduling methodology based on the estimates of time required to complete activities. This method calculates early, late and slack times for each activity in the network. It comes out with the planned timeline of a project if one is not imposed on it (Gray & Larson, 2011). This method helps the project manager and the team to know the critical activities of which they cannot delay the work, and the activities with floats or slacks that a delay in them will not affect the duration of the entire project. This scheduling methodology was developed in the late 1950s by scientists from the Du Pont company for effective scheduling of activities, whilst working on a maintenance project at the Du Pont chemical plant.

The usage of critical path methodology demands the use of network diagrams, which graphically depict the early, late and slack times to aid managerial decision making. It also helps to identify which activities can be done simultaneously and the activities that need to be completed before others.

Critical Path Method is useful when forecasting activity or work duration. The combination of CPM with activity network diagrams help the project manager and the team to (1) plan the estimated duration of each activity, (2) develop a timescale using the duration of all activities for analysis, (3) identify the effect of each of the activities on the entire project plan and (4) deploy the right human resource for each task, based on the critical nature of each of the tasks. The use of CPM requires that the project team outline the activities (work) to be carried out, the sequence of work (activity), sketch the activity network diagram using either Activity on Node (AON) or the Activity on Arc (AOA) methods, compute the entire duration of an activity, specify the activities on the critical path, monitor and show progress of work by updating the activities on the critical path (Gray & Larson, 2011).

Project delays can be significantly reduced when the CPM is used, since it shows the activities that are on the critical path and the activities that have floats/slacks.

3. Methods

This research adopts a case study approach. In this case, the context is the use of project management methodologies in the Adentan Municipal Assembly (AdMA) in Ghana. Data used in this research were from both primary and secondary sources. The staff strength of AdMA constitutes the research population. The purposive sampling technique was used in selecting the people to be interviewed. The choice of this technique was informed by the need to find specific people who were associated with the management of projects within the municipality. This was achieved by contacting the heads of the various departments in the municipality to purposively select some of their experienced employees who work on projects and are willing to participate in the study (Creswell, 2018; Tayie, 2005).

Semi-structured interviews were adopted as the main data collection instrument. The choice of this method enables the researchers to refocus the questions, or probe for more information, if something interesting or novel emerges (Fontana & Frey, 1998). Some of the questions are: how were the planned activities monitored and controlled? how were these projects able to meet quality and safety standards? what were the causes of delays on your project? A total of five (5) qualified interviewees were finally selected for the data analysis out of the many respondents that were interviewed at AdMA. Respondents were selected from each of the various departments. The respondents were also chosen according to their involvement in projects within their department. There was a selection of one respondent from education department, two from health department, three from the civic department, four and five from the departments of commercial and socio economic. Out of all these respondents, only five (5) of the responses were deemed usable in this study.

The results were analyzed by examining, categorizing, tabulating and testing the evidence to address the initial propositions of the study as described by Yin (2009), and also to draw empirically based conclusions (Yin, 2009). Validity of the study was enhanced by checking the findings with the case study participants (Hartley, 2004, p.330). Conceptual propositions were used in organizing the case study, while not pre-empting outcomes before the data was fully analyzed (The Qualitative Report, 2014). This aided the organization of the data, as well as developing a story line (Yin, 2009). The interviews were transcribed and coded based on themes.

4. Analysis and Discussion of Results

The respondents had a fair idea about how to perform their tasks, even though some were unaware that they were related to project management. When asked to attribute some

activities to the success of a project, a respondent said project management was not a factor, however, the response was:

...effective and regular monitoring. This is what we do here at AdMA. It can be regular, but it being effective is the most important. And this depends on the composition of the team on the field... (Respondent 1 and 2)

Also, when a respondent was asked whether they use or apply critical path method in project scheduling or the best practices in PRINCE2, he responded:

I am not too sure of what you mean by the critical path method, but we use some principles of project management, maybe, it is PRINCE2(Respondent 5).

These responses attest to the fact that there is but limited knowledge on project management methodologies or best practices among some employees within the municipal assembly, and therefore, there is a need for the various employees to be trained on project management methodologies and best practices.

Moreover, most of the respondents attributed the success of projects to various project management practices. However, most of them attributed project management to just a specific department, “works department”. The following project management techniques were also identified at the assembly: timelines, finance and budgeting, progress reports, quality assurance etc.

Interestingly, stakeholder management was identified to be a factor that greatly influenced the activities of the assembly. Every respondent mentioned the role a particular stakeholder played during the execution of their projects. For example, respondents 3 and 4 said:

...I'm telling you, when you meet too powerful contractor who is more powerful than you, you can only negotiate/ dialogue but you cannot always enforce your duties... (Respondent4)

...At Adentan, we don't compromise because of the elite class we have here. It is very difficult to deal with the stakeholders so we just do our best... (Respondent 3)

However, none of the respondents mentioned the use of any tool such as the stakeholder matrix in addressing stakeholder issues. In support of this study, Albogamy et al., (2012) *8th International Conference on Management and Economics – ISBN 978-955-1507-66-4* 374

conducted a similar research in the Kingdom of Saudi Arabia and their findings revealed that inexperience of the technical staff of contractors, improper scheduling and planning, dearth of professional engineers among others contributed to project delays.

