

**NEWPORT INTERNATIONAL JOURNAL OF ENGINEERING
AND PHYSICAL SCIENCES (NIJEP)
Volume 3 Issue 3 2023**

<https://doi.org/10.59298/NIJEP/2023/10.1.1100>

Accessing the factors that affect the implementation of successful project management for TETFUND-sponsored projects in the South East, Nigeria (2011–2021)

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ABSTRACT

As important as the knowledge acquired via the teaching and learning process in tertiary institutions is the infrastructure in tertiary education. This is the case since infrastructure is one of the facilities that primarily supports the teaching and learning process. In Nigeria, tertiary education has faced and continues to face a number of difficulties throughout the years, one of which is the deterioration of the infrastructure necessary for professional and National University Commission (NUC) accreditation. The improper implementation of project management and the absence of integration of the services of the professional project manager in various TETFund Intervention Projects are two of the biggest difficulties experienced in the implementation of TETFund-Sponsored Projects. The upshot of this is that TETFund-Sponsored Projects have been delivered unsuccessfully. For this study project, the quantitative research method was used. For this study, official documentation of Annual Intervention Projects in 10 public recipient universities in South-East Nigeria was obtained. This study indicates that all the parameters indicated are drivers of successful project management with mean ratings over 2.5 based on the results it has received and assessed. The overall rating was 2.9, which is also higher than the benchmark norm. We reject the null hypothesis and come to the conclusion that there is no significant relationship between the variables of completed within time, not completed within time, completed but delayed, and not completed yet behind schedule. Hypothesis testing revealed that the value of the t-statistics (0.049) was below 0.05.

Keywords: Determinants, Implementation, Infrastructure, Project, Management.

INTRODUCTION

As important as the knowledge acquired via the teaching and learning process in tertiary institutions is the infrastructure in tertiary education. This is the case since infrastructure is one of the facilities that primarily supports the teaching and learning process. In Nigeria, tertiary education has faced and continues to face a number of difficulties throughout the years, one of which is the deterioration of the infrastructure necessary for professional and

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National University Commission (NUC) accreditation. The National Policy on Education [1] relates the relevance of higher education to the following: contributing to national development through training high level manpower; developing and inculcating proper values for the survival of the individual and society; developing the intellectual capability of individuals to understand and appreciate their local and external environments; acquiring both physical and intellectual skills which will enable individuals to be self-reliant and useful members of the society; promoting scholarship and community service; fostering national unity; and promoting national and international understanding and interaction. Overshooting the carrying capacity of most Nigerian Universities is foiling the realization of these objectives. [2], described carrying capacity as the maximum number of students that a university can sustain for quality education based on its human and material resources. Therefore, infrastructure is among the important operational inputs into any instructional programme. It constitutes elements that are necessary for teaching and learning; and is vital in the development of qualitative university education. [3], pointed out that the stress put on the universities in terms of demand and the limited expansion in physical facilities and academic staff to cater for this demand has taken a toll on the quality of programmes in the institutions. [4], thus submitted that the quality of output (graduates) is a function of infrastructure that determines the students' learning environment and their motivation to learn. Implying that; if quality is to be assured in the nation's universities, the infrastructural base of the system needs to be improved upon. Educational funds are opined to be disbursed for the general improvement of education in Federal and State Tertiary Education, and specifically for the provision or maintenance of essential physical infrastructure for teaching and learning among others [5].

