Moderating Role of Community Participation on Performance of Affordable Housing Program in Kenya

Dr. Muchelule Yusuf Wanjala

Abstract

It is estimated that the current affordable housing deficit stands at 2 million houses with nearly 61

Index terms— scope management, time management, community participation.

1 Introduction

rojects are time bound endeavors that are supposed to be completed within the planned and stipulated time period covering a predetermined scope, within planned budget and quality specified by the customer or client Cheng, (2014). Project success is controlled by time, cost and scope, commonly referred to as Project Triple Constraint (Baymount, 2015; Akinyde, 2014; Wanjau, 2015). For every successful project, considerations are based on the triple constraint before, during and after project implementation. The project constraints sometimes referred as the iron triangle are common in the construction projects (Catanio, Armstrong & Tucker, 2015; Nasir, Nawi & Radzuan, 2016). The failure to understand and interpret iron triangle appropriately may affect a construction project though project activities are carried out effectively (Omondi, 2017 Construction projects include the design and build of new structure (Sheshu and Akitonye, 2015) In many countries in the world construction activity constitute 6-9% of gross domestic product (GDP) and more than half of the fixed capital formation as infrastructure and public utilities required for economic development ??Cohen, 2013). The program performance is based on a set-criteria anchored on the standards or principles from which stakeholders are able to judge the project success (Nibiyza, 2015; Rugenyi & Bwisa, 2016). These are the key predictors which are very crucial for every successful project in terms of achievement of the goals and objectives.

This study is grounded on the triple constraint theory trying to explain the influence of time, cost and scope which bounds the universe of every performing project (Osedo, 2015;Hassan & Adeleke, 2019;Banda & Pretorius, 2016; ??ibyza, 2015). The key standards and principles which must be accomplished in every project as stated by (Van Wayngaad, Pretorius, & Pretorius, 2012) are the definitely the project triple constraint in a construction project which must be balanced appropriately (Catanio, Armstrong & Tucker, 2015; Nasir, Nawi & Radzuan, 2016). The cause and effect of new or changing triple constraint requirements are constantly negotiated during all phases of a project (Lukale, 2018;Rugenyi & Bwisa, 2016;Omondi, 2017). The three key triple constraint relationships signify that at least one of the triple constraint variables must be constrained (otherwise there is no baseline for planning), and at least one of the variables must have capacity for exploitation (otherwise quality may be affected) (Abulkhaim & Adeleke, 2019; Beleu, Crisan & Nistor, 2015; Omondi, 2017; ??ugenyi, 2017).

Based on this argument, according to Osedo (2015) stated the county government funded projects in Kenya have indicated puzzling statistics which have shown underperforming statistics whereby the existing records have reported that between 60% to 82% of projects have failed. These projects are struggling in terms of being accomplished within the budget, time without compromising quality (Omondi, 2017). Similarly, Omolo (2016) found out that county governments funded construction projects have issues in regard to project scope management. This means that they rarely follow the necessary processes for the implementation of the projects, activities and tasks associated and for the successful finalization of the project (Sikudi & Otieno, 2017;Mwangi, 2018).

2 II.

3 Statement of the Problem

The 2010 Constitution of Kenya identifies access to adequate affordable housing and to reasonable standards of sanitation as an economic and social right (Manji, 2015). It is estimated that the current housing deficit stands at 2 million houses with nearly 61% of urban households living in slums. This deficit continues to rise due to fundamental constraints on both the demand and supply side and is exacerbated by an urbanization rate of 4.2%, equivalent to 0.5 million new city dwellers every year. With this level of growth, Kenya requires approximately 200,000 new housing units annually to meet demand, yet only 50,000 homes are built, leaving the housing deficit growing by 150,000 units per year. As a result of this mismatched supply and demand, housing prices have increased by 100% since 2004 (KNBS, 2017).

Actual expenditure on housing by the national housing corporation went down to Ksh 5.9 billion in 2014/2015 from Ksh 6.1 billion in 2013/2014 due to fewer projects been completed **??**KNBS, 2016). According to Korir, (2013) poor performance of construction housing projects has led to project delays of up to 184.7% and cost overruns of up to 152.3%. Gacheru, (2015) established that poor program performance in the housing sector can be attributed to; unqualified technicians, incompetent contractors, noncompliance to specifications, poor project designs, lack of quality control measures, poor cost estimation and use of substandard materials. The construction projects fail in the project triple constraint considerations which are very crucial in projects' decision making in the country. The failure to understand, interpret and apply this criterion is regarded as one of the factors which has led to underperformance of the projects being funded by the governments (Omondi, 2017;Kiarie & Wanyoike, 2016;Gitee, 2018;Muchelule, 2018). Lukale (2018) found out that project triple constraints management significantly improves performance of projects by more than 70%.

Local studies related to project triple constraints management and performance of projects have been carried out in different sectors. For instance, Omondi (2017) study focused on the triple constraint management and WASH projects completion in Nakuru County, Kenya. Rugenyi and Bwisa (2016) study was on project triple constraint and project manager's perspective on management of projects in Nairobi. Further, Kiarie and Wanyoike (2016) study focused on the government funded projects and specifically integrated financial management information system (IFMIS) project was used as a case study. From the aforementioned studies no study has focused on the relationship between project triple constraints management and performance. A gap this study sought to fill. It is on this premise this study, therefore, examined project triple constraints management (cost, time, quality and scope) on performance of affordable housing program in Kenya.

4 III.

5 Objectives of the Study

The purpose of this study was to examine project management triple constraints and performance of affordable housing program in Kenya.

6 a) Specific Objectives of the Study

The study was guided by the following specific objectives; i.

