FACTORS AFFECTING PROJECT TIME MANAGEMENT IN GOVERNMENT CORPORATION: A CASE STUDY OF KENYA POWER

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Abstract

Many projects implemented by the government corporations are always completed behind the schedule. This delay is detrimental to the stakeholders and result in time overrun, cost overrun, cost variations, low quality products, disputes and in some instances it lead to abandonment of projects. Projects delay may be attributed to lack of proper understanding of the time an activity can take to complete and the inaccuracy of the methods used to predict project completion time. This study sought to establish factors affecting project time management in Government Corporation with special focus to Kenya power. The study entailed three independent variables and one dependent variable namely; activity definition, activity scheduling, activity cost estimation and project time management. The target population of the study was 45 project staff working in Kenya Power picked using simple random design. The study findings indicate that experts are treated as assets in Kenya Power and provide inputs to planning and estimating any activity as their opinions are considered to be crucial. The experts can be stakeholders or customers. The study concludes that the smallest schedule activity should be able to estimate the work package with the highest degree of accuracy. The study further concludes that activity sequencing and scheduling is utilized in Kenya power and affects project time management. Kenya power has utilized finish to start sequence for their projects implementation.

Key Words: Project time management, activity definition, activity sequencing, activity duration estimation, Kenya power.
Introduction

Globally, many projects carried out are not completed as scheduled due to inability to adequately manage the project time as planned and as such, project time management is predominantly based on planning. Project also fail due many other reasons among them being lack of proper understanding of the time an activity can take to complete and the inaccuracy of the methods used to predict project completion time. (Ondari & Gekera, 2013) concurs that delays in project completion is a common problem in roads construction project in Kenya and that the success behind any project depends to a greater extent on good time management of the project activities. The project success can therefore be defined as the ability of the project to meet the project time, cost and the quality desired by the stakeholders. Project management tools and techniques play an important role in the effective management of a project. Therefore, a good project management depends to a great extent on the management tools and techniques used to manage the project. Some techniques used in time estimation are inaccurate and are prone to errors thus calling for modern techniques based on computer softwares.(Lewis, 1998), (Kasturi & Gransberg, 2002) articulate that as most projects in the world today are deadline driven, project time management processes must be implemented as planned. However, time management cannot be controlled in isolation, as time, cost and quality are closely related to each other and any change in one of these elements will affect the other two factors (Lewis, 1998),(Turner, 1999). Therefore, (Howell & Ballard, 1996) consider it critical that elements of time, cost and quality should be managed in a controlled environment in order to identify and correct deviations from the project objectives. It is critical to note that, if time is correctly estimated then, cost will be manageable and there are high chances of delivering projects of high quality. Therefore, the three factors of time cost and quality largely depends on each other-these variables are triplets in project management.
The aim of managing time is to spend time doing things that help one to achieve his/her goals and the things that one personally prioritizes and value. Before organizing time, it is critical to think in a controlled way by looking carefully at your priorities. This means identifying what is most important to you. This will further help you prioritize the time you give to things you most value and things which will help you achieve your goals and allocate a realistic amount of time to each project task identified in order of importance. (Lewis, 1998) describes the management of projects with respect to time, cost and quality as “project controls”. Similarly, (Howell & Ballard, 1996) believe project controls is used to “identify and correct deviations from project objectives during the course of a project: typically for time, cost and quality”. Whereas (Granot, 1997) insists on project controls, he also includes team and scope management as well as quality, cost and time management. It is therefore important to identify priorities of the project and identify the ones that are critical to the project so as to allocate adequate time in order of importance. According to (Kagiri & Wainana, 2008), time and cost overruns on infrastructure development projects during implementation continue to pose great challenges to developing countries such as Kenya. Most of these challenges impede successful completion of projects on time, budget, and quality as desired by the stakeholders. For projects to achieve their goals and objectives, it is paramount that time is of essence because any delay in any of the critical activity in a project will definitely lead to cost overruns and in most cases the quality of the project delivered will be uncertain. Many government corporations are faced with challenges of delivering project that are behind the schedule and have cost overruns. This delay in project completion leads to substandard projects being delivered. Kenya power has been the major casualty in terms of project delivered beyond the scheduled time plan and incurs cost overruns. The reasons for delay in most of these project is associated to lack of prioritization and
imbalance allocation of resources such as time, materials and human capital. It should also be realized that the achievement of the targeted objectives are determined by the ability to deliver the targeted output within the stipulated time. Kenya power executes many small and major projects such as the constructions of power lines, design and installation of new substations and lying of optic fiber along the distribution, sub-transmission and high transmission lines. These projects involve various activities that require good project definition, sequencing and accurate estimation of the task details however; Kenya power projects have shortage of these variables. Other causes of project delays in Kenya power have been the shortage of essential construction materials in the midstream of the project execution thus causing further delay-this is insufficient materials estimation. The delay in completion of power projects is causing constraints on the existing power infrastructure. Also, the demand for power in Kenya does not match the supply and grows at the rate of 6% annually (GoK, 2004) while the power penetration in the country stands at 30%. This leaves a large of Kenyan population without electricity supply. As such, KPLC Master Plan (2011) was designed to address these huge power deficits in Kenya in compliance with the Kenya vision 2030. This situation is attributed to the country’s overreliance on hydro power, which is greatly influenced by the climatic changes. In the last decade, rainfall has been intermittent and inadequate to sustain hydro power generation thus compelling the power utility firm (Kenya Power) to rely on non-renewable and expensive diesel generation run by independent power producers (IPP). Kenya power is currently engaged in several renewable and few non-renewable power generation projects with the intention of mitigating this insufficiency power supply and reduction in cost of power per unit consumed. Some of these projects are run by the IPP such as Wind power project (Turkana wind power) that is designed to inject 300MW into the power grid by 2016. Other projects being undertaken by Kenya Power are
the Reinforcement projects aimed at establishment of new power substations in heavy load centers plus the newly introduced projects aimed at connecting 1.2 Million Kenyans to electricity in the next one year last mile electricity connectivity project. All these projects are targeted at ensuring that greater Kenyan population has access to power that is reliable and at affordable rates. It is therefore imperative that these projects are delivered on time to boast industrial and technological capacity of Kenya and the entire African region. According to (KAM, 2012), ICT enabled services are some of the factors expected to foster economic development in Kenya and in the entire African region. To achieve this goal; power projects should be completed on time, on cost and the power has to be stable and reliable for the success of ICT enabled services.

