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Assessing the Utilisation of Project Management Practices in Nigerian Public Sector ICT Project

Adekemi Sandra Olagunoye, Abdullahi Ayegba
Management of Information Technology Department, African University of Science and Technology, Abuja, Nigeria

Annotation. This study investigated the level of utilisation of project management practices in Nigerian public sector ICT projects and their impact on project success, alongside key implementation challenges. The research work employed a survey-based quantitative approach, in which data were collected from 187 respondents across 23 ICT projects implemented between 2020 and 2025, primarily in Abuja and Lagos. The data analysis was carried out using descriptive statistics as well as inferential statistics (Pearson correlation). The results revealed moderate the adoption of core practices, with project planning and scheduling most utilized (mean = 4.12) and risk management least adopted (mean = 2.89). Also, requirements definition, stakeholder engagement, risk management, and change control emerged as significant predictors of success, explaining 52% of variance in outcomes. It was also observed that the major challenges facing Project Management Practices implementation or adoption in Nigeria include political interference, bureaucratic procurement, and leadership changes. The study offers context-specific recommendations to strengthen project management capacity and improve ICT project outcomes in Nigeria's public sector.

Keywords: ICT, leadership changes Project management, Public Sector, Risk management.

1.0 Introduction

As the biggest economy and the most populous country in Africa, Nigeria has heavily invested in the public sector ICT projects in the last 20 years. The federal government has initiated many ambitious ICT projects to digitalise government operations and enhance service delivery as well as close the digital divide. Some of the most significant ones are the enrolment system of the National Identity Management Commission (NIMC), the Treasury Single Account (TSA), the Integrated Payroll and Personnel Information System (IPPIS), the Net immigration system conversion into a passport system, and other e-governance platforms of the National Information Technology Development Agency (NITDA) (NITDA, 2024; Galaxy Backbone, 2023).

ICT project failure is not a problem that is specific to Nigeria. Research has always demonstrated that a good number of ICT projects do not achieve their goals. According to the CHAOS Report by Standish Group, it has long been the case, only 1/3 of ICT projects are viewed as successful, with all the rest being either challenged (exceeded the budget or time or had a diminished scope) or

facing a failure (Standish Group, 2020). The failure rates in the public sector usually tend to be higher because of the constraints of bureaucracy, political intrusions, shape of stakeholder environments, and inflexible procurement practices, among other reasons (Heeks, 2018; Schwalbe, 2020).

The practices of project management, the methodologies, processes, tools and techniques applied in planning, executing, monitoring and controlling of projects, are well known as the critical determinants of project success. Strong project management practices bring order and clarity to the process of working through the maze of ICT projects. Such practices as stakeholder engagement, risk management, requirements definition, quality management, change control, and effective communication have always been associated with better project results (Kerzner, 2019).

National Information Technology Development Agency (NITDA) has been trying to come up with guidelines and standards of how ICT projects are implemented in the government. The agency has come up with structures of ICT project management and has enhanced the use of international best practices. Nevertheless, the scope of the application of these frameworks to the project and their influence on the final outcomes is a little-researched area (NITDA, 2023).

Also, ICT project success measurement in the government sector goes beyond the conventional iron triangle of time, cost, and quality. ICT projects of the public sector should also be considered based on its role in enhancing better service provision, satisfaction of citizens, transparency, and overall developmental goals. Such a multi-dimensionality of success can make the factors that drive project outcomes hard to comprehend (DeLone and McLean, 2016; Heeks, 2018).

The importance of this study is supported by the fact that the Nigerian government is still determined to embrace digital transformation. Programs like the National Digital Economy Policy and Strategy (NDEPS) and e-government agenda of the Federal Government are very much dependent on the implementation of successful ICT projects. It is important to understand what project management practices lead to success in these types of projects to ensure that they produce desired results and bring about value to the Nigerian citizens (Federal Ministry of Communications and Digital Economy, 2020; NITDA, 2024).

2.0 Literature review

2.1 Study Area

The research was dedicated to ICT projects of public sectors, which were carried out in Nigeria. The focal point of primary data collection was the Federal Capital Territory, Abuja, the administrative centre of the country which is the home of the headquarters of major institutions within the public sector that are required to carry out projects in the field of ICT. Further information was obtained at Lagos State, which is an important centre of digital activity and ICT programmes by the public sector. This two-site design was able to incorporate a variety of experiences and remain feasible (Yin, 2018).

2.2 Related studies

Nnadi and Oyama (2023) examined the influence of stakeholder involvement on the performance of road construction projects in Nigeria. The study found that stakeholder participation is an important factor affecting project performance and delivery. The findings support the importance of stakeholder engagement in achieving project objectives and reducing implementation difficulties. This is directly relevant to the present study because stakeholder engagement was one of the major project management practices examined.

Emonena and Itoje (2023) investigated the strategic influence of project management on the performance of selected construction companies in Delta State, Nigeria. The study specifically examined monitoring and evaluation and risk management and found that both significantly influenced project performance. The findings demonstrate the importance of systematic monitoring and effective risk management in improving project outcomes. This supports the present study's

finding that risk management and project monitoring are important components of successful project delivery.