To examine the influence of project scope management on performance of affordable housing program in Kenya. ii.

To establish the influence of project time management on performance of affordable housing program in Kenya. iii. To explore the moderating influence of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

7 b) Research Hypotheses

The statistical null hypotheses to guide the above stated objectives included: H 01 :

Project scope management does not significantly influence performance of affordable housing program in Kenya. H 02 :

Project time management does not significantly influence performance of affordable housing program in Kenya.

8 H 03

Community participation has no moderating influence on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

9 IV.

10 Literature Review a) Theoretical Review

11 i. Theory of Triple Constraints

The theory of triple constraints is derived from the very definition of a project which states that a project is a temporary group activity which is designed to produce a desired result or service or a unique product **??**PMI, 2015). The theory of the triple constraint depicts that the project triple constraint management is an iron triangle of cost, scope, quality and time which bounds the project universe which must be achieved **??**Dobson, 2004). Construction projects brings complications in project management, needs and constraints and therefore for effective project management, constraints have to be managed. Projects take place inside organizations where, there is a finite amount of resources with which to accomplish infinite tasks. This results in scarcity and the triple constraints; a deadline, a budget, and a minimum acceptable level of performance **??**Dobson, 2004).

The theory of the triple constraints is anchored on the project management with an understanding that a project should be a balance of the three interdependent project constraints (time, scope and cost) to achieve the desirable results. The cause and effect of new or changing triple constraint requirements are constantly negotiated during all project processes, and the three key triple constraint relationships signify that at least one of the triple constraint variables must be constrained (Wayngaad, Pretorius & Pretorius, 2012).

Implying that most of adopted project management strategies to enhance program performance like planning process, scheduling process, a methodology for introducing work that actually leads to increased capacity, execution processes that provide excellent project control, visibility and decision support and work behaviors that are more conducive to good program performance **??**Jacob & McClelland, Jr, 2001). The theory enhance the understanding of the project manager contribution deliverables per the clients satisfactions. Further, the theory requires continuous improvement to sustain quality in the project dimensions (Nyakundi, 2015).

While, triple constraints criteria in project management have been accepted as a measure of project success. Due to uncertainty and involvement of three different and opposing factors time, cost, and quality, most projects are difficult to manage **??**Jacob & Mc Clelland, Jr, 2001). Every one of the three limitations have their individual impacts on project execution yet since these components have some relationship, one imperative bear an impact on the other two, in the long run influencing ventures expectations **??**Hamid, et al., (2012). This theory from organizational perspectives may work well or fail hence leading to delays if it isn't well embraced. For the county government funded construction projects, the time and cost overruns delays are a common problem not only with an immeasurable cost to government and public but also with debilitating effects on the contracting parties (Ondari & Gekara, 2013).

12 b) Complexity Theory

The theoretical foundation of complexity theory is made of program performance (Koskcla, 2000 cited by Richards (2010). The complexity theory as discussed by Curlee & Gordon (2011) is based upon the management belief that total order does not allow for enough flexibility to address every possible situation. The complexity exists in projects. The complexity theory acknowledges that projects by nature have parts that work together as a system. Because of this, even though some people would be unhappy with the changes; a lot of processes have to result from the changes. Certain impediments have to be removed, certain procedures that would be unproductive have to be changed or modified.

Complexity theory states that critically interacting components self-organize to form potentially evolving structures exhibiting a hierarchy of emergent system properties, **??**Lucas, 2009). During project life cycle, many team members will be concerned about how the project achievement were met as expected. The project team sometimes can be behind the schedule, delay challenge and project will probably end over budgeted. The complexity of the project requires the understanding of the management of the triple constraints to improve performance of the construction projects.

The complexity theory leads to the development of disruption model discussed by Baca (2005) which states that there are disruptions of the project that result from change requests because every time a change request comes along, the core team must stop the motion of project accomplishments to analyze the request. The forward motion stops, they do some analysis, they do a little more work on the project while they wait for an answer. This process has to determine whether the change request is out time and cost for the scope, to decide if the project is to be expended or only rectified.

V.

13 Conceptual Framework

14 Independent Variable

Dependent Variable VI.

15 Variables Review a) Project Scope Management

Project scope management is the process which involves definition and mapping appropriately. It is the procedure of ensuring that a project comprises all of the necessary activities for the achievement of specific targeted objectives. Project scope enlists structure of a project and base of other related factors especially cost and time. Project success relates to effectiveness cum effort given to its scope management; if the project boundaries are undefined then its objectives are not clear. PMI (2014) postulates that scope management in projects includes ascertaining that the project has all tasks and activities necessary for it to be completed successfully.

Project scope planning is defining of the project boundaries and the expected deliverables from the project (Adek, 2016). The basic matrix that is used for scope planning analysis involves the initiation, planning and definition. This can call for verification and change control when interspersed (Band & Pretorius, 2016). Scope inputs requires the description of program deliverable, selection program criteria, planning, strategically and historical information. Tools and techniques involved are methods of program selection and expert judgment of the same. The initiation phase output involves the identification program charter, project manager assignment, and the constraints and assumptions identification **??**Baymount, 2015). The project scope planning also includes the deliverables descriptions, assumptions and constraints, program charter. The project tools and techniques involved consist of a benefit/cost, identification of alternatives deliverable analysis (Apiyo & Mburu, 2014).

