

# Effect of Project Planning Tools on Project Performance: A Case of Early Childhood Development Project in Rwanda

John Rubangura<sup>1</sup>, Paul Kariuki<sup>2</sup>

<sup>1</sup>Jomo Kenyatta University of Agriculture and Technology, Kigali Rwanda  
Rubangurajohn[at]gmail.com

<sup>2</sup>Jomo Kenyatta University of Agriculture and Technology, Kigali Rwanda

**Abstract:** *The aim of this study was to assess the effect of project planning tools and techniques on project performance in Rwanda using the case of Early Childhood Development Project. Specific objectives for the study included; to determine the effect of Work Breakdown Structure on the performance of the ECD project, to evaluate the effect of Cost Breakdown Structure (CBS) on the performance of the ECD project and to assess the effect of the Project Evaluation and Review Technique on performance of ECD project. The study was conducted at the Ministry of Gender and Family Promotion in Kigali, Rwanda. It adopted a descriptive research design. A total of 128 project staff members formed the target population. The study population was drawn from; senior managers, middle level managers, field officers and project committee members. Sample size of 97 samples was determined using Slovin's formula. Stratified random sampling technique was used to obtain samples. The study used questionnaire as the primary data collection tool. Descriptive statistics was generated through descriptive analysis to obtain frequencies and percentage of study variables. Inferential statistics was done through Pearson correlation and regression analysis to determine the relationship between project planning tools and techniques and project performance. Statistical Package for Social Science was used as the appropriate tool for data analysis. Results were presented in tables. The study findings indicated that Work Breakdown Structure ( $r= 0.503$ ,  $P$ -value  $< 0.01$ ), Cost Breakdown Structure ( $r= 0.511$ ,  $P$ -value  $< 0.01$ ), Project Evaluation and Review Technique ( $r= 0.615$ ,  $P$ -value  $< 0.01$ ) were significantly associated to company performance. Further the regression the regression equation;  $Y = 0.485 + 0.137$  (Work Breakdown Structure)  $+ 0.142$  (Cost Breakdown Structure)  $+ 0.184$  (Project Evaluation and Review Technique) showed that, holding Work Breakdown Structure, Cost Breakdown Structure and Project Evaluation and Review Technique to a constant zero, project performance would be 0.485. All the three independent variables were found to be important factors in enhancing better project performance. The study recommends that the Ministry of Gender and Family Promotion should emphasize, Work Breakdown Structure, Cost Breakdown Structure and Project Evaluation and Review Techniques, as potential undertakings that could lead to improved performance.*

**Keywords:** Project, Project planning tools, Project performance

## 1. Introduction

### 1.1 Background of the study

Although there are several tools used in project planning, this study intends to consider only the ones highlighted below because available literature such as Kerzner (2003) and Lock (2003) shows that these tools are the most effective in bringing the many components of a large project into control. The earmarked tools include; Work Breakdown Structure (WBS) This tool is related to planning and scheduling a project, According to Lock. D (2007) WBS is a hierarchical chart that accounts for the individual parts of a project; it is a bottom-up estimation tool for the planning process. The WBS usually forms the basis for creating a full project schedule with dependencies. The cost breakdown structure (CBS) classifies the costs within project into cost units/cost centres and cost elements/cost types. The establishment of a cost structure aids efficient cost planning, controlling, and the introduction of measures to reduce costs. The CBS and Control Accounts are frequently aligned, Patrick Weaver (2014) PERT on the other hand offers a number of advantages to managers. For example, it forces them to organize and quantify project information and provides them with a graphic display of the project. It also helps them to identify which activities are critical to the project completion time and should be watched closely, and which activities involve slack time and can be delayed

without affecting the project completion time. The chief disadvantages of PERT lie in the nature of reality, (Morris 1994)

This study sought to assess the effect of project planning tools and technique on project performance. The study used Rwanda's Early Childhood Development intervention project as the case study. Early Childhood Development (ECD) has emerged over the past three years as one of the priority areas for development in Rwanda. The national Early Childhood Development Policy and its Strategic Plan was approved by Cabinet in September 2011, providing an agreed-upon framework to ensure a holistic and integrated approach to the development of young children. The integrated approach to ECD within the national Policy calls for inter-sectoral coordination on the part of the Education, Health, Nutrition, Water & Sanitation, Child Protection and other sectors. The Policy also calls for a community-based approach, involving communities contributing to and leading on the development and management of ECD service at the local level.