In Kenya, public sector projects are initiated, planned, and implemented by the government ministries or their implementing agencies in state corporations such as Kenya power. They are tasked with the retail of electricity to the consumers in the country. These projects are aimed at improving the country’s infrastructure like schools, energy, health, roads, communication networks, housing, education and water among others. It is therefore paramount that timely implementation of these projects is carried out so that they are completed on time, on cost and the quality desired is attained. This translates into benefits to all the stakeholders. (Mwandali, 1996), (Talukhaba, 1998), (Karimi, 1998), and (Musa, 1999) found out that, many public sector projects in Kenya are delayed in time and run into cost overruns. Their findings indicates that, poor communication, lack of experience by project manager, procurement delays, lack of planning, poor infrastructure, inadequate resources, lack of motivation, tendering methods, variations, project environment, poor project definition, inaccuracy in project estimation as being some of the major contributing factors to time and cost overruns.
Statement of the problem

Many projects carried out by state corporations such as Kenya power are completed behind the schedule. This delay in project completion is often detrimental to stakeholders and result in time overrun, cost overrun, cost variations, disputes and in some instances it lead to abandonment of projects as articulated by (Sambasivan & Soon, 2007). Further, the Government incurs additional costs that could have been put into better use by funding other important sectors of the economy. According to (Ahmed, Azhar, Castillo, & Kappagantula, 2002), It is essential to identify the actual causes of project delay so that appropriate measures can be taken. The projects implemented by Kenya power are funded by various institutions and are a matter of public interest. It is evident that most of these projects are not completed on time while some are completely abandoned in the midstream. Other causes of project delays in Kenya power has been the shortage of essential construction materials in the midstream of the project execution thus causing further delay.