Omondi (2017) posits that uncontrolled variations in a project's scope (scope creep) represents propensity of a program or project to incorporate a larger number of tasks or duties as compared to the initial planned tasks and duties which were specified, and this can frequently lead to higher than arranged project costs and addition of the project duration. Conceptually, scope creep is actually additional tasks and duties which were never planned for in the project thus likely to have an effect on the cost and time of the project (Osedo, 2015). As the project progresses, project team gains more knowledge, and this leads to scope changes. Jones, Snyder, Stackpole & Lambert (2011) add that scope change is common on projects, meaning that it is not a harm to make changes during the lifecycle of the project (Rugenyi, 2015).

According to Sikudi and Otieno (2017) project activities can be well controlled through effective scope which is well planned and tracked. The scope control is monitoring of duties and tasks of the project to ensure they are achieved as per the scope management plan. Osedo (2015) found out that delivery of the project requires scope control, adequate project documentation, enhanced leadership with effective communication to ensure project deliverables are achieved. The project variances are due to lack of scope control in the projects (Nibyiza, 2015). The expected outputs of the scope controlling process can lead to changes of the request, updating of the project management plan, updates on the documentation of the project activities, updating of the asset's organizations process and work performance (Rugenyi, 2015).

16 Moderating Variable b) Project Time Management

Project time management refers to a component of overall project management in which a timeline is analyzed and developed for the project completion. Project time management consists of six different components or steps **??**Lukale, 2015). The project time management is dynamic and may require input from several different teams each with individual project time management process in order to integrate the various interdependent component parts of the project to achieve the project deliverable(s) (Osedo, 2015). Raza and Shah (2012), project time management is the procedure of managing time to ensure that project activities and tasks are achieved as expected. It is seen as the scheduling of project activities and involves the process of defining the project activities and tasks, sequencing of activities, activity duration estimation and resources activity estimation (Rugenyi, 2015). Project time management encompasses the activity definition which is the identifying and scheduling different components of the project management sequence that are required for completion of project deliverables (Sikudi & Otieno, 2017;Rugenyi, 2015).

Project time management also is the activity sequencing which is the process of project time management that defines the order in which deliverables must be completed (Githenya & Ngugi, 2014). Project time management can be understood to consist of the activity resource estimation which is the identification and definition of the different types of quantities and qualities of resources and materials to enhance the deliverables **??**Lukale, 2015;Rugenyi, 2015). This can improve on the estimation of the activity duration in terms of the estimation of the duration or timelines to enhance the deliverables **??**Munyoki, 2015;Raza & Shah, 2012).

Project time management improves the resource scheduling in order to be consistent with the project planned activities, resources and timeliness. The aim of the project time management is to control project activities and tasks as per the plan and try to remove any barrier to the project schedule (Rugenyi, 2015;Raza & Shah, 2012). Project time management can enhance performance of the project as the deliverables can be easily achieved to the stakeholder's satisfaction in consideration with the time, scope, cost and quality (Sikudi & Otieno, 2017).

17 c) Community Participation

A community may be defined as a group of people living in a geographical area, who have identical culture, beliefs, values, traditions and are united with common interest. It is this common interest that brings them together to share a territory. According to Anyanwu (2009), a community is a social group, occupying a more or less defined geographical area, and based on the feeling that people have for one another. Community participation involves

bringing people together with the common goal of improving their social, legal, economic, political, educational and cultural wellbeing for a better living livelihood. Thus, peoples" participation is an indispensable element for effective community development. People"s participation cannot be dispensed within development efforts (Mohammad, 2010).

Participation and other related concepts like sustainability and empowerment are at the center of development discourse (Blackman, 2003) and it may be argued that participation is as old as democracy itself. For the communities in order to enhance the realization of community participation development goals, especially where government patronage was not easy to get all the time whereas organized development efforts through community development program have become popular today. Dan (2011) stated that situation where community bodies are mere small organization operating within a larger social environment that is plagued with poverty, low standard of living and economic vagaries. Hence they may lack the basic economic resources to initiate or sustain project.

Community efforts have been carried out to tackle local problems in different localities with external support or intervention. This has been a common practice long before the colonial rule. Abegunde (2009) stressed that during the colonial period and after independence, government at different levels supported communities to develop their locality in different ways, and for many years emphasis was on cooperation and self-help among the people. Zaden, (2010) stated that Community development program is influenced by the ability of major stakeholders to mobilize people for participation. Generally, people who are informed about a community issue and are interested in resolving it, feel that they can be more effective in working with groups.

A common objective of community bring such people together to develop some awareness and feeling for the need to work together at solving their common problems. This is the type of community that Christenson, (2005) referred to as functional community. In a similar manner, community is also referred to as a legal, political or administrative unit. In this sense a community will feature the formulation of laws to guide the conduct of members, and this is what is required to Performance is the accomplishment of a given task in this case a project measured against preset known standards of accuracy, completeness, cost, and speed (Omondi, 2017). This is the success level of a program based on the following criteria: effectiveness, relevance, impact, efficiency, timeliness and sustainability. This model suggested that a project is successful when it is completed on time, budget estimates and meets all predetermined specifications. However, the concept of program performance has been enriched and expanded beyond the three project constraints (Hassan & Adeleke, 2019).

Kabirifar and Mojtahidi (2019) recommended the inclusion of stakeholder satisfaction and realization of benefits as an additional measure of program performance. They noted that a project may be completed on time, budget and meet all pre-established requirements, but fail to meet the expectations of key stakeholders such as the customer. Stakeholders' satisfaction can be an important measure of project success in the building construction industry (Rugenyi, 2015). Due to its technical nature, key stakeholders may not be able to articulate their expectations and preferences at the beginning of the projects. Therefore, projects managers have the responsibility of ensuring that key stakeholders are involved at every step of the project so as they can clarify their expectation on continual basis (Osedo, 2015;Sikudi & Otieno, 2017). The current study will measure the performance of county funded construction projects by focusing on the achievement of the objectives, stakeholder satisfaction, benefit realization and completion within cost.

