

# PROJECT MANAGEMENT SKILLS AND PERFORMANCE OF CONSTRUCTION PROJECTS IN TANZANIA; A CASE OF SELECTED CONSTRUCTION FIRMS IN MWANZA

<sup>1</sup>Leah Kisamo, <sup>2</sup>Dr. Samuel Obino Mokaya

<sup>1,2</sup>Jomo Kenyatta University of Agriculture and Technology, Kenya

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**Abstract:** Various construction firms have used project management skills and techniques as a means of bridging the gap between failure and success in implementation of projects. Despite this increased awareness of construction project management skills, by these construction firms, projects still fail. The purpose of the study was to establish the influence of project management skills on performance of construction projects in Tanzania regarding construction firms based within Mwanza. The study targeted selected construction firms within the Mwanza city and especially the ones that deal with the major projects that have high impacts to the country economy currently being undertaken within the city. The study adopted a descripto-explanatory research design covering a target population of 117 staffs working at the construction firms in Mwanza. Questionnaires used in data collection instrument from a simple random sample of 47 respondents. The study employed both quantitative and qualitative research in its data analysis. Data collected were analyzed using both descriptive and inferential statistics. Descriptive statistics aided in creating frequency distributions and determining variable significance while inferential statistics was used to establish the relationships between the variables under study. The quantitative data generated will be analyzed using Statistical Package for Social Scientists (SPSS) computer programme. The study found out indeed project management skills influence performance of construction projects in Tanzania regarding construction firms based within Mwanza. The study revealed that projects are constrained by inadequate planning skills that are required for effective planning for project success; project planning is complicated and risky, hence requires varying skills sets for successful project implementation and management. The study concluded that adequate professional and technical skills required in project management is an important foundation for ensuring the success of each project. Proper project management practices such as planning, risk management, and monitoring and control seek to cushion the project against present and potential risks or failure. However, the study recommends that construction firms at Mwanza must ensure that adequate plans and resources exist to recruit, motivate, train and develop employees; key risk management skills are needed to hedge projects against many uncertainties i.e. resource shortage, contractors' inability to meet completion dates and other types of risks. Mwanza construction firms; should monitor and evaluate projects adequately, and develop monitoring mechanisms.

**Keywords:** Project Planning Skills, Communication Skills, Risk Management Skills, Monitoring and Control Skills, Project Performance.

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## 1. INTRODUCTION

The purpose of management on a construction project is undoubtedly to add value to projects by delivering successful projects in terms of agreed project objectives. Project management literature is explicit that project management processes are geared towards the delivery of successful projects (Zulu, 2007). The Construction Industry Council (2007), for

example, describes the purpose of construction project management as intending to add significant value to the project delivery process using management principles suited to projects. The construction industry accounts for 6-9% of the Gross Domestic Product (GDP) of many countries (Chitkara, 2011). In many construction firms, the cause of business failure is lack of skills and knowledge. There is vast scope for improving performance through project management skills; where men, materials, machinery, money and management work together to build a facility.

There is the need for both hard skills and soft skills in organizations (AIPM, 2008; Association & Caupin, 2006; Snyder, 2014). Top managers' are usually recognized for their ability to showcase both technical and personal skills (Rainsbury *et al.*, 2002). Hard skills are cognitive attributes of competencies, as these skills involve knowing technical aspects to perform a job. Soft skills on the other hand, are behavioral attributes of competency and include personal behavior and managing relationships with people (Rainsbury *et al.*, 2002). The dichotomy between the two skills are often used to describe the different dimensions of a project like methodologies, systems, approaches, measures, costs and situations and sometimes used to create a framework. The two skills also have a link to project success (Crawford and Pollack, 2004). A project is determined a success, when the project has - an impact on the customer involved in the project, efficiency in completing the project and impact on the stakeholders. Project success also has a positive statistical influence on project performance and more specifically a key performance indicator (Mir and Pinnington, 2014). The link between skills and project performance and specifically project management KPIs needs to be exploited.

Since project management demands quality information, discipline, goal orientation and requires steam working skills, rather than rigid functional divisions, its primary focus is on what is yet to be done, and who will do it, rather than the achievements of the past. It is much about mobilizing the energies of diverse team members as it is about procedures, tools and techniques (Harvey, 1999).