According to (KAM, 2012), Kenya is at position 115 out of 183 in terms of the time taken to connect electricity to the end users. The reasons for these delay is attributed to poor planning, poor project activity definition, and lack of task prioritization, scheduling and activity estimation. Others are intrusive procedures that put investors away. Kenya power is currently implementing major power projects countrywide and if these projects are to achieve their goals on time, then there should be adequate planning by ensuring that the correct project definition, scheduling and estimation is carried out. It is also important that the right people with adequate knowledge and skills in project management are assigned responsibilities to run these projects.(Nyoike, 2002)says that Kenya has inadequate electricity generation and its supply capacity has been unreliable for over one decade partly due to delay in project completion.
Many studies carried out in Kenya have focused on factors that contribute to project delays. (Kagiri & Wainana, 2008) looked at factors that lead to time and cost overruns in power projects in Kenya. A similar study by (Talukhaba, 1998) focused on factors that cause construction delays in Kenya. Other researchers such as (Mwandali, 1996) did an analysis of major factors that affect project management in Kenya Railway projects.

However, these studies did not focus in details the factors affecting project time management in government corporations such as Kenya power by assessing how the activity definition, activity scheduling and estimation can be effectively carried out and managed to reduce the time it takes to complete a project. Also, most project Engineers in Kenya Power have no background in project management and any Engineer can be assigned as a project Engineer. As a result, project planning, implementation, control and project closure are not executed professionally thus leading to project being completed behind the schedule and run into cost overruns. Therefore, this study investigated factors affecting project time management in Government Corporation: A case study of Kenya power.

**Study Objectives**

1. To assess the effect of activity definition on project time management in Government Corporation of Kenya power.
2. To investigate the effect of activity sequencing on project time management in Government Corporation of Kenya power.
3. To determine the effect of activity duration estimation on project time management in Government Corporation of Kenya power.
Literature Review

The section examines what other researchers and scholars have documented on the factors affecting project time management in Government Corporation: the Case study of Kenya power. It shall also diagnose a critique of the existing literature relevant to the study as well as the research gap.

Theoretical Review

Project can be defined as a temporary endeavor that has a beginning and an end and consumes resources. For any project to succeed and be completed on schedule, on cost and meet the quality desired it must be adequately planned and tasks of high priority identified and allocated enough resources. It is therefore critical to note that project success does not occur in isolation and as such it requires inputs from all stakeholders involved in the project just from its inception to its successful completion. Early project closure can be influenced by several factors such as inadequate resource allocation. In this study, independent variables were identified as activity definition, activity scheduling and activity estimation with one dependent variable namely project time management. Though timely completion of the project is one of the determinants of its success, it is important to manage each project based on its uniqueness (Divakar & Subramanian, 2009). This means that each project has different characteristics from other projects and it should be handled based on that assumption. Project success factors can be classified into managerial factors, efficient project planning and clarity of objectives. (Enshassi, Mohamed, & Abushaban, 2009) identified two stages within project lifecycle as the delivery and post-delivery stages. The delivery stage involves standard measures which involve “doing things right” while the post-delivery stage is the concern of the consumers and organization to ensure
that things were done right. Therefore, based on this approach that “getting things right” it is perceived to be more significant compared to “doing things right”. (Zulu & Chileshe, 2008) came up with a comprehensive framework which entails efficiency, impact on the team, impact on the client, organizational success and preparedness for the future.

**Review of Variables**

**Activity definition**

Activity definition is aimed at identifying the specific task needed so as to accomplish the project deliverables. It needs to be done in detail and sufficiently so that the required resources and time needed to complete the project can be estimated with high degree of accuracy. The high-level requirements are broken down into high-level tasks or deliverables. These are then broken down into activities and presented in the form of WBS. The inputs to activity definition are the scope baseline consisting of the approved project scope statement, the WBS and the WBS dictionary. The activity definition process will identify the deliverables at the lowest level in the WBS which is called work package (PMBOK, 2004). (Ansari, Bell, & Lundbald, 2002) regard activity definition as a critical function in the planning process, especially if the organization has adopted activity-based management.