18 VII. Empirical Review

Hassan and Adeleke (2019) investigated the effects of project triple constraint based on the building projects in Kuantan Malaysia. The study employed quantitative research technique because it is most suitable for the investigation. The findings clearly showed that the project triple constraint had a positive relationship with the construction companies' building projects. ??abirifar and Mojtahidi (2019) analyzed and ranked engineering, procurement and construction phases which are critical activities across construction projects of large-scale residential in Iran. The scope, time, and cost were the triple constraints of project management and leading factors in defining the program performance. The results indicated that engineering design, project planning and controls are significant factors contributing to the program performance. In addition, engineering has a pivotal role in program performance and this significance is followed by the construction phase.

Rugenyi and Bwisa (2016) study used on the triple constraints and projects performance in Nairobi from the project manager perspective. The study revealed that statistically no significant relationship between triple constraint and projects management in Nairobi. Relatedly, Omondi (2017) examined triple constraints specifically project scope management and project completion, schedule management and cost management on project completion. A descriptive survey design was adopted in the study and involved quantitative methods. It was established that the relationship was significant between the scope, schedule and cost on project completion of the NGO projects based in Nakuru County, Kenya.

Nibyiza (2015) study focused on the scope change management as a means of successful project implementation in Rwanda. Specifically, the study examined the scope change; adjustment of project activities, changing project cost, time on product or service quality derived and identification of the challenges associated with changing the project scope in Akazi Kanoze projects. The research findings indicated that time, scope and cost in project affect the success of the project ultimately. Raza and Shah (2012) study sought to investigate how the project triple constraints impacted projects in the IT industry. They were determined in terms of environment for work of the project team members in terms of the satisfaction of the job, remuneration, and work hours. Based on the

study findings it was revealed that the work environment affected performance of the projects in the IT industry in consideration with project constraints.

19   VIII. esearch ethodology

This study was guided by positivistic research philosophy which holds the view that the reality is stable and can be observed and explained from an objective point of view **??**Flick, 2018). This study used a combined descriptive survey research design and correlational research design. The study target population will be 24,000 social housing projects implemented by affordable housing program. The sample was arrived at using the Slovin's sample size determination formula for categorical data.393 social housing units project was the selected sample size.

This study collected both primary and secondary data. Thus, questionnaires are important tools for collection of primary data due to their many positive attributes discussed herein. After, the questionnaires are administered and collected, data was checked for completeness, accuracy and Qualitative data analysis by use of content analysis. The data was presented using frequency tables, pie charts and graphs and interpreted appropriately (Crewell,

20   R M

2014), Correlation analysis (Pearson) was used to carry out inferential data analysis to determine the direction and strength of the relationship among the variables. Regression models (as show below) were also fitted.

The study used multiple regressions analysis (stepwise method) to establish the moderating effect of organizational culture (z) on relationship between independent variable and dependent variable. The study performed individual tests of all independent variables to determine which regression coefficient may be zero and which one may not. If the p-value is greater than 0.05 then the model is not significant and cannot be used to explain the variations in the dependent variableH 0 was rejected if and only if t calc ? t crit .

21   IX.

22   Research Findings

The sample size of the study comprised of 393 project managers from social housing units project however, 372 were duly filled and returned. This implies that the response rate of 94.7% was adequate for analysis, drawing conclusions and reporting.

X. From the findings in Table 1, the aggregate mean value was 3.842 which suggest that on average, the respondents agreed with the statements on project scope management on performance of affordable housing program in Kenya. Specifically, the findings showed that the respondents agreed that all project stakeholders are engaged in scope management as indicated by a mean value of 3.982 and standard deviation of 1.370. They also agreed that scope control is one of the key factors considered before and after the implementation of the project (M=3.948, SD=1.263); there is clear scope definition to avoid scope creep in the project (M=3.889, SD=1.381); they also agreed that a clear scope plan is shared with the project team before project is implemented (M=3.863, SD=1.326). In addition, respondents agreed that: scope is well initiated among all relevant stakeholders in the project (M=3.777, SD=1.275); scope verification is normally conducted during the implementation of every project (M=3.738, SD=1.320); and that they can manage all types of services required by clients within the shortest time possible (M=3.698, SD=1.331).

23   Descriptive Statistics

The findings agree with PMI (2014) who postulates that scope management in projects includes ascertaining that the project has all tasks and activities necessary for it to be completed successfully. Also, the basic matrix that is used for scope planning analysis involves the initiation, planning and definition. This can call for verification and change control when interspersed. **??**t From the findings presented in Table 2, the mean aggregate Score was 3.908, an indication that on average, the respondents agreed with the statements about project time management and performance of affordable housing program in Kenya. Specifically, the findings showed that respondents agreed that the schedule is normally developed prior to any project activity (M=3.994, SD=1.476); activity duration is normally estimated on time (M=3.961, SD=1.476); and that proper schedule networks are designed using current software tools (M=3.955, SD=1.546). The study also established that sequencing of activities is normally conducted for all the projects and activities so that they are performed in an order of priority (M=3.915, SD=1.343); activity resources estimation is usually a key item in schedule management of project activities (M=3.856, SD=1.525); project team observes definition of activities before any project takes off (M=3.836, SD=1.220); and that controlling schedule is considered a key activity to ascertain variations between planned versus actual in terms of time management (M=3.836, SD=1.426).