### 1.1.2 Concept of Project planning

According to PMI (2008), project planning involves applying knowledge, skills, tools, and techniques to project activities in order to meet or exceed stakeholder needs and expectations. It is the art of directing and

coordinating human and material resources throughout the life of a project to achieve project objectives within specified constraints. There are several project planning tools but this study will only consider three of the several tools and these include the work breakdown structure (WBS), cost breakdown structure (CBS) and Project Evaluation and Review Techniques (PERT).

**1.2 Statement of the problem**

A crucial function of project planning tools is to deliver successful projects more effectively and efficiently. This is because project planning tools are considered an important element of project management processes. Although many studies have shown that project planning tools has significant influence on project performance, many projects are yet to fully embrace project planning tools as a measure for boosting performance in their projects, Baker, E. (2010).

In order to bring the many components of a large project into control there is a large toolkit of techniques, methodologies, and tools. These tools are said to help manage the different components involved in a project: planning and scheduling, developing a product, managing financial and capital resources, and monitoring progress. Despite the tools however, the success of a project will always rest on the abilities of a project manager and the team members who anyway use the tool. Robert Joslin & Ralf Muller (2015)

**1.3 Objectives of the study**

**1.3.1 General Objective**

The purpose of the study was to assess the effect of project planning tools on project performance in Rwanda, case of Early Childhood Development Project.

**1.3.2 Specific Objectives**

- i) To determine the effect of Work Breakdown Structure on the performance of the ECD project
- ii) To evaluate the effect of Cost Breakdown Structure (CBS) on the performance of the ECD project
- iii) To assess the effect of the Project Evaluation and Review Technique on performance of ECD project

**1.4 Research Questions**

- i) How does the Work Breakdown Structure affect performance of the ECD project?
- ii) What is the effect of Cost Breakdown Structure on performance of the ECD project?
- iii) What is the effect of the Project Evaluation and Review Technique on performance of ECD project?

**1.5 Significance of the Study**

This research will be of great significance to both researchers and practitioners because it has the potential to shed light on the importance of project planning tools and justification of their usage. The study also contributes

more generally to the evolving understanding of possible causes of project failure that may be attributed to poor or no usage of project Planning tools (Ika et al., 2010).

The research is also significant for project supervisors and for national project coordinators and their project teams in that its findings, if incorporated into training programs, may lead to better understanding of project planning and management tools. More so, the researcher expects the study to help improve management of development interventions in Rwanda. This will make development projects more sustainable as well as boost donors' confidence in funding development projects in Rwanda.

**1.6 Scope of Study**

The study was carried out in Early Childhood Development Project in the Ministry of Gender and Family Promotion in Kigali, Rwanda. The study specifically focused on the effect of project planning tools and techniques mainly work breakdown structure, cost breakdown structure and the Project Evaluation and Review Technique. Data for the study was collected from the project staff members only. The study period that was considered during the study was 2011 to 2016 since this is the period when the project was rolled out.

**2. Research Methodology**

**2.1 Research Design**

The study used descriptive survey research design. groups, and/or the frequency with which certain phenomena occur (Kothari, 2004).

**2.2 Target population**

The target population for this study was 128 project staff at Early Childhood Development Project in Rwanda.

**2.2.1 Sample Frame**

**Table 2.1: Sampling Frame**

Area of Operation	Population	Proportions
Senior Management	10	8
Middle level management	43	33
Field Officers	60	45
Project committee members	15	11
Total	128	97

**2.3 Sample size**

From the study population of 128 project staffs, a sample size of 97 employees was obtained using Solvin's formula.

**2.4 Sampling Technique**

The stratified random sampling technique was used to obtain the study participants. The technique involved dividing the entire study population into strata and then applying random sampling methods on each stratum to

obtain the final study sample size. Stratification was based on the designation of the subjects' i.e. senior managers, middle managers, field officers and committee members. Simple random sampling method was then applied in each stratum to select the required sample.