## 2. PURPOSE

The purpose of the study was to establish the relationship between project management skills and performance of construction projects in Tanzania; using selected construction firms in Mwanza region. Specifically, the study sought to assess the project planning skills, communication skills, risk management skills and monitoring and control skills influence on performance of construction projects.

## 3. RESEARCH METHODS

This study employed descripto-explanatory research design; a mix of both descriptive and explanatory research designs. The design allowed a detailed description and analysis of the variables under study; describing and presenting their characteristics and explaining their relationships without manipulation as supported by Saunders *et al.* (2009). The target population was 47 employees of construction firms in Mwanza. The study focused on both primary and secondary data where primary data was collected through questionnaires, while secondary data was obtained through reports from construction companies and relevant government offices. Both descriptive and inferential statistical tools were used in data analysis. Descriptive statistical tools included frequencies, percentages and mean while inferential statistical tool included multivariate regression analysis. Whereas descriptive statistics were used to determine and describe the status of the variables under study, inferential statistics were used to establish and explain the relationship between the independent and dependent variables.

## 4. RESULTS AND DISCUSSION

### ***Objective 1: Influence of Project Management Skills on Performance of Construction Projects***

The study considered communication skills, risk management skills and monitoring and control skills as the four major variables of project management skills which influence performance of construction projects. The influence was assessed using 5-point Likert Scales; strongly agree – 5 and strongly disagree - 1. The scores of disagreeing have been taken to represent a variable which had a mean score of 0 to 2.5 on the continuous Likert scale ( $0 \leq S.D \leq 2.4$ ). The scores of “moderately agree” have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: ( $2.5 \leq M.E \leq 3.4$ ) and the score of both agree and strongly agree have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous Likert scale; ( $3.5 \leq S.A. < 5.0$ ). A standard deviation of  $> 0.9$  implies a significant difference on the impact of the variable among respondents.

From the results in Table 1, majority of respondents agree that project planning skills increases number of projects completed on time with a mean of 4.32. Further, the findings indicate that planning skills facilitates efficient utilization of resources (4.21). Lysons and Farrington (2010) assert that resource allocation is an aspect of planning in the process of the project implementation strategy formulation. Resource allocation at this stage will normally assume the form of financial, physical, human and technological resources allocated to a function or activity: such allocation is usually reduced to quantitative terms expressed in procurement budgets or financial statements of resources needed to achieve specific objectives or to implement a formulated strategy. On the other hand, the respondents contend that planning skills help in reducing project costs (3.97). This is in line with a position by Saunders (1997), who argues that planning encompasses the aspect of forecasting to help in the process of predicting costs and cash flows (financial disbursements). Ultimately, the purpose of planning skills is to safeguard against delayed implementation of public projects and to avoid situations of budgetary constraints which would hinder successful project execution and completion.

**Table 1: Project planning skills and project performance**

Indicators	Mean	Std. Deviation
Timeframe of project implementation is determined	3.92	0.697
The project budget is developed	4.06	0.549
Increases number of projects completed on time	4.32	0.674
Facilitate efficient resource utilization	4.21	0.659
A risk assessment and management plan is developed	3.83	0.681
Planning skills helps in reducing the project cost	3.97	0.768
Projects are constrained by inadequate planning skills that are required for effective planning for project success.	4.16	0.592
Project planning is complicated and risky, hence requires varying skills sets for successful project implementation and management	4.01	0.591
Increasing complexity in the projects with pressure of time and costs has led to the introduction of high quality software and hardware which requires skilled planning	4.15	0.587

Further, the findings indicate that projects are constrained by inadequate planning skills that are required for project success with a mean score of 4.16 and timeframe of project implementation (3.92). Further, the respondents agree that increasing complexity in the projects with pressure of time and costs has led to the introduction of high quality software and hardware which requires skilled planning by a mean score of 4.15 and project planning is complicated and risky, hence requires varying skills sets for successful project implementation and management (4.01) since planning enhances the gathering, evaluating and interpreting of essential data and information in order to produce knowledge relevant to good policy making. This is supported by Belout (2008), who argues that maintaining the right skill mix and enhancing employee flexibility are two sides of the same coin and a direct consequence of a more unstable business environment, necessitating more frequent re-inventions and a continuous search for better ways of doing things.