These findings agree with Raza and Shah (2012) that project time management is scheduling of project activities and involves the process of defining the project activities and tasks, sequencing of activities, activity duration estimation and resources activity estimation. It also concurs with Sikudiand Otieno (2017) that project

time management encompasses the activity definition which is the identifying and scheduling different components of the project management sequence that are required for completion of project deliverables.

24 b) Community Participation Table 3: Descriptive Statistics on Community Participation

As presented in Table **??**, the aggregate mean score was 3.882, an indication that on average, the respondent agreed with the various statements about moderating community participation on the relationship between project management iron triangle and performance of affordable housing program in Kenya. The findings specifically show that the respondents agreed that there is timely response to information with regards to community issues (M=3.961, SD=1.149); that projects objectives, role and responsibilities are clearly understood by the community (M=3.955, SD=1.199); and that community members are involved in the decision making of the projects (M=3.902, SD=1.345). The study further established that the project team in collaboration with the community they take part in corporate social responsibility (M=3.836, SD = 1.234); community have Proper knowledge and skills on project Implemention (M = 3. 836, SD= 1.313); and that ommunity needs are well identified within the project implemention (M=3.803, SD=1.248).

The study findings concur with Mohammad, (2010) that peoples' participation is an indispensable element for effective community development. He further explained that community participation brings people together with a common goal of improving their social, legal, economic, political, educational and cultural wellbeing for a better living livelihood. It also concurs with Christenson, (2005) that the common objective of community participation is to bring people together to develop some awareness and feeling for the need to work together at solving their common problems.

25 Statement

Mean Std. Dev.

There is timely response to information with regards to community issues 3.961 The aggregate score was 3.894 as shown in Table 4; this was an indication that on average, the respondents agreed with various statements regarding performance of affordable housing program in Kenya. Specifically, the findings showed that respondents agreed that there is always a higher percentage in achieving the project milestones (M=4.021, SD=1.265); project is well scheduled within specified time, cost and quality (M=3.988, SD=1.182); and that before the beginning of any project, all stakeholders must agree on project deliverables (M=3.902, SD=1.235). The findings further showed that respondents agreed that there is proper monitoring and evaluation on projects deliverables and performance (M=3.902, SD=1.235); projects implemented are normally done within the planned scope (M=3.896, SD=1.21); projects delivered normally satisfy their stakeholders expectations (M=3.81, SD=1.142); and that there is earned value for money on projects implemented (M=3.738, SD=1.168).

The findings concurs with Rugenyi (2015) who explained that a project may be completed on time, budget and meet all pre-established requirements, but fail to meet the expectations of key stakeholders such as the customer. Stakeholders' satisfaction is therefore an important measure of project success in the building construction industry. It also agrees with Osedo (2015) that projects managers have the responsibility of ensuring that key stakeholders are involved at every step of the project so as they can clarify their expectation on continual basis. The findings in Table 5 shows that scope management and performance have a strong positive and significant relationship (r=0.669, p=0.00). The relationship was significant since the p-value was less than the selected level of significance. The relationship between time management is also seen to be strong (r=0.725). Since the p-value (0.000) is less than the selected level of significance (0.05), the relationship was considered to be significant. These findings suggest that all the four independent variables (scope management and time management) have a strong relationship with performance of affordable housing program in Kenya. The study therefore computed regression analysis to further understand the relationship nature between these variables.

26 XI.

27 Correlation Analysis

28 Regression Analysis a) Influence of Project Scope Management on Performance of Affordable Housing Program

A univariate analysis was conducted to investigate the influence of project scope management on performance of affordable housing program in Kenya. The null hypothesis stated:H 01 :

Project scope management does not significantly influence performance of affordable housing program in Kenya. Adjusted R 2 shows the variation in the dependent variable due to changes in the independent variable. Table 6 shows that adjusted R squared was 0.443; this is an indication that at 95% confidence interval, there was variation of 44.3% in performance of affordable housing program in Kenya.This implies that 63.7% of the performance of affordable housing program in Kenya is accounted for by other factors not considered in the model. From the analysis of variance(ANOVA), the study found out that the regression model was significant at 0.000

which is less than the selected level of significance (0.05). Therefore, the data was ideal for making a conclusion on the population parameters. The F calculated value was greater than the critical value (9.362>3.867), an indication that project scope management significantly influences performance of affordable housing program in Kenya. The significance value was less than 0.05 indicating that the model was significant. The above regression equation revealed that holding scope management to a constant zero, performance will be at a constant value of 1.988. The findings also show that scope management is statistically significant in explaining performance (? = 0.486, P=0.000).

This indicates that scope management positively and significantly relates with performance of affordable housing program in Kenya. The findings also suggest that a unit increase in project scope managementwould lead to an increase in performance of affordable housing program in Kenya by 0.486 units. The relationship is statistically significant as the p-value (0.000) was less than the significance level (0.05). Therefore we can reject the null hypothesis that "Project scope management does not significantly influence performance of affordable housing program in Kenya".

29 b) Influence of Project Time Management on Performance of Affordable Housing Program

A univariate analysis was conducted to investigate the influence of project time management on performance of affordable housing program in Kenya. The null hypothesis stated:H 02 :

Project time management does not significantly influence performance of affordable housing program in Kenya.

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The findings were discussed in three tables. From the findings, the value of adjusted R^2 was 0.520 which suggests that 52% variation in performance can be attributed to changes in project time management. The remaining 48% suggest that there are other factors that can explain variation in performance which were not included in this model. The findings further show that project time management and performance affordable housing program in Kenya are strongly and positively related as indicated by correlation coefficient (R) value of 0.725. The results indicate that the model was significant since the p-value (0.000) was less than 0.05 thus the model is statistically significance in determining the influence of project time management on performance of affordable housing program in Kenya.