### 2.5 Data collection Instruments and Procedure

This research study used questionnaire as the key instrument for primary data collection. The use of questionnaires was preferred as it ensures confidentiality, save time, and is easy to administer (Kioppenborg et al., 2012). The questionnaire is ideal because the researcher is able to collect information from a larger sample.

#### 2.5.1 Validity and reliability of the Instrument

The study used test-retest method to test for reliability of the instrument.

### 2.6. Data Analysis

The collected data was analysed using Quantitative method specifically descriptive and inferential analysis. Descriptive analysis generated descriptive statistics i.e. frequencies and percentages which were presented in form of tables and graphs. Multiple linear regression and correlation analysis were the inferential analyses that were done to determine any association between the study variables. In order to determine the effect of project planning tools and techniques on project performance a multiple regression analysis model was used.

## 3. Research Findings and Discussion

### 3.1 Effect of Work Breakdown Structure on the performance of the ECD project

**Table 3.1:** Respondents perception on Work Breakdown Structure

Statement	Strongly Agree	Agree	Disagree
Your project has a well-designed work breakdown structure	25(29%)	30 (34%)	32(37%)
Work breakdown structure helps to accurately and specifically define and organize the scope of total project	50(57%)	37(43%)	
Project managers are committed to the implementation of a WBS	47(54%)	32(37%)	8(9%)
Work breakdown structure helps in defining the project work	61(70%)	14(16%)	12(14%)
By allocating time and cost estimates to specific sections of the work breakdown structure, a project schedule and budget can be quickly developed	76(87%)	11(13%)	
Work breakdown structure can be tracked to identify project cost performance and	36(41%)	49(56%)	2(3%)

identify issues and problem areas in the project			
Project work breakdown structures can also be used to identify potential risks in a given project	13(15%)	64 (74%)	10(11%)

Table 3.1 shows that 29% of the respondents strongly agreed with the statement that their project has a well-designed work breakdown structure, 34% only agreed while 37% disagreed with the statement. The table also shows that 57% strongly agreed that work breakdown structure helps to accurately and specifically define and organize the scope of total project while 43% only agreed with the statement. Majority (54%) of the study participants strongly agreed with the statement that the project managers are committed to the implementation of a WBS, 37% only agreed while 9% disagreed with the statement. Majority (70%) of the respondents strongly agreed with the statement that work breakdown structure helps in defining the project work, 16% only agreed while 14% disagreed. Additionally, the table shows that 87% strongly agreed with the statement that by allocating time and cost estimates to specific sections of the work breakdown structure, a project schedule and budget can be quickly developed while 13% only agreed. Also 41% of the study respondents strongly agreed with the statement that Work breakdown structure can be tracked to identify project cost performance and identify issues and problem areas in the project, 56% just agreed while 3% disagreed. Majority (74%) of the study respondents agreed that project work breakdown structure can also be used to identify potential risks in a given project, 15% strongly agreed while 11% disagreed.

**Table 3.2:** Correlation between Work breakdown structures and Project performance

		Project performance	Work breakdown structures
Project performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	87	
Work breakdown structures	Pearson Correlation	.503**	1
	Sig. (2-tailed)	.001	
	N	87	87

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The study sought to determine the relationship between Work breakdown structures and Project performance. Correlation analysis results in Table 3.5 indicates that Work breakdown structures and Project performance had a significant relationship ( $r = 0.503$ ,  $P\text{-value} < 0.01$ ) thereby giving  $r^2$  as 0.253 (25%). This indicates that WBS will influence Project performance by 25% so it would lead to an increased performance.