### **Hypothesis Testing**

The study tested a hypothesis which stated that project planning skills do not significantly influence project performance in the construction industry in Tanzania. As presented in Table 2, correlation analysis revealed positive relationship between project planning skills and performance of construction projects with a coefficient of 0.598, with a significant value was 0.001 which is less than 0.05. Therefore, the null hypothesis was rejected.

**Table 2: Correlation between project planning skills and performance of construction projects**

		Project Performance
Planning Skills	Pearson Correlation	.598*
	Sig. (2-tailed)	.001
	N	95

**Objective 2: Influence of Communication Skills on Performance of Construction Projects**

In objective two, the study sought to determine the linkage between communication skills and performance of construction projects. According to the study findings (Table 3), the respondents strongly acknowledged that construction firms have initiated integrated employee communication programs to assist in the performance of construction firms with a mean score of 3.62 and the need to train or imparting of new skills and communication has become a daily aspect of everyone's working life (mean score of 4.09). Project communication should be systematic, continuous, well planned and informative in the right way. It is easy to slide aside from the golden mean if the communication activities are not planned thoroughly enough; either you give too little or too much of information. With well-constructed and implemented communication plans, project management can engage people to work for the project and this may smooth the overall project operations.

**Table 3: Communication skills and project performance**

Indicators	Mean	Std. Deviation
The need to train or imparting of new skills and communication has become a daily aspect of everyone's working life	4.09	0.558
Organizations have initiated integrated employee communication programs to assist in the Performance of construction firms at Mwanza	3.62	0.721
Management must ensure that adequate plans and resources exist to recruit, motivate, train and develop employee's communication.	3.54	0.665
Progress reports are provided at the end of each completed phase of the project	3.87	0.716

The study further revealed that progress reports are provided at the end of each completed phase of the project with a mean of 3.87 and management must ensure that adequate plans and resources exist to recruit, motivate, train and develop employee's communication (3.54). The findings are in line with Ruuska (1996) who contends that in project management communication should be seen both as a resource and a tool, as a resource, communication can be paralleled to people, time, money and equipment. Just as well as the use of time and work power must be planned and targeted for the project, effective communication is necessary for project success. Project communication is also a crucial tool to effectively exploit other resources. If there is struggle with communication, there will be probably struggle with the project as well.

**Hypothesis Testing**

The study tested a hypothesis which stated that communication skills play a significant role in performance of construction projects. As shown in Table 4, the study revealed a weak but positive correlation between communication skills and project performance as demonstrated by a coefficient of 0.159, with a significant value was 0.028 which is less than 0.05; hence the null hypothesis was rejected.

**Table 4: Correlation between communication skills and project performance**

		Project Performance
Communication Skills	Pearson Correlation	.159
	Sig. (2-tailed)	.028
	N	95

**Objective 3: Influence of Risk Management Skills on Performance of Construction Projects**

This section of the questionnaire sought to solicit from the respondents the influence of risk management skills on performance of construction projects in construction firms based within Mwanza. As presented in Table 5, projects risks are identified and analyzed, and mitigation strategies are developed for implementation with a mean score of 3.57 and 3.61 respectively. Chamoun (2011) points out that risk management comprises the processes concerned with identifying, analyzing, and responding to project risk. It includes maximizing the results of positive events and minimizing the consequences of adverse events, Further, Frascer (2011) argues that risk management processes include determining which risks are likely to affect the project and documenting the characteristics of each; evaluating the risks and risk interactions to assess the range of possible project outcomes; defining enhancement steps for opportunities and responses to threats; and responding to changes in risk over the course of the project.