**Activity sequencing/scheduling**

This is the second stage after activities have been defined. The activities are sequenced according to their dependencies. In sequencing the activities, one has to identify the relationship, recognize the dependent activities and later develop the schedule. It is critical to classify the dependencies properly because they indicate the sequence in which the activities must occur. There are four types of dependency relationships in Precedence Diagramming Method (PDM) (PMBOK, 2004), the first one being a finish-to-start (F/S) relationship that exists if one activity must finish before
another activity starts. The second is start-to-finish (S/F) relationship that exists if one activity must start before another can finish. The third is a start-to-start (S/S) relationship that exists if one activity cannot start until another activity starts while the fourth one is a finish-to-finish (F/F) relationship that exists if one activity cannot finish until another finishes.

Activity sequencing involves identifying and documenting the logical relationships among schedule activities (PMBOK, 2004). Activities are normally sequenced based on their logical order of execution. Two methods used to achieve this are the Programme Evaluation Review Technique (PERT) and the Critical Path Method (CPM) (Sinason, McEldowney, & Pinello, 2003). CPM is further classified into two methods namely, the Arrow Diagramming Method (ADM) and PDM. To facilitate the activity sequencing algorithms it is usual to employ computer software programs, and most of these programs use the PDM method (Ritz, 1990). PDM is a method of constructing a project schedule network diagram that uses boxes or rectangles, referred to as nodes, to represent activities and connects them with arrows to show dependencies that exist between them (PMBOK, 2004).

**Activity duration estimating**

The eight inputs used in the activity resource estimation are briefly explained below: Schedule management plan identifies the level of accuracy and the units of measure for the resources to be utilized while activity list is a list showing the documentation of the scheduled activities showing the activity description and identifier. The third is activity attributes that is associated with each activity, they may be codes, predecessor and successor activities etc. Resource calendar indicate the resources required at each period of the month throughout the year while the Risk register indicates the risk events that might affect the resource estimates. Activity cost estimates is the cost of resources that may impact resource selection. Enterprise environmental factors involves
resource allocation while the last one is availability and skills. Organizational process assets, these are the policies and procedures regarding staffing in the organization.

Developing accurate estimates of the duration and effort of the project overall, and its separate tasks, is critical to the usefulness of project management ideas both in the planning and monitoring of projects (Hill, Thomas.L.C., & Allen.D.E., 2000). The process of estimating schedule activity durations uses information on schedule activity scope of work, required resource types, estimated resource quantities, and resource calendars with resources availabilities. The activity duration estimation process requires that the amount of work effort required to complete the schedule activity is estimated, the assumed amount of resources to be applied to complete the schedule activity is estimated, and the number of work periods needed to complete the schedule activity is determined (PMBOK, 2004). The activity duration plays a major role in the calculation of the scheduled dates for the project, and thus the estimating process should not be taken lightly (Turner, 1999). However, many projects do not pay attention to this advice and “best guess” for duration estimation constitutes one of the ten major causes of project failure (Lewis, 1998). Also, in many project failures the activity durations are calculated based on how much time was available to complete the project rather than how long the activity actually takes to complete (Street, 2000).

**Project time management**

According to (PMBOK, 2004), project time management includes the processes required to manage the timely completion of the project. It involves determining the delivery dates and milestones whilst taking all of the known constraints into account. Project time management has three independent variables namely activity definition, activity scheduling and activity cost estimation. The purpose for defining activity is to identify the specific task needed so as to
accomplish the project deliverables. By defining the activity, it makes it possible to break down the task from complex into sub-task that defines the task with the highest degree of accuracy. The activity list needs to be adequate and capture all the required resources and time needed to complete the project. The high-level requirements are broken down into high-level tasks or deliverables. The inputs to activity definition are the scope baseline consisting of the approved project scope statement, the WBS and the WBS dictionary. According to (PMBOK, 2004), there are four interrelated techniques that comprise the project scope management, these are:

Decomposition, this involves subdividing the project work packages into smaller and more individual manageable components called schedule activities. The smallest schedule activity should be able to estimate the work package with the highest degree of accuracy. Work packages are decomposed into activities so that to generate an activity list that is used to develop a project schedule. The second technique is Rolling Wave Planning (RWP). This method involves planning the project in the form of waves as the project proceeds and later the details become clearer. It is a form of progressive elaboration planning where work to be accomplished is based on the fact that activities required in the immediate future will be known in greater details than those further into the future. This means that projects that are immediate have their activities defined with greater degree of accuracy than those in the future and are thus more reliable than the latter. The third technique is Expert judgment that involves where project team members or other experts who are experienced and skilled in developing detailed project scope statements, WBSs, and project schedules can provide expertise in defining activities. Expert judgment requires some prior experience of similar or related task in order to develop the project scope statement. Therefore, a standard activity list or a portion of the activity list from a previous project is often reusable as a template for a new project. The Planning component, this
method is suitable when insufficient definition of the project scope is available to decompose a branch of the WBS down to the package level, the last component in that branch of the WBS can be used to develop a high-level project schedule for that component.