TETFund projects like all other projects usually have both project inception and completion phases. Project phases encompasses: project design, project planning, project construction and project completion and handing over phases [6]. [7], asserts that no matter how small a project is, it has tendency of failure due to the inherent risks. Project Management on the other part is seen as the application of knowledge, skills, tools, and techniques to project activities to meet the project requirements. It involves defining project objectives, determining task required to complete it, decisions on important project milestone, determination of duration of project component tasks, planning for the most efficient organization of tasks and the allocation of resources to tasks [8]. Project management is believed to be justified as a means of avoiding the ills inherent in the construction and production sector of the economy and for which reasons most projects fail and or abandoned. The success of any project implementation process in the construction industry in the public and private sectors depends largely on the project manager's concept of staff appointments and control, strict monitoring of time, cost, material, quality and environmental constraints. [9], asserts that project managers were not engaged at all in most of the projects in selected TETFund projects. Empirical evidence as stated by [10] proves that early engagement of project management techniques significantly improves project delivery success. The poor delivery, time and cost overrun ad lots of risks in the execution of TETFund project has brought to fore the emphasis on the need to employ a formidable project team with the project manager as the team leader, who will work harmoniously in the interest of the client to achieve project success as opined by [11]. It is imperative therefore to study the impact of implementation of project management on the successful delivery of TETFund-Sponsored projects with a view to proffering sustainable solutions to the problem of failed TETFund-Sponsored projects.

Aim and Objectives

The aim of this study is to determine the impact of the implementation of project management on the successful delivery of TETFund-Sponsored projects in South-East Nigeria from the purview of the project managers. The objectives are to examine the determinants of successful project management implementation of TETFUND sponsored project in public Universities and to determine the relationship between the variables of completed within time, not completed within time, completed but delayed, not completed yet behind schedule on the successful project management.

REVIEW OF RELATED LITERATURE

Implementation of project management practices is to achieve and enhance consistency in project success. It is also carried out to mitigate chains of risks that are synonymous to construction industry. It is imperative to look at project success as implantation of project within the budget, time frame, at expected quality with sustainable ends. It is not a gainsaying that the experience of the project manager influences the success of projects. [12], highlight that project management has its role in achieving project success, but several other factors beyond the control of project management, also affect project success. The concept of project success made [13] to opined that only the combination of project management success with product success will create project success, whereby [14] affirm that a project is only successful, when its objectives are achieved.

Project Management and its Impact on project Delivery

Project Management refers to the timely, routine and continuous monitoring, evaluation and implementation to actualize projects' aim. The service of a project manager is unique and distinct. It uses a set of tools, techniques, principles and methods for planning and executing the project work effectively with the objective of completing the project in time, within the budget and according to the laid-down specifications [15]. According to Project Management Body of Knowledge [16], Project Management is seen as the application of knowledge, skills, tools,

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and techniques to project activities to meet the project requirements. It involves defining project objectives, determining task required to complete it, decisions on important project milestone, determination of duration of project component tasks, planning for the most efficient organization of tasks and the allocation of resources to tasks [17]. Project management is believed to be justified as a means of avoiding the risks inherent in the construction and production sector of the economy and for which reasons most projects fail and or abandoned. The project manager's role arises from the need for a technical expert to take charge and control of events on the project implementation process; someone who understands the intricacies of co-coordinating, controlling, organizing and directing the efforts and activities of the professional team and the physical problems of implementation process with the needs in the decision-making process.

The success of any project implementation process in the construction industry in the public and private sectors depends largely on the project manager's concept of staff appointments and control, strict monitoring of time, cost, material, quality and environmental constraints [17]. A good project manager is one who has been entrusted with the task of managing a specific project. An effective project manager is one who should have the following skills/capacities: Planning and organizational skills, personnel management skills, communication skills, change orientation, ability to solve problems in their totality, high energy levels, ambition for achievement, ability to take suggestion, understanding the views of project team members and having a sympathetic attitude towards them, ability to develop alternative actions quickly, knowledge of project management methods and tools, ability to make self-evaluation, effective time management, capacity to relate current events to the project/project management, integration skills, ability to handle project management software tools/packages, flair for sense of humour, solving issues/problems immediately without postponing them, initiative and risk taking ability, familiarity with the organization, tolerance for difference of opinion, delay, ambiguity, knowledge of technology, conflict resolving capacity, team building skills, resource allocation skills, entrepreneurial skills, and good skills of negotiation to gain the confidence and cooperation of many departments in the organization [15]. From the 2015 TETFund Guidelines for Accessing Intervention Funds it is clearly shown that no conscious effort was made by the Fund to incorporate the all-important role or professional expertise of the project manager to ensure successful project delivery. Also from observations, of projects accessed and executed from 2011 to 2021 by beneficiary institutions in South-East Nigeria, the services of the project manager are not being required by TETFund as a requisite professional expertise even when it is stipulated in the 1996 Federal Government Scale of Fees for remuneration of consultants in the construction industry.