**Table 5: Risk management skills and project performance**

Indicators	Mean	Std. Deviation
Projects risks are identified and analyzed	3.57	0.678
Mitigation strategies are developed for the identified risks	3.61	0.693
Project Risk management is essential in successful project implementation and management however it is influenced by the skill levels of the staff and management	4.28	0.579
Key risk management skills are needed to hedge projects against many uncertainties i.e. resource shortage, contractors' inability to meet completion dates and other types of risks.	3.59	0.686
Project managers rarely involve the local community in risk management relating to project implementation and management.	4.17	0.599
Most staff and management lack risk management skills and do not take proactive initiatives in the management of risks leading to project failure.	3.41	0.714

The study further revealed that project risk management is essential in successful project implementation and management however it is influenced by the skill levels of the staff and management with a mean of 4.28 and key risk management skills are needed to hedge projects against many uncertainties namely resource shortage, contractors' inability to meet completion dates and other types of risks by a mean of 3.59. The results are in line with contentions by Association for Project Management (2004) and Project Management Institute (2008) that problem solving approach indicates that actors in the risk management process, based on an information collection and analysis process, decide upon measures which are taken in order to lower the probability of risks occurring, or minimize the impact of the risks that occur, stakeholder experience with risks in similar situations in the past and other historical information, play important roles in the process of information collection, analysis and decision making. Project managers rarely involve the local community in risk management relating to project implementation and management with a mean of 4.17 and most staff and management lack risk management skills and do not take proactive initiatives in the management of risks leading to project failure (3.41) as Frascier (2011) points out that most projects are faced by a myriad of risks necessitating increased skill levels among staff and management of the project. However, few projects would be able to demonstrate the application of disciplined risk management on their projects due to lack of training in risk management practices.

### ***Hypothesis Testing***

According to the study findings in Table 6, the study revealed a weak but positive correlation between risk management skills and performance of construction projects in Tanzania with a coefficient of 0.124, at significance value of 0.016 which is less than 0.05. Therefore, the null hypothesis which stated that risk management skills do not significantly influence project performance was rejected.

**Table 6: Correlation between risk management skills and project performance**

		Project performance
<b>Risk Management Skills</b>	Pearson Correlation	.124*
	Sig. (2-tailed)	.016
	N	95

### ***Objective 4: Influence of Monitoring and Control Skills on Performance of Construction Projects***

This section of the questionnaire sought to get from the respondents the influence of project monitoring and control skills on performance of construction projects in Tanzania. As presented in Table 7, monitoring and control skills triggers off an effort to search for solutions to identified threats to project success and reduces variations during project implementation; with a mean score of 4.29 and 4.05 respectively. The findings are in line with a contention by Horner and Yong (2006) that monitoring and controlling processes observes the project executing processes, promptly identifies problems occur during the executions, determines corrective action and controls all project management processes. These processes constantly monitor the performance of the project, identify the variances from project management planning and provide

timely corrections. Further, they perform the controlling processes toward changes and problems, to provide necessary preventive actions. The study also revealed that poor project skills create problems in the monitoring and control as the result in misdirection for project management with a mean score of 3.82 and low skills level hinder active management participation in monitoring due to the inadequacy of data and general information supported with a mean score of 3.96.

**Table 7: Monitoring and control skills**

Indicators	Mean	Std. Deviation
Monitoring and control skills triggers off an effort to search for solutions to the identified threats to the project success	4.29	0.561
Monitoring and control skills reduces variations during project implementation	4.05	0.599
Increases the chance of achieving projects objectives	4.01	0.586
Poor project skills create problems in the monitoring and control as the result in misdirection for project management	3.82	0.734
There is a lack of professional and technical skills, which has led to poor project quality.	3.91	0.741
Low skills level hinder active management participation in monitoring due to the inadequacy of data and general information.	3.96	0.698
Since skill capacities for projects spread across the construction firms to monitor and evaluate projects are inadequate, hence monitoring mechanisms are not well developed	3.87	0.715

There was lack of professional and technical skills, which led to poor project quality, supported by a mean of 3.91. Nwachukwu, (2008) argues that many projects especially in the public sector lack of professional and technical skills, which has led to poor project quality. In addition, there is low community participation in monitoring due to the inadequacy of data and general information about the funds. Poor monitoring has led to abuse of funds and fostered a sense of impunity amongst the perpetrators (Kumar, 2008). Monitoring and control skills increases the chance of achieving projects objectives as supported with a mean score of 4.01. According to Meredith and Mantel (2009) for proper control these variables, a good project manager must have the necessary skills and depth of knowledge in time, cost, scope, and risk fields and in six other areas as well; integration, communication, human resources, quality assurance, schedule development, and procurement. However, since skill capacities for projects spread across the construction firms to monitor and evaluate projects are inadequate, hence monitoring mechanisms are not well developed as supported with a mean score of 3.87.