**Research Gaps**

Some previous studies have assessed the challenges that many projects have encountered causing the projects to be completed behind the schedule. (Sullivan & Mayer, 2010) did analysis and found out that budgetary constraints affect project completion time. Many projects carried out by Kenya power require rights of way for the construction of power line; however in many instances the way leaves is obtained haphazardly. As such, in the midstream of the project construction the land owners do oppose the power line from passing through their land thus causing the project delay. It is therefore critical to involve all stakeholders for the timely implementation of the power project.

Projects implemented by Kenya power have faced setbacks in terms of delayed completion time due to poor definition of the activities, disorderly sequencing of activities and inability to accurately estimate activity duration. These projects are in many instances executed by project Engineers who do not have appropriate knowledge in project management. In reality, project Engineers who are the implementers of these projects do not use tools and techniques for project monitoring and evaluation. Project planning tools should be improved to enhance the capacity to forecast the expected project activities completion time and their financial implications. Moreover, Project activities need to be properly documented irrespective of the nature and magnitude of the project. This would provide information necessary for monitoring and evaluating various project challenges and hence prevent recurrence of delayed projects in future.
Methodology

Research Design

According to (William & James, 2006), a research design is “the arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose with economy in procedure”. It includes an outline of what the researcher will do from the time he/she writes the hypothesis and its operational implications to the time of the final analysis of data. The study adopts descriptive research (statistics that describe the phenomenon of interest). It is concerned with specific predictions and collection of data in order to describe the characteristics of the subjects of the study. According to (Zikmund, 2003), descriptive research describes the different variable that is being explored. Further, (Creswell, 2008) noted that an exploratory research is best suited when the researcher is exploring insights into the broad nature of research problems, as well as the most appropriate variables that require evaluation. Therefore, the purpose was to determine and report things the way they were.

The Target Population

The target population is an entire group of individuals, events or objects having a common observable characteristic. The population of interest in this study involved Government Corporation with Kenya power as the case study. According to (KPLC, 2013) there are 450 project staff working in Kenya power. Therefore, this study target population of 450 staff namely; project engineers, project supervisors, technical staff and project clerks working in projects in Kenya Power. The reason for targeting this population is because they are directly involved in the execution of project in Kenya power a process that has been found to be the major contributors of project delay. They are also knowledgeable in the area under study.
Data Collection

The primary data collection was carried out using structured questionnaires that was administered directly to the respondents within project departments in Kenya power. (Best & Khan, 1991) concurs that, questionnaires allow the person administering them to explain the purpose of the study and give meaning of each items that may not be clear to the respondents. This makes it flexible to administer the questionnaires and as a result errors are minimized considerably. Merits of open ended questionnaires includes answers to questionnaires are in respondents’ own words; respondents have adequate time to give well thought out answers; respondents who are not easily approachable can also be reached conveniently; large samples can be made use of and thus the results can be made more dependable and reliable.

Questionnaires are most commonly used when respondents can be reached and are willing to corporate. This method can reach large numbers of subjects who know how to read and write independently (Pascale & Athos, 1995). The tool for data collection in this study was questionnaire comprising structured (closed ended) and unstructured (open ended) questions. The former includes where multiple choice questions are given while the latter involves where the respondents are allowed to answer to questions in their own words. The data collected for this study comprised of five sections of the questionnaire.

