

Project Leadership Styles and the Execution of Rural Infrastructure Projects for Society: Evidence from the Rural Access and Agricultural Marketing Project in Ondo State, Nigeria

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Abstract- Effective leadership is widely regarded as a determinant of successful project delivery, yet little empirical attention has been paid to how specific leadership styles shape the execution of rural infrastructure projects in developing countries. This study examined project leadership styles and their effect on the execution of the Rural Access and Agricultural Marketing Project (RAAMP) in Ondo State, Nigeria. The study assessed the leadership styles used in RAAMP execution, evaluated RAAMP performance, and examined the effect of project leadership styles on RAAMP execution. A descriptive survey research design and quantitative approach were adopted. Using census sampling, structured questionnaires measured on a five-point Likert scale were administered to the entire population of 15 project leaders and 24 team members engaged in RAAMP implementation. Descriptive statistics were used to address the first two objectives, while multiple linear regression was used to test the effect of leadership styles on project execution. The findings showed that transformational leadership was the predominant style from the perspective of project leaders, while democratic leadership was predominant from the perspective of team members. RAAMP performed strongly in scope adherence (mean = 4.82) but recorded comparatively lower scores for milestone achievement (mean = 3.81) and timeliness (mean = 3.30). Transformational, transactional and autocratic leadership had statistically insignificant negative effects on RAAMP execution, whereas democratic leadership (beta = 0.648, $p = 0.001$) and servant leadership (beta = 0.710, $p = 0.044$) had significant positive effects, with the overall regression model explaining 67.3 percent of the variance in project execution. The study concludes that participative and people-centred leadership approaches enhance the execution of rural infrastructure projects and recommends a hybrid leadership approach, regular leadership training, and the inclusion of leadership assessment criteria in the selection of project leaders.

Keywords: project leadership; leadership styles; project execution; rural infrastructure; RAAMP; Nigeria

I. INTRODUCTION

Rural infrastructure projects occupy a central place in the development agenda of many low- and middle-income countries, since access roads and agricultural marketing facilities directly affect the mobility of people, goods and services in areas otherwise cut off from urban markets. In Nigeria, one such intervention is the Rural Access and Agricultural Marketing Project (RAAMP), a World Bank and Agence Francaise de Developpement supported programme designed to improve rural road connectivity and marketing infrastructure across several states, including Ondo State in the southwestern part of the country.

The successful execution of development projects of this nature depends not only on funding, technical design and contractor competence, but also on the quality of leadership provided to the project team. Project leadership is the process through which a designated leader inspires, motivates and directs team members toward the achievement of defined project goals. Leadership style, in this context, refers to the pattern of behaviour a leader habitually adopts in directing, motivating and controlling followers, and includes transformational, transactional, democratic, autocratic and servant leadership.

RAAMP is implemented across all three senatorial districts of Ondo State, an area characterised by considerable variation in geographical terrain,

accessibility, agricultural practice and level of community involvement. These differences pose real challenges to project implementation, including delays in the delivery of rehabilitated rural roads and upgraded market facilities, inefficiencies in resource allocation and difficulty coordinating multidisciplinary teams and diverse stakeholders such as government officials, contractors, community leaders and development partners (Mayowa & Iyanda, 2014). In many developing country settings, ineffective leadership, poor communication and weak team cohesion have been linked to missed deadlines, cost overruns, project abandonment and limited community engagement (Maqbool et al., 2017; Mayowa & Iyanda, 2014). Project leaders in such settings sometimes adopt leadership styles that are misaligned with project complexity, stakeholder expectations and the dynamic conditions of rural development environments (Dartey-Baah, 2022).

In Nigerian rural settings specifically, bureaucratic inefficiencies, limited resources and socio-cultural factors often constrain team performance and project success (Manjo, 2024), while poor stakeholder engagement and weak communication between leaders and implementation teams can erode community support and threaten the long-term sustainability of public infrastructure projects (Tasleem & Gangadharan, 2022). While a considerable body of research has examined the general determinants of team performance (Salcinovic et al., 2022; Savelsbergh et al., 2010), comparatively little attention has been paid to how specific leadership styles affect team and project performance in rural development projects such as RAAMP. This study addresses that gap by examining the relationship between project leadership styles and the execution of RAAMP in Ondo State, Nigeria.