**3.2 Effect of Cost Breakdown Structure on performance of the ECD project**

**Table 3.3:** Respondents perception on Cost Breakdown Structure

Statement	Strongly Agree	Agree	Not sure	Disagree
Your project has a functional Cost Breakdown Structure	24(28%)	50(57%)	13(15%)	
Projects with a well defined Cost Breakdown Structure performs better than those without	46(53%)	25(29%)		16(18%)
Cost Breakdown Structure organizes your project costs according to category	27(31%)	49(56%)		11(13%)
Cost Breakdown Structure align project costs with the project's accounting system	40(46%)	39(45%)	8(9%)	
A Cost Breakdown Structure is used to track the budget performance of a project.	70(80%)	14(16%)	3(4%)	
Cost Breakdown Structure indicate whether individual team members, functional departments, and/or contractors are exceeding their activity-based budgets	37(43%)	19(22%)	27(31%)	4(5%)

Table 3.3 indicates that 28% of the respondents strongly agreed with the statement that their project has a functional Cost Breakdown Structure 57% just agreed while 15% were not sure of the statement. Most (53%) of the respondents strongly agreed with the statement that Projects with a well defined Cost Breakdown Structure performs better than those without, 29% agreed while 18% disagreed with the statement.

The Table also shows that 31% of the respondents strongly agreed with the statement that Cost Breakdown Structure organizes your project costs according to category, 56% only agreed while 13% disagreed. Majority (46%) of the respondents strongly agreed with the

statement that Cost Breakdown Structure align project costs with the project's accounting system, 45% only agreed while 9% were not sure of the statement. Majority (80%) of the respondents strongly agreed that a Cost Breakdown Structure is used to track the budget performance of a project. While 16% just agreed while 4% were not sure. Further, 43% of the respondents strongly agreed that Cost Breakdown Structure indicate whether individual team members, functional departments, and/or contractors are exceeding their activity-based budgets, 22% agreed, 31 were not sure while 5% disagreed with statement.

**Table 3.4:** Correlation between Cost Breakdown Structure and project performance

		Project performance	Cost Breakdown Structure
Project performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	87	
Cost Breakdown Structure	Pearson Correlation	0.511**	1
	Sig. (2-tailed)	.003	
	N	87	87

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Correlation analysis results in Table 3.4 indicates that Cost Breakdown Structure had a significant relationship with project performance ( $r = 0.511$ ,  $P\text{-value} < 0.01$ ) there by giving  $r^2$  as 0.261 (26%). This shows that Cost Breakdown Structure (CBS) will influence Project performance by 26% and would lead to an increased performance.

**3.3 Effect of the Project Evaluation and Review Technique on performance of ECD project**

**Table 3.5:** Respondents perception on Project Evaluation and Review Technique

Statement	Strongly Agree	Agree	Not sure	Disagree
Your project has a well designed Project Evaluation and Review Technique	17(20%)	43(49%)	6(7%)	21(24%)
PERT helps in facilitating decision making and to reduce both the time and cost required to complete a project.	27(31%)	49(56%)	11(13%)	
PERT provide information on the expected project	35(40%)	44(51%)	6(7%)	2(2%)

completion times				
PERT provide a sequence of activities involved in a project from which managers can determine which activities must take place before others can begin, and which can occur independently of one another	26(31%)	29(33%)	23(26%)	9(10%)
PERT helps project managers to identify which activities are critical to the project completion time	36(42%)	16(18%)	20(23%)	15(17%)

Table 3.5 indicates that 20% of the study respondents strongly agree with the statement that their project has a well designed Project Evaluation and Review Technique, 49% only agreed, 7% were not sure while 24% disagreed. The table also shows that 31% of the respondents strongly agreed with the statement that PERT helps in facilitating decision making and to reduce both the time and cost required to complete a project. 56% just agreed while 13% were not sure. Most 51% of the respondents agreed with the statement PERT provide information on the expected project completion times, 40% strongly agreed 7% were not sure while 2% disagreed with the statement. Thirty one percent of the participants strongly agreed with the statement that PERT provide a sequence of activities involved in a project from which managers can determine which activities must take place before others can begin, and which can occur independently of one another, 44% only agreed, 26% were not sure while 10% disagreed. Most (42%) of the study respondents strongly agreed with the statement that PERT helps project managers to identify which activities are critical to the project completion time 189% only agreed, 23% were not sure while 17% disagreed with the statement.