Data Analysis

The data was collected and later the questionnaires were edited to facilitate statistical analysis using descriptive statistics. This was done to eliminate unfeasible or conflicting data and interpret ambiguous answers. Quantitative data was analyzed through statistical package for social sciences (SPSS) while qualitative data that originate from the respondents ideas was analyzed through content analysis. According to (Meyer, 2003) Content analysis involves,
“analyzing text with respect to its content, with the factors of interest most often relating to the meaning, or how many times particular phrases/terms appear”. Results were presented in the form of percentages, means and frequencies, pie charts, bar graphs, frequency tables from which inferences and conclusions were drawn.

The researcher also conducted inferential analysis which included coefficient determination and a multiple regression analysis. The regression equation is

\[ Y = (\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon): \]

Where \( Y \) = Project time management \( X_1 \) = Activity definition; \( X_2 \) = Activity scheduling; \( X_3 \) = Activity cost estimation; While \( \beta_0, \beta_1, \beta_2 \) and \( \beta_3 \) are the Coefficients of determination = Error term for this study, the researcher is interested in determining the factors that affect project time management in government corporations with Kenya power as the case study.

**Research Findings**

**Response Rate**

The study targeted a sample size of 45 respondents from which 40 filled in and returned the questionnaires making a response rate of 88.9%. This response rate was good and representative and conforms to Mugenda and Mugenda (1999) stipulation that a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent.

**Regression Analysis**

In this study, a multiple regression analysis was conducted to test the factors affecting project time management in Kenya Power. The research used statistical package for social sciences (SPSS V 21.0) to code, enter and compute the measurements of the multiple regressions
Table 4.6: Model Summary

<table>
<thead>
<tr>
<th>Model</th>
<th>R</th>
<th>R Square</th>
<th>Adjusted R Square</th>
<th>Std. Error of the Estimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.847</td>
<td>0.717</td>
<td>0.707</td>
<td>0.123</td>
</tr>
</tbody>
</table>

R-Squared is a commonly used statistic to evaluate model fit. R-square is 1 minus the ratio of residual variability. The adjusted $R^2$, also called the coefficient of multiple determinations, is the percent of the variance in the dependent explained uniquely or jointly by the independent variables. 70.7% of the project time management could be attributed to the combined effect of the predictor variables (activity definition, activity sequencing/scheduling and activity duration estimation). Therefore, further studies should be done to establish the other factors (29.3%) affecting project time management in Kenya Power.

Table 4.7: Summary of One-Way ANOVA results

<table>
<thead>
<tr>
<th>Model</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>3</td>
<td>1.107</td>
<td>4.075</td>
<td>0.003</td>
</tr>
<tr>
<td></td>
<td>Residual</td>
<td>85</td>
<td>0.015</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>88</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The probability value of 0.003 indicates that the regression relationship was highly significant in predicting how activity definition, activity sequencing/scheduling and activity duration estimation influenced the project time management. The $F$ critical at 5% level of significance was 4.075 since $F$ calculated is greater than the $F$ critical (value = 2.71), this shows that the overall model was significant.
Table 4.8: Regression coefficients of the relationship between project time management and the three predictive variables

<table>
<thead>
<tr>
<th>Model</th>
<th>Unstandardized Coefficients</th>
<th>Standardized Coefficients</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>1 (Constant)</td>
<td>0.983</td>
<td>0.298</td>
</tr>
<tr>
<td>Activity definition</td>
<td>0.842</td>
<td>0.048</td>
</tr>
<tr>
<td>Activity sequencing/scheduling</td>
<td>0.694</td>
<td>0.192</td>
</tr>
<tr>
<td>Activity duration estimation</td>
<td>0.716</td>
<td>0.247</td>
</tr>
</tbody>
</table>

As per the SPSS generated table above, the equation \( Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon \) becomes:

\[
Y = 0.983 + 0.842X_1 + 0.694X_2 + 0.716X_3
\]

The regression equation above has established that taking all factors into account (activity definition, activity sequencing/scheduling and activity duration estimation) constant at zero project time management will be 0.983. The findings presented also show that taking all other independent variables at zero, a unit increase in the scores of activity definition, would lead to a 0.842 increase in the scores of project time management, a unit increase in the scores of activity sequencing/scheduling will lead to a 0.694 increase in the score of project time management while a unit increase in the scores of activity duration estimation would lead to a 0.716 increase in the scores of project time management.