The specific objectives of the study were to: (i) assess the project leadership styles used in RAAMP execution; (ii) evaluate the performance of RAAMP in the study area; and (iii) examine the effect of project leadership styles on RAAMP execution. The null hypothesis tested was that project leadership styles do not have a significant effect on RAAMP execution in Ondo State.

The findings are intended to benefit unit heads and project leaders involved in RAAMP execution, government agencies and policymakers responsible for public infrastructure delivery, donor and development partner organisations evaluating the effectiveness of their investment, and contractors and consultants working on the project, and ultimately the rural communities that depend on the infrastructure produced. The study also contributes to the wider body of knowledge on project leadership and rural development, particularly within Nigerian and African contexts, where empirical evidence of this kind remains limited.

II. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

Project leadership and leadership styles

Leadership can be defined broadly as the capability to influence, motivate and guide people toward the accomplishment of a shared objective. Project leadership, more specifically, is the process of guiding a project team toward its goals by inspiring, motivating and directing team members within the temporary and constrained setting of a project. Several leadership styles were considered in this study.

Transformational leadership is characterised by a leader's ability to motivate followers to exceed expected performance while placing organisational or project goals ahead of self-interest, and is typically described in terms of idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. Transactional leadership operates through a clear exchange relationship between leader and follower, in which expectations, rewards and penalties are explicitly defined and performance is closely monitored. Democratic leadership emphasises inclusive decision-making, shared vision-setting, supportive communication and mutual trust and respect between leaders and team members. Autocratic leadership is centred on centralised decision-making, direct supervision, limited individual autonomy and authoritarian control. Servant leadership prioritises the needs, development and wellbeing of team members and stakeholders, and is associated with

attributes such as listening, empathy, stewardship and commitment to the growth of others (Greenleaf, 1970).

Theoretical framework

This study draws primarily on Transformational Leadership Theory and the Project Management/Project Success Model, while also acknowledging the relevance of Servant Leadership Theory and Path-Goal Theory of Leadership.

Transformational Leadership Theory, originally formulated by Burns (1979) and further elaborated by Bass (1985), holds that leaders can inspire followers to surpass expected performance through idealised influence, inspirational motivation, intellectual stimulation and individualised consideration. This theory is considered relevant to development projects such as RAAMP, where leaders are required to inspire and motivate teams operating under resource constraints and dispersed rural conditions.

Servant Leadership Theory, proposed by Greenleaf (1970), suggests that a leader's primary role is to serve the needs of the team and stakeholders ahead of personal interest, through attributes that include listening, empathy, stewardship and commitment to the growth of people. This theory is considered pertinent to RAAMP because it is a people-driven development project in which trust, collaboration and community commitment are central to sustained outcomes.

Path-Goal Theory of Leadership, proposed by House (1971), focuses on how leaders clear obstacles and provide support to enable subordinates to achieve shared goals, with leadership effectiveness contingent on the traits of subordinates and the nature of the task. The Project Management Theory, or Project Success Model, developed by Turner and Muller (2005), holds that project performance depends not only on technical competence but on the leadership style of the project leader being appropriately matched to the specific project situation, complexity and stakeholder environment. In the context of RAAMP, this model offers a useful lens for understanding how different leadership styles influence performance indicators such as milestone achievement, scope adherence and timeliness.

Empirical review

Studies conducted in construction and project-based settings across different regions consistently point to a relationship between leadership style and project outcomes, although the direction and strength of that relationship vary by context. Research on leadership styles and the project life cycle has associated transformational and participative approaches with improved project outcomes (Adetola & Adetola, 2023), while studies of leadership practice in construction have found that transformational, servant and democratic leadership are among the styles commonly applied and associated with successful project delivery (Ismail & Fathi, 2018). Investigations of county government projects in Kenya (Ileri & Kihara, 2018) and of the South African construction industry (Liphadzi et al., 2015) have similarly established that effective project leadership contributes significantly to project success, a pattern further reinforced by structural equation modelling evidence from government construction projects (Ssenyange, 2023).