**Table 3.6:** Correlation between PERT and project performance

		Project performance	Project Evaluation and Review Technique
Project performance	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	87	
Project Evaluation and Review Technique	Pearson Correlation	.615**	1
	Sig. (2-tailed)	.006	
	N	87	87

\*\* . Correlation is significant at the 0.01 level (2-tailed)

Table 3.6 indicates that Project Evaluation and Review Technique had a significant relationship with project performance ( $r = 0.615$ ,  $P$ -value  $< 0.01$ ) thereby giving  $r^2$

as 37.8 (38%). This indicates that Project Evaluation and Review Technique will influence Project performance by 38% which would lead to an increased performance.

### 3.4 Effect of project planning tools and techniques on the project performance

**Table 3.7:** Effect of project planning tools and techniques on the project performance

Statements	Yes %	No %
Work breakdown structure affect project performance	79 (91%)	8 (9%)
Cost Breakdown Structure influences effect on project performance	81 (93%)	6 (7%)
Program Evaluation and Review Technique has a significant effect on project performance	69(79%)	18(21%)

Table 3.7 indicates that majority (91%) of the respondents indicated that Work breakdown structure affect project performance while 9% felt it doesn't. Likewise 93% of the respondents were of the opinion that Cost Breakdown Structure influences effect on project performance. Majority 79% of the respondents believed that Program Evaluation and Review Technique has a significant effect on project performance 21% did not think that PERT would affect project performance.

### 3.5 Regression Analysis

The study sought to determine how much variation in project's performance could be explained by project planning tools and techniques. Table 3.8 indicates that 81% of the variation in project's performance could be attributed to Work Breakdown Structure, Cost Breakdown Structure and Project Evaluation and Review Technique.

**Table 3.8:** Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.853 <sup>a</sup>	.811	.808	11.63

a. Predictors: (Constant), Work Breakdown Structure, Cost Breakdown Structure, Project Evaluation and Review Technique

From the ANOVA- table 13, the  $P$ -value is less than 0.01 implying that the model is a good fit for the data

**Table 3.8:** ANOVA<sup>a</sup>

Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	2.254	3	.751	5.690	.001 <sup>b</sup>
	Residual	15.843	120	.132		
	Total	18.097	123			

a. Dependent Variable: Project performance

b. Predictors: (Constant) Work Breakdown Structure, Cost Breakdown Structure, Project Evaluation and Review Technique

**Table 3.9: Coefficients<sup>a</sup>**

Model	Un-standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.485	.187		2.578	.004
1 Work Breakdown Structure	.137	.071	.176	1.751	.019
Cost Breakdown Structure	.142	.097	.094	1.112	.016
Project Evaluation and Review Technique	.184	.072	.226	2.705	.010

a. Dependent Variable: Project performance

From the table of coefficients, table 3.9 the established regression equation was  $Y = 0.485 + 0.137$  (Work Breakdown Structure) +  $0.142$  (Cost Breakdown Structure) +  $0.184$  (Project Evaluation and Review Technique). The regression equation revealed that holding Work Breakdown Structure, Cost Breakdown Structure and Project Evaluation and Review Technique to a constant zero, project performance would be 0.485. The Table shows that all the three independent variable are important factors in enhancing better project performance. However, Project Evaluation and Review Technique (0.184) have greater effect on the project performance followed by Cost Breakdown Structure (0.142) and Work Breakdown Structure (0.137) respectively. This implies that embarking on either of the variables would improve company's performance. Adopting and implementing a well designing Project Evaluation and Review Technique in the project would result into improved performance.

## 4. Summary, Conclusions and Recommendations

### 4.1 Introduction

This chapter presents the summary of the findings, conclusions that have been drawn from the findings and recommendations suggested from the conclusions.

### 4.2 Summary

The purpose of this study was to determine the effect of project planning tools and techniques on the project performance. The study was conducted at the Ministry of Gender and Family Promotion in Kigali, Rwanda. It adopted a descriptive research design that included collection of primary data using questionnaires. Target population included 128 project staff members. Sample size of 97 respondents was determined using Slovin's formula. Stratified Random Sampling techniques were used to obtain the samples. A total of 97 respondents were administered with questionnaire out of which 87 were returned yielding a response rate of 90%. Statistical Package for Social Science was used to analyze the collected data.