Summary of Literature Review and Gaps

From the review of relevant literature; it was deduced that for TETFund Annual Intervention (Construction-related) Projects, the inputs of technical professionals in the construction industry are a major requirement for submission of project proposals by beneficiary institutions toward accessing intervention funds. However, from the guidelines, no conscious effort has been made by TETFund to include the right application of project management and the expertise of the professional project manager whose roles and duties cannot be overemphasized in ensuring successful project delivery in the construction industry. This study therefore seeks to examine TETFund-Sponsored projects in South-East Nigeria with a view to determining the extent to which project management elements and methods are applied in the implementation of the projects and its impacts on the successful delivery of the projects.

RESEARCH METHODOLOGY

This research aimed at collection data that would stand a position on the contributory roles of project management in the implementation of TETFund projects in South-East, Nigeria. For the purpose of this research, the area of study covers Public Tertiary Institutions, precisely Universities that are beneficiaries of the TETFund Annual Intervention Funds for Physical Infrastructural (Construction-related) Projects in South-East Nigeria. This study is quantitative research which adopts exploratory research design to achieve its objectives. However, exploratory research design is preferred in this study as the study interest is on revealing existing condition which are not obviously known. The researcher narrowed the sample observation to project managers, consultants and contractors that participated in TETFund projects in South-East between 2010-2021 which summed up to 675 respondents. To get the sample size of the study, the researcher used Taro Yamane's principles of arriving at a sample size which is given as

$$n = \frac{N}{1 + N(e)^2}$$

Where: n= Desired sample size

N= the entire population

e= level of significance or limit of tolerable error assumed to be 5% or 0.05

I= unit, constant figure

Table 1 Estimated Population Distribution and Sample Size of the Study

S/N	CATEGORIES OF RESPONDENTS	ESTIMATED POPULATION	SAMPLE SIZE
1.	Contractor	50	44
2.	Client/Project Managers	45	40
3.	Consultants	100	80
	TOTAL	195	164

Quantitative research design was adopted via a web-based designed and sent. Secondary data was extracted from documented records of projects accessed by beneficiary institutions as documented by TETFund from 2011 to 2021. **Table 2: TETFund Annual Intervention Projects for Physical Infrastructure in Universities in the South-East Nigeria from 2011-2021.**

S/N	Name of Institution	No. of Projects from 2011-2021	Projects Completed Within Schedule		Ongoing Projects, Still Within Schedule		Projects Not Yet Completed and behind Schedule		Projects Completed but not Within Schedule	
			Nos	%	Nos	%	Nos	%	Nos	%
1	ABSU	8	0	0	0	0.00	5	62.50	3	37.50
2	COOU, Anambra State	3	0	0.00	0	0.00	3	100.00	0	0.00
3	EBSU, Ebonyi State	7	0	0.00	1	14.29	4	57.14	2	28.57
4	ESUT, Enugu State	10	0	0.00	2	20.00	2	20.00	6	60.00
5	FUTO, Imo State.	7	1	14.29	0	0.00	3	42.86	3	42.86
6	FUNAI, Ebony State	3	1	33.33	0	0.00	0	0.00	0	0.00
7	IMSU, Imo State	3	1	33.33	0	0.00	2	66.67	0	0.00
8	MOUAU, Abia State	3	0	0.00	1	33.33	0	0.00	2	66.67
9	UNIZIK, Anambra State	3	0	0.00	0	0.00	1	33.33	2	66.67
10	UNN, Enugu State	3	0	0.00	1	33.33	2	66.67	0	0.00

ANALYSIS AND DISCUSSION OF FINDINGS

The results of the data gathered to satisfy the first and second objectives were analyzed and shown in table 1 and table 2

Table 3: Examination of the determinants of successful project management implementation