Further, the F-calculated (10.701) was found to be more than the F-critical (3.867) which shows that the model was fit in establishing the influence of project time management on performance of affordable housing program in Kenya. The above regression equation revealed that holding time management to a constant zero, performance will be at a constant value of 1.820. The findings also show that time management is statistically significant in explaining performance (? = 0.521, P = 0.000). This indicates that time management positively and significantly relate with performance. The findings also suggest that a unit increase in time management would lead to an increase in performance of affordable housing program in Kenya by 0.521 units. Therefore we can reject the null hypothesis that "Project time management does not significantly influence performance of affordable housing program in Kenya".

32 c) Moderating Influence of Community Participation on the Relationship between Project Management Triple Constraints and Performance

The null hypothesis stated: H 03 :

Community participation has no moderating influence on the relationship between project management triple constraints and performance of affordable housing program in Kenya. The regression equation was: Y = 1.820 + 0.521 X 2 management* community participation, the r-squared was 0.784. This implies that the introduction of community participation in the second model led to an increase in r-squared, showing that community participation moderates the relationship between project management triple constraints and performance of affordable housing program in Kenya. From the findings, the F-calculated for the first model, as shown in Table 12, was 26.423 and for the second model was 35.705. Since the F-calculated for the two models were more than the F-critical, 2.396 (first model) and 1.964 (second model), the two models were good fit for the data and hence they could be used in predicting the moderating effect of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

33 From the coefficients table, the following regression model was fitted:

$Y = 1.484 + 0.245X_1 + 0.195X_2 + 0.308\ X_1 *M + 0.265\ X_2 *M+\ ?$

From the findings, it can also be seen that scope management* community participation has a positive influence on performance of affordable housing program in Kenya (? = 0.308). The influence was significant since the p-value obtained (P = 0.002) was less than the selected level of significance (0.05). Therefore, introduction of community participation as moderating variable for project scope management explains 0.308 units of performance compared to 0.245 explained when the variable is not moderated (model 1). Therefore community participation has a positive influence on the relationship between project scope management and performance of affordable housing program in Kenya. Therefore, we reject the null hypothesis that: Community participation has no moderating influence on the relationship between project scope management and performance of affordable housing program in Kenya.

The findings also show that time management* community participation has a positive influence on performance of affordable housing program in Kenya (? = 0.265). The influence was significant since the p-value obtained (P = 0.036) was less than the selected level of significance (0.05). Therefore, introduction of community participation as moderating variable on time management explains 0.265 units of performance compared to 0.195 explained when the variable is not moderated (model 1). Therefore community participation has a positive influence on the relationship between project time management and performance of affordable housing program in Kenya. Thus, we reject the null hypothesis: Community participation has no moderating influence on the relationship between project time management and performance of affordable housing program in Kenya.

34 XIII.

35 Conclusions

The first objective of the study was to investigate the influence of project scope management on performance of affordable housing program in lead to an increase in performance of affordable housing program in Kenya. Based on the findings, the study concludes that project scope management significantly influences performance of affordable housing program in Kenya.

The second objective of the study was to establish the influence of project time management on performance of affordable housing program in Kenya. The study established that time management is statistically significant in explaining performance. This indicated that time management positively and significantly relate with performance. The study also found that a unit increase in time management would lead to an increase in performance of affordable housing program in Kenya. Therefore based on the findings, the study concludes that project time management significantly influences performance of affordable housing program in Kenya.

The final objective of the study was to examine the moderating effect of community participation on the relationship between project management triple constraints and performance of affordable housing program in Kenya. The study found that community participation has a positive influence on the relationship between project scope management and performance of affordable housing program in Kenya. On time management, the study established that community participation has a positive influence on the relationship between project time management and performance of affordable housing program in Kenya.

Based on these findings, the study concludes that community participation has moderating influence on the relationship between project management triple constraints and performance of affordable housing program in Kenya.

36 XIV. ecommendations

The project scope can be improved by setting clear goals and objectives. The goals should have the proposed idea and then define the objectives that will guide the achievement of the set goal. The challenge of unrealistic deadlines can be resolved be having an open communication with the clients to determine whether there are other factors that drive the project deadline. Also, through the adoption of impeccable planning, alternative analysis and proper communication on projects real-time progress to project participants, project managers can deal with project deadlines. To deal with the challenge of changing scope, project managers should develop a clear schedule, determine project goals, ensure everyone is in the same page, make realistic assumptions regarding availability of resources, and deadlines to achieve quality results.

It is also important to set goals such as SMART and CLEAR to guide the project manager to set effective goals and therefore be in a position to deal with time related challenges in project management. Project managers should develop a schedule that clearly outlines the responsibility of each member ad when they should complete their task to ensure timely completion of projects. This can be achieved by adopting software which can help remind people on the set deadlines i nstead of relying on list of dates. To ensure that every one stays updated with the project progress, project managers should adopt various collaborative and project management software. This ensures that there is transparency in projects and also team accountability.

492   For participants to be representative of the wider community it is necessary either that they are elected, or
493   that they identify with it and have its interests at heart. To ensure equity, it is important that projects managers
494   include people of diverse backgrounds, people with disabilities, youth, people from Indigenous groups. Before
495   starting a project, it is important to establish the views of the community. This is through summing the separate
496   opinions of individual community members (e.g., via surveys) or by seeking to establish the collective views of
497   community members (e.g., by focus groups or community forums). Generally, the challenges that come with
498   community participation can be overcome through the development of a comprehensive public engagement plan.

499 # 37   XV.