At the same time, studies of construction and infrastructure performance measurement have found that scope-related performance indicators tend to be comparatively strong in many infrastructure and construction projects, while schedule-related performance often lags due to planning inefficiencies and external constraints such as procurement delays, weather conditions and community-related disruptions (Unegbu et al., 2022; Bhuinyan et al., 2019). This pattern is consistent with broader findings that ineffective leadership, poor communication and weak team cohesion contribute to missed deadlines, cost overruns and reduced community engagement in developing country infrastructure projects (Eja & Ramegowda, 2020), and that leadership styles misaligned with project complexity and stakeholder expectations undermine performance in rural development settings (Dartey-Baah, 2022). Despite this growing body of evidence, comparatively few studies have examined the specific effect of leadership styles on the execution of rural access and agricultural marketing infrastructure in Nigeria, a gap this study addresses.

III. METHODOLOGY

Research design and study area

A descriptive survey research design and quantitative approach were adopted to obtain data on project leadership styles and the execution of RAAMP in Ondo State, Nigeria. This design was considered appropriate because it is cost-effective, non-intrusive and capable of providing detailed information on the characteristics and opinions of the study population. The study was conducted in Ondo State, located in the southwestern part of Nigeria, an area of approximately 15,768 square kilometres with a population estimated at 3,460,877 (National Bureau of Statistics, 2006) and geographical characteristics that include hills, valleys and lowlands. RAAMP is implemented across all three senatorial districts of the state (Rural Access and Agricultural Marketing Project, 2024).

Population, sample and instrument

The target population comprised all project leaders and team members engaged in the implementation of RAAMP in Ondo State, made up of 15 project leaders and 24 team members drawn from units including coordination, safeguards, infrastructure, accounts, monitoring and evaluation, administration, audit, procurement, communications, agro-logistics, data entry and geographic information systems. Because the population was relatively small, a census sampling approach was adopted, in which the entire population formed the sample (Zhang et al., 2007).

Primary data were collected using two structured questionnaires, one for project leaders and one for team members, each divided into three parts covering respondent demographics, project leadership styles and RAAMP execution variables. All items were measured on a five-point Likert scale ranging from strongly disagree to strongly agree. The instrument was validated by three academics from the departments of Project Management Technology, Civil Engineering and Architecture at the Federal University of Technology, Akure, and its reliability was assessed using Cronbach's alpha, with a minimum acceptable threshold of 0.70.

Model specification and analysis

The independent variables were the five project leadership styles (transformational, transactional, democratic, autocratic and servant leadership), and the dependent variable was RAAMP execution, measured through timeliness, milestone achievement and scope adherence. The relationship was modelled as:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + e$$

where Y represents RAAMP execution; X1 to X5 represent transformational, transactional, democratic, autocratic and servant leadership respectively; b0 is the regression constant; b1 to b5 are the coefficients of the independent variables; and e is the error term.

Descriptive statistics, including frequency distribution, percentages, mean and standard deviation, were used to address the first two objectives, while multiple linear regression analysis was used to test the effect of project leadership styles on RAAMP execution and the associated hypothesis, at a five percent level of significance.

IV. RESULTS

Response rate and respondent profile

Of the 39 questionnaires administered (15 to project leaders and 24 to team members), 31 were retrieved, representing a response rate of 79 percent. After screening for completeness, 26 questionnaires were found valid and usable, comprising 14 from project leaders and 12 from team members, representing 84 percent of retrieved responses, which exceeds established thresholds for survey reliability (Moser & Kalton, 2017).

Among project leaders, respondents were predominantly male (78.6 percent), aged between 41 and 60 years (92.9 percent combined), and highly qualified, with 57.1 percent holding a master's degree. Most (64.3 percent) had more than four years of experience with RAAMP. Among team members, respondents were similarly predominantly male (91.7 percent), with 66.7 percent aged between 41 and 50 years and 58.4 percent holding a master's degree; half of the respondents had three years of experience with the project.