S/N	The Project determinants	VGE	GE	LE	VLE	ΣFX	\bar{X}	RESULT
1	Project completed within time.	45	50	23	17	135	2.9	ACCEPT
		180	150	46	17	393		
2	Project not completed within time.	50	49	30	6	135	3.0	ACCEPT
		200	147	60	6	413		
3	Project completed but delayed.	47	53	33	2	135	3.0	ACCEPT
		188	159	66	2	415		
4	Project not completed yet behind schedule.	40	55	30	10	135	2.9	ACCEPT
		160	165	60	10	395		
Grand total							2.9	ACCEPT

Four questionnaire items were used to answer research question one. All the items had mean ratings above 2.5 The grand mean rating was 2.9 which is also above the criterion mean. Based on this, the researcher concludes that the

Table 4: Determination of relationship between variables using Parsimonious Regression Result

Dependent Variable: D(SPM)

Method: Least Squares

Date: 07/16/23 Time: 09:40

Sample (adjusted): 2011 2021

Included observations: 37 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.027275	0.015832	1.722799	0.0949
D(PCWT)	1.371105	1.192205	3.148861	0.0194
D(PNCWT)	-0.062995	0.053277	-2.182397	0.0460
D(PCBD)	-0.000489	0.000157	-3.103363	0.0041
D(PNCYD)	-0.014915	0.004793	-3.111745	0.0040
R-squared	0.632925	Mean dependent var		0.042191
Adjusted R-squared	0.525332	S.D. dependent var		0.041292
S.E. of regression	0.036343	Akaike info criterion		-3.644225
Sum squared resid	0.040946	Schwarz criterion		-3.382995
Log likelihood	73.41817	Hannan-Quinn criter.		-3.552130
F-statistic	3.094308	Durbin-Watson stat		1.615606
Prob(F-statistic)	0.022223			

Where,

SPM = Successful project management

PCWT = Project completed within time

PNCWT = Project not completed within time

PCBD = Project completed but delayed

PNCYD = Project not completed yet delayed.

Regression Result

In the regression result, the variables under consideration are successful project management (dependent variable), Project completed within time (PCWT), Project not completed within time (PNCWT), Project completed but delayed (PCBD), Project not completed yet delayed (PNCYD). From the result the estimated coefficient value of b_0 , b_1 , b_2 , b_3 and b_4 are 0.027275, 0.0000137, -0.062995, -0.000489, and -0.014915 respectively.

The regression equation is presented as follows:

$$SPM = 0.027275 + 0.0000137PCWT_t - 0.062995PNCWT_t - 0.000489PCBD_t + 0.014915PNCYD_t$$

$$Se = (0.015832) \quad (0.0000119) \quad (0.053277) \quad (0.000157) \quad (0.004793)$$

$$t^* = 1.722799 \quad 1.148861 \quad -1.182397 \quad -3.103363 \quad -3.111745$$

$$R^2 = 0.632925$$

$$\text{Adjusted } R^2 = 0.525332$$

$$F^* = 3.094308$$

$$\text{Durbin-Watson statistics} = 1.615606$$

Evaluation of Regression Results**a. Evaluation Based on Economic Criterion**

This subsection is concerned with evaluating the regression results based on a priority expectation. The signs and magnitude of each variable coefficient is evaluated against theoretical expectations.

The constant term is 0.027275, which means that the model passes through the point 0.027275 mechanically. If the independent variables are zero, successful project management would be 0.027275, [18].

The estimated coefficient for project completed within time (PCWT) is 0.0000137. This implies that if all other variables affecting successful project management (SPM) are held constant, a unit increase in project completed within time will lead to 0.0000137 units increase in successful project management on the average. Similarly, the estimated coefficient of project not completed within time (PNCWT), Project completed but delayed (PCBD) and Project not completed yet delayed (PNCYD) are -0.062995, -0.000489 and -0.014915 respectively. This means that holding every other variables that affect successful project management (SPM) constant, a unit increase in Project not completed within time will bring about a 0.062995 units decrease in successful project management; a unit increase in Project completed but delayed will lead to a 0.000489 units decrease in successful project management,

and a unit increase in project not completed yet delayed will bring about a 0.014915 units decrease in successful project management on the average.

b. Evaluation Based on Statistical Criterion

R²–Result and Interpretation

This subsection applies the R², the t-test and the f-test to determine the statistical reliability of the estimated parameters. These tests are performed as follows;

The coefficient of determinations, R², from the regression result is given as 0.332925. This implies that 33.2925% of the variation in successful project management is being explained by the variations in Project completed within time, Project not completed within time, Project completed but delayed, Project not completed yet delayed.