500 # 38   Suggestions for Further Studies

501   The study explained 75.4% variation in performance of affordable housing program in Kenya; the study
502   recommends an study to be conducted on other factors that can influence performance such as project control
503   and project motivation. The study focused on housing projects; this study can be replicated in other government
504   projects such as dams and stadium construction. A study can also be conducted incorporating the use of secondary
      data where financial records on project performance can be used.   [1]

Figure 1:

1

Statement	Mean	Std. Dev.
All project stakeholders are engaged in scope management	3.982	1.370
Scope control is one of the key factors considered before and after the implementation of the project.	3.948	1.263
There is clear scope definition to avoid scope creep in the project	3.889	1.381
A clear scope plan is shared with the project team before project is implemented	3.863	1.326
Scope is well initiated among all relevant stakeholders in the project.	3.777	1.275
Scope verification is normally conducted during the implementation of every project.	3.738	1.320
We can manage all types of services required by clients within the shortest time possible	3.698	1.331
Aggregate Score	3.842	1.324

Figure 2: Table 1 :

2

also agrees with Band and Pretorius,
(2016) that scope inputs requires the description of
program deliverable, selection program criteria,
planning, strategically and historical information

Figure 3: Table 2 :

505

4

1.149

Figure 4: Table 4 :

5

Performance   Scope Management   Time Management

Figure 5: Table 5 :

6

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.669 a	.448	.443	.26099

a. Predictors: (Constant), Scope Management

Figure 6: Table 6 :

7

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.637	1	0.637	9.362	.000 b
	Residual	25.16	370	0.068		
	Total	25.797	371			

a. Dependent Variable: performance
b. Predictors: (Constant), Scope Management

Figure 7: Table 7 :

8

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1	(Constant)	1.988	.486		9.062	.000
	Scope Management	.219	.058	.451	8.328	.000

a. Dependent Variable: performance

The regression equation was:
$Y = 1.988 + 0.486 X_1$

Figure 8: Table 8 :

9

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.725 a	.526	.520	.24844

a. Predictors: (Constant), Time Management

Figure 9: Table 9 :

10

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.663	1	0.663	10.701	000 b
	Residual	22.940	370	0.062		
	Total	23.603	371			

a. Dependent Variable: performance
b. Predictors: (Constant), Time Management

Figure 10: Table 10 :

11

Model	Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
1 (Constant)	1.820	.525 .195	.051	.527 9.327	.000
Time Management				10.232	.000

a. Dependent Variable: Performance

Figure 11: Table 11 :

Model	R	R Square	Adjusted R Square		Std. Error of the Estimate
1	.873 a	.762	.754		.08185
2	.894 b	.799	.787		.12613

The R squared for the relationship between project management triple constraints and performance of affordable housing program in Kenya was 0.754, which implied that 75.4% of the performance of affordable housing program in Kenya can be expla by scope management, time management, cost

Figure 12: Table 12 :

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	1.796	4	0.449	26.423	.000 b
1	Residual	6.239	367	0.017		
	Total	8.035	371			
	Regression	4.568	8	0.571	35.705	.000 c
2	Residual	5.808	363	0.016		
	Total	10.376	371			

Figure 13: Table 13 :

	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
	(Constant)	1.484	.153		9.699	.000
1	Scope Management	.245	.075	.256	3.242	.001
	Time Management	.195	.036	.208	5.475	.000
2	Scope Management*Community Participation	0.308	0.066	0.226	4.667	.002
	Time Management*Community Participation	0.265	0.083	0.057	3.193	.036
	a. Dependent Variable: Employee Performance					

Figure 14: Table 14 :

506 [Knbs -Economic ()] , Knbs -Economic . Survey 2017. 2017. World Bank Publication.

507 [Nibyiza ()] *Analysis of project scope change management as a tool for project success (Doctoral dissertation,*
508 *Doctoral dissertation,* F A B I O L A Nibyiza . 2015. (Jomo Kenyatta university of agriculture and technology)

509 [Rugenyi ()] 'Assessment of the Triple Constraints in Projects in Nariobi: The Project Managers' Perspective'.
510 F Rugenyi . *International Journal of Academic Research in Business and Social Sciences* 2015. 5 (11) p. .

511 [Blackman ()] R Blackman . *Ghazala, M*, 2003. p. .

512 [Manji ()] 'Bulldozers, homes and highways: Nairobi and the right to the city'. A Manji . *Review of African*
513 *Political Economy* 2015. 42 (144) p. .

514 [Yin ()] *Case study research and applications: Design and methods*, R K Yin . 2017. Sage publications.

515 [Chin and Hamid ()] L S Chin , A R A Hamid . *The practice of time management on construction project.*
516 *Procedia Engineering*, 2015. 125 p. .

517 [DanE ()] *Community participation in financing education in Nigeria: A synthesis ofissues, challenges and*
518 *imperative*, DanE . 2011. Enugu: Timex Enterprises.

519 [Lukale ()] *Determinants of cost overruns in rural roads infrastructure projects in Kenya (Doctoral dissertation,*
520 A M Lukale . 2018. Strathmore University

521 [Osedo ()] *Determinants of Effective Implementation of County Construction Projects in Kenya: A Case of*
522 *Nairobi City County*, A A Osedo . 2015.

523 [Kiarie and Wanyoike ()] 'Determinants of Successful Implementation of Government Funded Projects in Kenya:
524 A Case Study of Integrated Financial Management Information System'. A W Kiarie , D Wanyoike .
525 *International Journal of Innovative Research and Development* 2016. (10) p. 5.