Overall, activity definition had the highest influence on project time management, followed by activity duration estimation while activity sequencing/scheduling had the least effect to project
time management. All the variables were significant (p<0.05). The p-value for each term in linear regression tests this null hypothesis. A low p-value (< 0.05) indicates that you have sufficient evidence to conclude that the coefficient does not equal zero. Changes in the predictor (activity definition, activity sequencing/scheduling and activity duration estimation) are associated with changes in the response variable.

Discussion

The project plan is an important phase of the project lifecycle and it involves a lot of other critical plans that come together to form the entire project plan; the quality plan, procurement plan, risk plan, just to list a few. These project plans are all essential for project success. Holman R. (2011) states that many businesses make the mistake of labelling and referring to the project schedule as the project plan, this was typically the situation in the case of the Kenya Power; there was no clear distinction between the project schedules and the project plan everything was intertwined. A clearer distinction would have improved the entire project outcome.

A popular saying by the renowned American football player Vince Lombardi states that “Perfection is not attainable, but if we chase perfection we can catch excellence.” If only careful attention was paid to activity definition, activity sequencing/scheduling and activity duration estimation to greater detail, then Kenya Power projects could be successfully completed in good time. Westland J. (2006) emphasizes the need for a phase review at the end of every project phase to monitor and control the status of various deliverables and also determine whether the project has met its objectives for that particular phase. This can aid in evaluating various project aspects that needs to be put in check before getting out of hand.
There are many project management software programs on the market that can help plan, organize, manage resource pools and develop resource estimates for work purposes, if Kenya Power had adopted the use of project management software programs, it would have eased up their project management processes.

Conclusions

From the findings, the study concludes that the smallest schedule activity should be able to estimate the work package with the highest degree of accuracy. Work packages are decomposed into activities so that to generate an activity list that is used to develop a project schedule (PMBOK, 2004). The study findings agree with earlier findings by Nosbisch, (2002) describes the development of this tool as extremely important to the project controls process as everything is derived from it and by it. Progressive elaboration means that the work packages are refined in greater detail over the time (PMBOK, 2004). While PMBOK(2004), gives emphasis on the rolling wave planning as critical in project activity definition, the findings indicate that Kenya Power project team seem to have ignored its importance and hence the cause of lots of time overruns for projects.

The study findings indicate that experts are treated as assets in Kenya Power and provide inputs to planning and estimating any activity as their opinions are considered to be crucial. The experts can be stakeholders or customers. Expert Judgment is one of the best accepted approaches and most useful too during the planning phases of many activities and seem to have been utilized to great extent in Kenya power. The approach not only saves the time during the planning but also highlights risks to be considered while executing which is in agreement with other previous studies by Vittal (2014).
The study further concludes that activity sequencing and scheduling is utilized in Kenya power and affects project time management. Kenya power has utilized finish to start sequence for their projects implementation. A start-to-finish dependency can also occur between activities in a project. However, this relationship is usually less common than the finish-to-start, finish-to-finish, and start-to-start dependencies. In the start-to-finish dependency, Activity X must start before Activity Y can finish (Fischer, 1998). Abeyasinghe (2001) indicated that creating a comprehensive schedule is one of the more difficult activities that project managers face, but one needs not to stick with one type of schedule. Hence Kenya Power needs to schedule based on the kind of activity.

The study further concludes that activity duration estimation is utilized in Kenya power and affects project time management. The study findings indicate that experts are treated as assets in Kenya Power and provide inputs to planning and estimating any activity as their opinions are considered to be crucial. Expert judgment involves the weighing of available evidence and reaching a balanced conclusion from that evidence (Hora, 2009). Developing accurate estimates of the duration and effort of the project overall, and its separate tasks, is critical to the usefulness of project management ideas both in the planning and monitoring of projects (Hill et al., 2000). When estimating the durations for activities using Probabilistic estimating, (Lock, 1995) says that three estimates are required to be entered for every activity. These three estimates are the most optimistic duration, the most pessimistic duration and the most likely duration. It may prove difficult to estimate complex activities, and so it makes sense to break the down into smaller chunks of work so that these may be estimated and summed up from this bottom level to the activity level itself (Litten, 2015). It is therefore important for Kenya Power to compare
various tools and techniques for activity resource estimation so that the best cost estimate can be achieved.

References