In response to the first research question, which is to investigate whether the Adentan Municipal Assembly is applying the best practices/methodologies of project management in its projects, it was noted from this study that AdMA uses some project management practices that maybe likened to PRINCE2 methodology, but it cannot be said to be the best practice, since they do not follow the processes outlined in PRINCE 2. Table 1 shows the practices performed in AdMA using the PRINCE 2, and critical path methodologies as obtained from the interviews conducted.

Table 1: AdMA, CPM and prince2 project management practices- a comparison

Activity	AdMA method	CPM	PRINCE2 method
Initiation	Team building	Not used	Continued business justification, Defined roles and responsibilities
Planning	Planning department	Not used	Manage by stages
Implementation	Work plan		Learn from experience, Manage by exception- Focus on products
Monitoring & evaluation	Monitoring and evaluation team evaluation reports	-	Tailored to suit the project environment
Closing		-	-

Source: Author (2018)

Table 1 compares the existing practices in AdMA to that of the best practice of PRINCE2 and CPM. The methods used in AdMA seemed to be similar to those of PRINCE 2. When comparing the use of project management techniques and tools within the project management knowledge areas, it was observed that AdMA used most of these tools, however, the use of a quality plan and stakeholder matrix was lacking. This can be attributed to the recurring issues relating to stakeholders and quality.

Secondly, the study sought to identify the key factors that cause project delays in AdMA. Odeh and Battaineh (2002) categorized delays into two main groups. They are excusable and non-excusable delays. At the AdMA, both excusable and non-excusable delays from the interviewees, and related documents within the assembly were found. For example, the need to re-work and correct defects, were noted to be causes of project delays in AdMa. Another cause of delay was with the projects that were financed by the internally generated fund (IGF). Poor inflow of IGF to finance the projects prevents those projects from meeting their set deadlines. Also, with projects funded by the District Assembly Common Fund (DACF), the contractors were asked to pre-finance the projects, and the delay in payment of funds meant that contractors who were unable to pre-finance the projects fail at the delivery of the projects on time. Poor management of stakeholders was identified a cause of delayed projects. Consequently, the results of the research revealed that when the right project management methodologie sare applied, various delays will be identified and mitigation strategies will be put in place to reduce the adverse effects of delays on projects within the assembly.

Also, this investigation sought to determine how key project delay issues can be managed. Having identified poor project management practices as a contributing factor to delays in projects, the employees mentioned that they hardly use project document as a reference for lessons learned; they do not take issues of stakeholders seriously, and pay less attention to quality issues among others. Thus, to avoid delays, it is a must that documents on lessons learned on previous projects be reviewed by the project team. There should be stakeholder analysis, and proper management and focus on project quality. There is a need for quality assurance unit to be established within AdMA, and most importantly the methodologies of CPM and PRINCE2 should be adapted to the projects within the assembly. Strict adherence to these methodologies will largely reduce, if not eradicate, these delays.

5. Conclusion and Recommendation

The research identified various aspects of project management practices, and the causes of delays in various projects within the Adentan Municipal Assembly. The issues of delays in projects were highlighted. The study exemplified how the task of implementing efficient projects within the MMDAS is daunting for the assembly. The need to deal with funding, internal and external stakeholders, poor project management practices, and quality issues were major causes of project delays. The study revealed the need for the MMDAS to be trained on project management methodologies like PRINCE2 and CPM; as well as stakeholder management, since these served as threats to even projects with all the resources in place. This study established that, when the best practices in project management are adopted, it can reduce the problems of delay, and the assemblies can save monies that would be used in paying penalties as a result of project delays.

As a recommendation, proper stakeholder management should be identified as the fourth key to project success when using time, cost and quality as the traditional measures of project success. From the interviews conducted it was evident that cost, scope and budget are used as the main drivers of projects management at AdMA, however quality is absent; thus, there is the need for attention on quality of project deliveries as well. Also, it is highly recommended that PRINCE2 and CPM methodologies be adapted to projects within the assembly. Similarly, at least project team leader should be trained in stakeholder management; and quality assurance units should be set up in the Adentan Municipal Assembly to undertake all issues regarding the quality of projects undertaken by the assembly.

The researchers are confident that when projects are managed with the methodologies discussed, as well as with the principles of cost, time, quality and proper stakeholder management in mind, most issues of delays will be addressed successfully.

Among the limitations of this research lies the small sample size. This can be attributed to the limited number of available staff who were in the position to provide the required information within the assembly. Since the AdMA is one of the MMDAs in Ghana, this study suggests an investigation to cover other assemblies for a comparative analysis to be made.

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