526 [Adek ()] *Determinants of successful Projects Implementation of Infrastructure Projects in Devolved Units: A*
527 *Case Study of Mombasa County*, R Adek . 2016. Kenya. The University of Nairobi (Unpublished Master's
528 Degree)

529 [Kariungi ()] 'Determinants of Timely Completion of Projects in Kenya: A Case of Kenya Power and Lighting
530 Company'. S M Kariungi . *Thika. ABC journal of advanced research* 2014. 3 (2) p. .

531 [Gitee and Muchelule ()] 'Effect of Building Information Modelling on Projects Implementation: A Case of
532 Nairobi County'. P W Gitee , Y Muchelule . *International Journal of Civil and Structural Engineering*
533 *Research* 2018. 6 (1) p. .

534 [Rugenyi and Bwisa ()] 'Effects of triple constraint on the management of projects in Nairobi, the project
535 manger's perspective'. F Rugenyi , H Bwisa . *Strategic Journal of Business and Change Management* 2016. 3
536 (2) .

537 [Christenson ()] *Empowering people for community development through Non formal education (NFE) pro-*
538 *gramme, journal of adult education and extra mural studies university of*, J A Christenson . 2005. Nigeria
539 Nsukka. 47 p. 53.

540 [Korir ()] 'Factors affecting contractor performance in government ministries in Kenya, a case of ministry of
541 transport and infrastructure'. E Korir . *JKUAT* 2013. (master thesis)

542 [Apiyo and Mburu ()] 'Factors affecting procurement planning in county governments in Kenya: a case study
543 of Nairobi City County'. R O Apiyo , D K Mburu . *International Journal of Economics* 2014. 2 (11) p. .
544 (Commerce and Management)

545 [Wanjau ()] *Factors influencing completion of building projects in Kenya, ministry of land, housing and*
546 *urban development, Nairobi county. University of Nairobi Unpublished MA thesis in Project Planning and*
547 *Management Thesis*, B N Wanjau . 2015. p. .

548 [Munyoki ()] *Factors Influencing Completion of Construction Projects: A Case of construction projects in Nairobi*
549 *Kenya*, S K Munyoki . 2014. Univeristy of Nairobi

550 [Sikudi and Otieno (ed.) ()] *Factors Influencing Implementation of County Funded Development Projects by*
551 *County Governments*, L A Sikudi , D M Otieno . Kenya. (A Case of Kilifi County Government (ed.) 2017.

552 [Mwangi ()] *Factors Influencing Performance of County Government Projects: A Case of Gatundu Modern*
553 *Market*, K J Mwangi . 2018. Kiambu County, Kenya.

554 [Njau and Ogolla ()] 'Factors influencing Project scope performance; a case of Kenya National Youth Service
555 Projects in Kenya'. D N Njau , P Ogolla . *Strategic Journal of Business and Change Management* 2017. 4 (2)
556 p. .

557 [Constitution ()] *Government printer*, K Constitution . 2010. Kenya; Nairobi.

558 [Muchelule ()] *Influence of Monitoring Corporations*, Y Muchelule . 2018. Nairobi. Jomo Kenyatta University of
559 Agriculture and Technology

[Omondi ()] *Influence of Triple Constraint Management on Completion of Non-Governmental Organizations Water Sanitation and Hygiene (Wash) Projects in Nakuru County*, E F Omondi . 2017. Kenya.

[Gacheru ()] *N; an investigation into the national construction authority's challenges in regulating building contactors; the case of Mombasa County, JKUAT, doctoral dissertation*, E Gacheru . 2015.

[Zaden ()] 'Participation and community development'. B S Zaden . *Current Research Journal of Social Science* 2010. 2 (1) p. .

[Mohammad ()] *Participation in development projects at grassroots: A case study of Alampur and Jaganather union Parishad. A master thesis in the Department of General and Continuing Education*, N Mohammad . 2010. Bangladesh. North South University

[Nyakundi ()] *Project Management Process on Outcomes: Case of Public Sector Infrastructure Projects at Telkom Kenya Limited. Unpublished master's Degree. The university of Nairobi*, N Nyakundi , N(. 2015.

[Nasir et al. (2016)] 'Relationship between time management in construction industry and project management performance'. N Nasir , M N M Nawi , K &radzuan . *AIP Conference Proceedings*, 2016. August. AIP Publishing. 1761 p. 20079.

[Banda and Pretorius ()] 'The effect of scope definition on infrastructure projects: a case in Malawi's public and private implementing agencies'. R K Banda , L Pretorius . *South African Journal of Industrial Engineering* 2016. 27 (4) p. .

[Hassan and Adeleke ()] 'The effects of Project Triple Constraint on Malaysia Building Projects'. A K Hassan , A Q Adeleke . *Social Science and Humanities Journal* 2019. p. .

[Kabirifar and Mojtahedi ()] 'The impact of Engineering, Procurement and Construction (EPC) Phases on Program performance: A Case of Largescale Residential Construction Project'. K Kabirifar , M Mojtahedi . *Buildings* 2019. 9 (1) p. 15.

[Abegunde ()] 'The role of community based organizations in economic development in Nigeria: The case of Oshogbo, Osun state. Nigeria international Non-Governmental Organization'. A A Abegunde . `htt://www.academicjournal.org/INGOJ` *Journal* 2009. 4.

[Leong et al. ()] *Using program performance to measure effectiveness of quality management system maintenance and practices in construction industry. The scientific world journal*, T K Leong , N Zakuan , M Z Mat Saman , M Ariff , S Md , C S Tan . 2014. 2014.

[Raza and Shah ()] 'Work environment and its impact on triple constraint of project management'. S A Raza , T Z Shah . *Information Management and Business Review* 2012. 4 (10) p. .