#### 4.2.1. Work Breakdown Structure

Regarding Work Breakdown Structure, the findings indicated that 29% of the respondents strongly agreed with the statement that their project has a well-designed

work breakdown structure, 34% only agreed while 37% disagreed with the statement. Also 57% strongly agreed that work breakdown structure helps to accurately and specifically define and organize the scope of total project while 43% only agreed with the statement. Majority (54%) of the study participants strongly agreed with the statement that the project managers are committed to the implementation of a WBS, 37% only agreed while 9% disagreed with the statement. Majority (70%) of the respondents strongly agreed with the statement that work breakdown structure helps in defining the project work, 16% only agreed while 14% disagreed. Additionally, the findings showed that 87% strongly agreed with the statement that by allocating time and cost estimates to specific sections of the work breakdown structure, a project schedule and budget can be quickly developed while 13% only agreed. Also 41% of the study respondents strongly agreed with the statement that Work breakdown structure can be tracked to identify project cost performance and identify issues and problem areas in the project, 56% just agreed while 3% disagreed. Majority (74%) of the study respondents agreed that project work breakdown structures can also be used to identify potential risks in a given project, 15% strongly agreed while 11% disagreed. Correlation analysis results indicated that Work breakdown structures and Project performance had a significant relationship ( $r = 0.503$ ,  $P\text{-value} < 0.01$ ).

#### 4.2.2. Cost Breakdown Structure

Regarding Cost Breakdown Structure the findings indicated that 28% of the respondents strongly agreed with the statement that their project have a functional Cost Breakdown Structure 57% just agreed while 15% were not sure of the statement. Most (53%) of the respondents strongly agreed with the statement that Projects with a well defined Cost Breakdown Structure performs better than those without, 29% agreed while 18% disagreed with the statement. The findings also showed that 31% of the respondents strongly agreed with the statement that Cost Breakdown Structure organizes your project costs according to category, 56% only agreed while 13% disagreed. Majority (46%) of the respondents strongly agreed with the statement that Cost Breakdown Structure align project costs with the project's accounting system, 45% only agreed while 9% were not sure of the statement. Majority (80%) of the respondents strongly agreed that a Cost Breakdown Structure is used to track the budget performance of a project. While 16% just agreed while 4% were not sure. Further, 43% of the respondents strongly agreed that Cost Breakdown Structure indicate whether individual team members, functional departments, and/or contractors are exceeding their activity-based budgets, 22% agreed, 31 were not sure while 5% disagreed with statement. Correlation analysis indicated that Cost Breakdown Structure had a significant relationship with project performance ( $r = 0.511$ ,  $P\text{-value} < 0.01$ ).

#### 4.2.3. Project Evaluation and Review Technique

In response to Project Evaluation and Review Technique questions, the findings revealed that 20% of the study

respondents strongly agree with the statement that their project has a well designed Project Evaluation and Review Technique, 49% only agreed, 7% were not sure while 24% disagreed. The findings also showed that 31% of the respondents strongly agreed with the statement that PERT helps in facilitating decision making and to reduce both the time and cost required to complete a project. 56% just agreed while 13% were not sure. Most 51% of the respondents agreed with the statement PERT provide information on the expected project completion times, 40% strongly agreed 7% were not sure while 2% disagreed with the statement. Thirty one percent of the participants strongly agreed with the statement that PERT provide a sequence of activities involved in a project from which managers can determine which activities must take place before others can begin, and which can occur independently of one another, 44% only agreed, 26% were not sure while 10% disagreed. Most (42%) of the study respondents strongly agreed with the statement that PERT helps project managers to identify which activities are critical to the project completion time 18% only agreed, 23% were not sure while 17% disagreed with the statement. Further, the correlation analysis showed that Project Evaluation and Review Technique had a significant relationship with project performance ( $r=0.615$ ,  $P$ -value  $< 0.01$ ).

Following the regression equation formulated for the study ;  $Y = 0.485 + 0.137$  (Work Breakdown Structure) +  $0.142$  (Cost Breakdown Structure) +  $0.184$  (Project Evaluation and Review Technique), the findings indicated that holding Work Breakdown Structure, Cost Breakdown Structure and Project Evaluation and Review Technique to a constant zero, project performance would be 0.485. Further the regression analysis showed that all the three independent variables are important factors in enhancing better project. However, Project Evaluation and Review Technique (0.184) have greater effect on the project performance followed by Cost Breakdown Structure (0.142) and Work Breakdown Structure (0.137) respectively.