T–Test Result and Interpretation

The study also employs the 95% confidence interval or 5% level of significance (i.e. $\alpha=0.05$) and $df = n-K = 10-5 = 5$ as the degrees of freedom.

From the distribution table, $t_{0.025(34)} = 2.042$

The result of the t-test of significance is shown in table 4.5 below:

The result of the t-test is presented below and evaluated based on the critical value (2.042) and the value of calculated t-statistics for each variable.

Table 5: Result of T-Test of Significance

Variables	t-computed (t*)	t-tabulated (t _{a/2})	Conclusion
PCWT	3.148861	2.042	Significant
PNCWT	-2.182397	2.042	Significant
PCBD	-3.103363	2.042	Significant
PNCYD	3.111745	2.042	Significant

Significant (Reject H₀; accept H₁),

Insignificant (Accept H₀).

From the t-test result above, for PCWT, $t^* > t_{a/2}$, therefore, the null hypothesis is rejected. Hence, project completed within time is statistically significant, thus project completed within time has significant impact on successful project management. For PNCWT, $t^* > t_{a/2}$, therefore, the null hypothesis rejected. Hence, project not completed within time is statistically significant, thus project not completed within time has significant impact on successful project management. For PCBD, $t^* > t_{a/2}$, therefore, the null hypothesis rejected. Hence, project completed but delayed is statistically significant, thus project completed but delayed has significant impact on successful project management. For PNCYD, $t^* > t_{a/2}$, therefore, the null hypothesis rejected. Hence, project not completed within time is statistically significant, thus project not completed yet delayed has significant impact on successful project management.

TEST OF HYPOTHESES

Table 6: one-sample test of the first hypotheses;

H₀: there is no significant relationship between the variables of completed within time, not completed within time, completed but delayed, not completed yet behind schedule.

One-Sample Test

	Test Value = 0					
	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
there is no significant relationship between the variables of completed within time, not completed within time, completed but delayed, not completed yet behind	0.049	10	.014	z17373.02000	16007.8096	18738.2304

From the test of hypothesis above using one sample test t-statistics, based on the decision rule, accept null hypothesis if the value of the t-statistics is greater than 0.05, from the result; the value of the t-statistics (0.049) is below 0.05 hence we reject the null hypothesis and conclude that there is no significant relationship between the variables of completed within time, not completed within time, completed but delayed, not completed yet behind schedule

CONCLUSION

From this result obtained and analyzed, this study concludes that the identified determinants of successful project management are project completed within time, project not completed within time, project completed but delayed and project not completed yet delayed. Further, the study also concludes that project completed within time has positive relationship on successful project management whereas project not completed within time, project completed but delayed and project not completed yet delayed have negative relationship on successful project management.

RECOMMENDATION

Based on the findings of the study, the following recommendations are given:

1. All the determinants of successful project completion must be taken serious and attend to specifically
2. Projects must be executed to budget, time and expected quality to make expected economic impact on the economy.
3. There is need for careful monitoring the delivery of TETFUND in Nigerian Universities so as to avoid underutilization of public fund.
4. Effective project management team should be encouraged in all TETFund projects to ensure value for money and continuity of the programme.

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CITE AS: Ilo, Winnie Nneka; Nwagbara, Augustine and Nnadi, Ezekiel (2023). Accessing the factors that affect the implementation of successful project management for TETFUND-sponsored projects in the South East, Nigeria (2011–2021). *NEWPORT INTERNATIONAL JOURNAL OF ENGINEERING AND PHYSICAL SCIENCES (NIJEP)* 3(3):1-7. <https://doi.org/10.59298/NIJEP/2023/10.1.1100>