Project leadership styles in RAAMP execution

From the perspective of project leaders, transformational leadership was the most prominent style (average mean = 4.47), followed by servant leadership (4.29), democratic leadership (4.09), transactional leadership (3.79) and autocratic leadership (2.89). From the perspective of team members, democratic leadership ranked highest (average mean = 3.23), followed by transformational

leadership (3.21), transactional leadership (3.08), servant leadership (2.92) and autocratic leadership (2.77). Transformational and democratic leadership therefore featured among the top-rated styles from both perspectives, although the ordering of predominance differed between project leaders and team members, an indication of differing perceptions of leadership practice within the project.

Table 1. Ranking of project leadership styles in RAAMP execution

Leadership style	Project leaders' perspective (average mean)	Rank	Team members' perspective (average mean)	Rank
Transformational	4.47	1st	3.21	2nd
Servant	4.29	2nd	2.92	4th
Democratic	4.09	3rd	3.23	1st
Transactional	3.79	4th	3.08	3rd
Autocratic	2.89	5th	2.77	5th

Performance of RAAMP

RAAMP performance was assessed across three dimensions. Scope adherence recorded the highest average mean score (4.82), indicating that project activities were carried out largely within the defined scope and technical specifications. Milestone achievement followed with an average mean of 3.81, while timeliness recorded the lowest average mean score (3.30), indicating that meeting scheduled deadlines was the most challenging aspect of project performance, likely reflecting external constraints typical of public infrastructure delivery such as procurement processes, funding cycles, contractor performance and community-related issues.

Table 2. Performance of RAAMP by dimension

Performance dimension	Average mean	Rank
Scope adherence	4.82	1st
Milestone achievement	3.81	2nd
Timeliness	3.30	3rd

Reliability of the research instrument

Cronbach's alpha coefficients were 0.935 for transformational leadership, 0.844 for transactional leadership, 0.868 for democratic leadership, 0.964 for servant leadership and 0.905 for RAAMP execution, all above the recommended threshold of 0.70

(Pallant, 2011). The autocratic leadership construct recorded a coefficient of 0.670, marginally below the threshold but close enough to be considered acceptable, indicating that the research instrument was sufficiently reliable and internally consistent.

Effect of project leadership styles on RAAMP execution

The multiple linear regression model was statistically significant ($R = 0.820$, $R^2 = 0.673$, $F(5, 20) = 8.222$, $p < 0.001$), indicating that the five leadership styles jointly explained 67.3 percent of the variance in RAAMP execution. Individually, transformational leadership ($\beta = -0.488$, $t = -1.527$, $p = 0.142$), transactional leadership ($\beta = -0.255$, $t = -0.842$, $p = 0.410$) and autocratic leadership ($\beta = -0.263$, $t = -1.979$, $p = 0.062$) each had a negative but statistically insignificant effect on RAAMP execution. Democratic leadership ($\beta = 0.648$, $t = 3.763$, $p = 0.001$) and servant leadership ($\beta = 0.710$, $t = 2.146$, $p = 0.044$) each had a positive and statistically significant effect, with servant leadership recording the largest standardised coefficient among all five predictors. On this basis, the null hypothesis that project leadership styles do not have a significant effect on RAAMP execution was rejected.

Table 3. Multiple linear regression results for project leadership styles and RAAMP execution

Predictor	Unstandardised B	Std. error	Standardised beta	t	Sig.
(Constant)	37.291	9.607	–	3.882	0.001
Transformational leadership	-1.299	0.850	-0.488	-1.527	0.142
Transactional leadership	-0.878	1.043	-0.255	-0.842	0.410
Democratic leadership	2.005	0.533	0.648	3.763	0.001
Autocratic leadership	-0.862	0.436	-0.263	-1.979	0.062
Servant leadership	1.704	0.794	0.710	2.146	0.044

Model summary: $R = 0.820$; $R \text{ square} = 0.673$; Adjusted $R \text{ square} = 0.591$; $F(5, 20) = 8.222$; $p < 0.001$. Dependent variable: RAAMP execution.