### 4.3 Conclusion

#### 4.3.1 Effect of Work Breakdown Structure on project performance

The study concluded that Work Breakdown Structure is a factor that project in Rwanda could use to improve on their performance. Additionally the study concluded that Work Breakdown Structure is significantly associated with project performance.

#### 4.3.2 Effect of Cost Breakdown Structure on project performance

The study concluded that Cost Breakdown Structure has a significant relationship with project performance. Further the study concluded that performance of projects in Rwanda is significantly influenced by Cost Breakdown Structure.

#### 4.3.3 Effect of Project Evaluation and Review Technique on project performance

The study concluded that Project Evaluation and Review Technique have a significant relationship with project performance. Investing in Project Evaluation and Review Technique would result in increased project performance

### 4.4. Recommendations

The study findings indicated that all the study variables have a significant relationship with the project performance. Further the variables explain a significant variation in the project's performance.

In this regard the study recommends that; the Ministry of Gender and Family Promotion that regulates ECD should always monitor the existence of the PROJECT management planning tools as potential undertakings that could lead to improved performance.

The same recommendation goes to Imbuto Foundation which runs ECD project as well as UNICEF which is the major sponsor of this project.

The project manager should constantly supervise the implementation of the activities which must be done in accordance to the project management tools namely; Work Breakdown Structure, Cost Breakdown Structure and Project Evaluation and Review Technique.

To the Government of Rwanda and all other stakeholders in the project management should make sure that all projects must emphasize the application of project planning tools are present in order to commence with any project undertaking.

### Reference

- [1] Archibald R.D., & Voropaev, V.I. (2008). Commonalities and Differences in Project Management Around the World: A Survey of Project Categories and Life Cycles, ESC Lille International PM Workshops / IW 3 - OL & KM .
- [2] Baker, E. (2010). Project management tools and techniques that work! A baker's dozen. Paper presented at PMI® Global Congress 2010—North America, Washington, DC. Newtown Square, PA: Project Management Institute.
- [3] Belassi, W. and Tukel, O. (1996). A new framework for determining critical success/failure factors in projects. *International Journal of Project Management*, 14(3): 141–151.
- [4] Bredillet C. (2008). Understanding the very nature of Project Management: a praxeological approach. PMI Research Conference, London.
- [5] Bredillet, C. (2008). Project management governance: A situational approach. EURAM conference. Munich, Germany.
- [6] Cash, C., & Fox, R. (2010). Element of Successful Project Management. *Journal of Systems Management*, 10-12
- [7] Cook, H.E. (20013). Product Management - Value,