### **Hypothesis Testing**

The study tested a hypothesis with stated that project monitoring and control skills do not influence performance of construction projects in Tanzania, resulting in a correlation coefficient of 0.582, the significant value was 0.029 which is less than 0.05 (Table 8). This implies a positive and significant linkage, hence the null hypothesis was rejected.

**Table 8: Correlation between monitoring and control skills and project performance**

Project monitoring and control skills	Project Performance	
	Pearson Correlation	.582*
Sig. (2-tailed)	.029	
N	95	

### **Project Performance**

As presented in Table 9, the findings indicate that most respondents acknowledged that the actual budget exceeds the planned budget with a mean score of 3.82 and organization gets value for money on projects implemented by a mean of 3.64. Further, the study revealed that quality projects are achieved at the long run with a mean score of 3.68 and contractors use high quality materials in construction (3.53). The findings are in line to those of Bryde and Brown (2004) which revealed that the traditional distinction between good and poor project performance focuses on the meeting of cost, time and product quality-related criteria. This criteria has been described as the iron triangle of project performance. It is also important to note that respondents were of the view that contractors complete construction work in planned time schedule with a mean score of 3.49, and stakeholder's needs and expectations are fully realized with a mean score of 3.57.

**Table 9: Project performance**

Indicators	Mean	Std. Deviation
Contractors use high quality materials in construction	3.53	0.718
Contractors complete construction work in planned time schedule	3.49	0.721
The actual budget exceeds the planned budget	3.82	0.792
Quality projects are achieved at the long run	3.68	0.737
Organization gets value for money on projects implemented	3.64	0.695
Stakeholders needs and expectations are fully realized	3.57	0.726

## 5. CONCLUSIONS AND RECOMMENDATIONS

In conclusion, investing in adequate professional and technical skills required in project management is an important foundation for ensuring the success of each project. Proper project management practices such as planning, risk management, and monitoring and control seek to cushion the project against present and potential risks or failure. Poor project management skills may result in wastage of resources, time, and distortion in quality of the final product or even total project failure. The amount of time and effort dedicated to planning as an element of project management influences the success or failure of a project. The more effort and time applied, the higher the probability that the project will achieve its set objectives.

Due to the risky and complex nature of projects, it is important for the project management team to incorporate the use of hardware and software available in the market to handle such complexities by conducting skilled planning. Such software helps in the managing of multiple tasks in projects which might pose challenges if handled manually. In project risk management, risk identification and mitigation is an essential skill required by every project manager. Adequate risk management strategies are vital in identifying uncertainties in a project and employing mechanisms to respond to such risks. Practices such reviewing past projects would provide vital information on the possible areas of uncertainty in a current project. Project Monitoring and controlling skills can be used to provide feedback between project phases, check the linkages for flow and consistency to implement corrective or preventive actions to bring the project into compliance with the project management plan. Project monitoring and control skills contribute least to the construction project management skills required in performance of construction firms based in Mwanza. This is closely followed by project communication skills and project risk management skills, while project planning skills have the highest role in performance of construction projects in the case of construction firms in Mwanza city, Tanzania.

The study recommends that construction firms in Tanzania should ensure that adequate plans and resources exist to recruit, motivate, train and develop employees. Key risk management skills are needed to hedge projects against many uncertainties namely resource shortage, and contractors' inability to meet completion dates and other types of risks. The constructions firms should monitor and evaluate projects adequately, and develop monitoring mechanisms. It is essential that all organizations that are involved in projects adequately train their project management teams to raise the standards of results emanating from every project. Government agencies, parastatals, non-governmental organizations, corporates, community and faith-based organizations should ensure that their project teams have the necessary skills such as planning, communication, risk management, and monitoring and control to cushion the project against failure.

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