V. DISCUSSION

The finding that transformational leadership was the predominant style from the perspective of project leaders, while democratic leadership was predominant from the perspective of team members, points to a divergence in how leadership is enacted and perceived within the same project. Project leaders may see themselves as visionary and inspirational, while team members appear to place greater value on inclusive decision-making, feedback and shared direction-setting, a pattern consistent with the observation that leadership styles most applied in construction settings include transformational, servant and democratic approaches (Ismail & Fathi, 2018).

The comparatively strong performance of RAAMP on scope adherence, relative to milestone achievement and timeliness, mirrors patterns reported in other infrastructure and construction project performance studies, where scope-related indicators tend to be more robust than schedule-related indicators because of planning inefficiencies and external constraints outside the direct control of the project team (Unegbu et al., 2022; Bhuinyan et al., 2019).

The regression results offer the clearest evidence that participative and people-centred leadership styles, specifically democratic and servant leadership, are the styles most strongly associated with successful RAAMP execution, while transformational,

transactional and autocratic leadership showed no statistically significant relationship with execution outcomes in this context. This finding is broadly consistent with prior studies of leadership and project success in government and development project settings, which have similarly linked effective, team-oriented leadership practices to improved project outcomes (Irerri & Kihara, 2018; Liphadzi et al., 2015; Ssenyange, 2023). The comparatively larger contribution of servant leadership is notable and suggests that in a people-driven rural development project such as RAAMP, a leader's orientation toward serving the needs of the team and community carries particular weight for successful execution, more so than a purely visionary or transactional approach.

VI. CONCLUSION AND RECOMMENDATIONS

This study examined project leadership styles and the execution of RAAMP in Ondo State, Nigeria. Transformational leadership was found to be the predominant style from the perspective of project leaders, while democratic leadership was predominant from the perspective of team members. RAAMP performed successfully in terms of scope adherence, but comparatively less so in milestone achievement and timeliness. Democratic and servant leadership had significant positive effects on RAAMP execution, while transformational, transactional and autocratic leadership had insignificant negative effects. The study concludes that effective, participative and people-centred leadership enhances the execution of rural infrastructure projects and contributes to successful project delivery.

Based on these findings, the study recommends that project leaders adopt a hybrid leadership approach that draws on the strengths of transformational, democratic and servant leadership to harmonise the differing perceptions of project leaders and team members; that regular training and capacity-building programmes be organised for RAAMP leaders and supervisors, with priority given to emotional intelligence, conflict resolution and stakeholder relations; that project leaders pay greater attention to the needs of team members through support, empathy, communication and empowerment; that schedule management be strengthened through proactive risk mitigation measures, given the comparatively lower performance recorded for timeliness; and that policymakers and RAAMP coordinators incorporate leadership assessment criteria into the selection, evaluation and promotion of project leaders.

The study is limited by its focus on Ondo State, which may constrain the generalisability of the findings to other states where RAAMP operates, and by its consideration of five leadership styles, which may not capture the full range of leadership approaches relevant to rural infrastructure delivery. It is also limited by a relatively small census-based sample of 26 valid responses, reflecting the small size of the project team population studied. Future research could extend this work to other RAAMP-implementing states, incorporate additional leadership styles such as situational and ethical leadership, and examine the influence of external factors, including government policy, procurement processes and community participation, on project timeliness.

Declarations

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Conflict of interest: The author declares no conflict of interest.

Data availability: The data supporting the findings of this study are available from the corresponding author upon reasonable request.

CRedit authorship contribution statement: Adebayo Adefemi Adetanmi: Conceptualization, Methodology, Investigation, Formal analysis, Writing - original draft, Writing - review and editing.

Ethics statement: Participation in the study was voluntary, and respondents' anonymity and confidentiality were maintained throughout the data collection and analysis process.

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