- quality, cost, price, profit and organization. Chapman & Hall, London.411 p.
- [8] Cooper, K.G. (2010). *The Rework Cycle: Why Projects Are Mismanaged*. pmnetwork, February 1993, pp. 5 - 7.
- [9] Daniel Burrus (2016), *Transformational Planning*, The Blog 05/20/2015 et Updated May 20, 2016
- [10] Diallo, A., & Thuillier, D. (2008). The success dimensions of international development projects: the perceptions of African project coordinators. *International Journal of Project Management*, Pergamon.
- [11] Duncan, W. (2010). *A Guide to the Project Management Body of Knowledge*. PMI Publications, Sylva, NC. 176 p.
- [12] Fleming, Q. W., & Koppelman, J. M. (2007). *Earned value project management* (2nd ed.). Newton Square, Pa.: Project Management Institute.
- [13] Gareis, R., Huemann, M. (2010). PM-Competences in the Project-oriented Organization in: *The Gower Handbook of Project Management*, JR Turner, SJ Simister (ed.), Gower, Aldershot., p. 709-721.
- [14] Giglioni, G.B. & Bedeian, A.G. (2009). A Conspectus of Management Control Theory: 1900-1972. *Academy of Management Journal*, Vol. 17, pp. 292-305.
- [15] Griffiths, K. (2009) *Research Methods*. New York Publishers
- [16] Gittinger, J.P. (2007). *Economic Analysis of Agricultural Projects*, Second Edition, A World bank Publication, The John Hopkins University Press, Baltimore and London.
- [17] Kamau, T. K. (2013). Information technology project management methodologies and information technology project performance in Kenyan commercial banks. *Project Management Journal*. Vol. 33.Issue 2.Pages 5-18.
- [18] Kerzner, H. (2007). *Project management, A systems approach to planning, scheduling and controlling*. New York: John Wiley and Sons.
- [19] Kerzner, H. (2009). *Applied Project Management: Best Practices on Implementation*: John Wiley & Sons
- [20] Kioppenborg, Timothy J; Opfer, Warren A. (2012) The Current State of Project Management Research: Trends, Interpretations, and Predictions. *Project Management Journal*. . Vol. 33.Issue 2.Pages 5-18.
- [21] Kloppenborg, T.J. & Opfer, W.A. (2010). Forty Years of Project Management Research: Trends, Interpretations, and Predictions. *Project Management Research at the Turn of the Millennium*. Proceedings of PMI Research Conference 2000, 21-24 June 2000, Paris, France. Pp. 41-59.
- [22] Kulkarni, R., Bargstädt, H.J., & Huckfeldt, J. (2011). Differential role of alliance leadership at various phases on projects in cross-cultural milieu. *Proceedings of the IPMA world congress on Project Management*. Budapest: Hungary.
- [23] Kothari, C. R. (2008). *Research methodology: methods and techniques*. New Age International
- [24] Larson, E. W., & Gray, C. F. (2011). *Project management: The managerial process*. New York: McGraw Hill/Irwin.
- [25] Lewis, J. P. (2010). *Project Planning, Scheduling and Control: The Ultimate Hands-On Guide to Bringing Projects In On time and On Budget*. McGraw-Hill.
- [26] Lim, C., & Mohamed, Z. (2009). Criteria of Project Success. *International Journal of Project Management*, 17(4), 243-248.
- [27] Lock, D. (2009). *Project Management*, Gower Publishing, Eighth edition.
- [28] Mantel, S., Meredith, J., Scott, S., & Sutton, M. (2006). *Project Management in Practice* (4thed.). Wiley
- [29] Michiel Bos (2013), *Create the Right Work Breakdown Structure- 059624#Jrk 5P7 j0mf5 Visx 2.99*
- [30] Might, R. J., & Fischer, W. A. (2009). The Role of Structural Factors in Determining Project Management Success. *IEEE Transactions on Engineering Management*, 32(2), 71-77
- [31] Morris W. G. (1994). *The management of projects*. London: Thomas Telford.
- [32] Morris, P. (2011). *The Management of Projects*. Thomas Telford, London. 358 p.
- [33] Muench, D. (2008). *The management of projects*. London: Thomas Telford.
- [34] Pinto, J. K., & Slevin, D. P. (2012). Project Success: Definitions and Measurement Techniques. *Project Management Journal*, 19(1), 67-72.
- [35] Payne, J. H., & Turner, J. R. (2011). Company-Wide Project Management: the Planning and Control of Programmes of Projects of Different Type. *International Journal of Project Management*, 17(1), 55-59.
- [36] PMI (2008). *A guide to the Project Management Body of Knowledge*. Newtown Square, PA: Project Management Institute.
- [37] Toney, F., & Powers, R. (2010). *Best Practice of Project Management Groups in Large Functional Organizations*: Project Management Institute
- [38] Tuman, G.J. (2008). Development and implementation of effective project management information and control systems, in Cleland, D.I. & King, W.R. (eds.) *Project management handbook*. New York: Van Nostrand Reinhold Co., 495-532.
- [39] Wideman, R.M. (1987). *Project Management Body of Knowledge*, Project Management Institute, Upper Darby, PA, Glossary of Terms, 22.
- [40] White, D., & Fortune, J. (2008). Current Practice in Project Management — An Empirical Study. *International Journal of Project Management*, 20, 1-11
- [41] Whittaker, Brenda (2011), "What went wrong? Unsuccessful information technology projects", *Information Management & Computer Security*, Vol. 7, No.1, pp. 23- 29