Ayanleke, Lawal, and Gazal (2024) examined project management practices and project outcomes in selected projects at Jakin Initiatives in Lagos, Nigeria. The study found a positive relationship between stakeholder participation, resource planning, project leadership, and project outcomes. It emphasized the importance of effective stakeholder management and staff capacity development for successful project delivery. The findings support the present study's focus on stakeholder engagement and project management practices as determinants of project success.

Akinbobola and Aladejebi (2024) investigated the effectiveness and challenges of project management tools in public-sector projects at the Ministry of Works, Ikeja, Lagos. The study examined how project management tools and techniques influence project planning, control, and delivery. Its findings highlight the importance of appropriate project management tools in improving public-sector project implementation. The study is relevant to the present research because it provides evidence from a Nigerian public-sector environment similar to the context of this study.

Ogedengbe (2024) compared project management practices in government and private organisations in Nigeria. The study examined differences in how project planning, implementation, monitoring, and other management practices are applied across the two sectors. It provides evidence that organisational context influences the effectiveness of project management practices. The findings are relevant to the present study because they highlight the particular management conditions affecting project delivery in Nigerian public-sector organisations.

Animashaun et al. (2024) developed a strategic project management framework for digital transformation in public-sector education systems. The study identified needs assessment, stakeholder engagement, project planning, change management, resource allocation, risk management, execution, and outcome evaluation as important components of successful digital transformation projects. These factors closely correspond with the practices examined in the present study. The work therefore provides useful support for assessing project management practices in Nigerian public-sector ICT projects.

Hassan et al. (2025) examined emerging trends and technology in Nigerian public administration and project management. The study found that bureaucracy, inadequate technology, and weaknesses in planning, risk management, and communication can hinder project delivery. It further reported that digital tools, automation, data analytics, and AI can improve efficiency, transparency, and decision-making. These findings support the need for stronger and more technology-driven project management practices in Nigerian public sector ICT projects.

Oluwaseun and Tunde (2025) investigated information technology projects and end-user satisfaction in selected public institutions in Lagos State, Nigeria. The study focused on how IT project management and end-user involvement influence project outcomes and satisfaction. Using data from public institutions, the researchers highlighted the importance of user engagement and usability in determining the success of IT projects. Their findings are relevant to the present study because stakeholder engagement and project success are also key variables examined.

Benu (2025) examined the effect of project planning practices on the success of infrastructure projects in Nigeria. The study found that project scheduling significantly improved timely completion, while budgeting and cost planning enhanced cost performance. It also showed that combining risk management with stakeholder engagement significantly improved overall project success. These findings support the present study’s emphasis on planning, risk management, stakeholder engagement, and project success.

Duru et al. (2026) investigated project planning as a project management practice in selected government institutions in Plateau State, Nigeria. Using a quantitative survey design, the study examined the contribution of planning to successful public-sector project delivery. The findings

showed that effective project planning has a significant positive effect on project success. The study is particularly relevant because it provides recent evidence from Nigerian public institutions and reinforces the importance of structured project management practices.

Edewhor and Eruteya (2025) examined the impact of Project Management Information Systems (PMIS) on project management practices in Delta State, Nigeria. The study found significant positive relationships between PMIS utilization, cost reduction, and project quality. It reported that PMIS accounted for 55.9% of the variation in project quality and cost-reduction outcomes. The findings demonstrate the value of technology-supported project management, training, and stakeholder communication in improving project delivery.

Gazal and Bakare (2025) evaluated the impact of project management practices on project success among selected construction firms in Lagos State, Nigeria. The study examined how structured project management practices contribute to successful project outcomes within the Nigerian context. Its findings provide recent empirical evidence that effective project management practices are important for improving project performance and achieving intended objectives. The study is relevant to the present research because it similarly examines the relationship between project management practices and project success in Nigeria.

Previous studies show that stakeholder engagement, planning, monitoring, risk management, and leadership influence project outcomes in Nigeria, however, most focused on construction, private organisations, or general public-sector projects rather than **public-sector ICT projects**. Also, limited research has examined the combined utilisation of requirements definition, stakeholder engagement, risk management, planning, quality management, and change control. There is also insufficient empirical evidence on how these practices collectively influence the success of Nigerian public-sector ICT projects.This study addresses these gaps by assessing **23 Nigerian public-sector ICT projects implemented between 2020 and 2025**, providing context-specific evidence on practices and project success.

3.0 Research Methodology

3.1 Research method

The study adopted a quantitative survey design to examine project management practices, their levels of adoption, relationships with project success, and associated challenges in Nigerian public sector ICT projects. Primary data were gathered via a structured questionnaire administered to 187 purposively and stratified randomly selected respondents consisting of project managers, team members, sponsors, and other stakeholders across 23 public sector ICT projects implemented between 2020 and 2025. The sampling strategy ensured representation across different roles and project types to enhance the validity of statistical inferences.

The instrument or questionnaire, was divided into sections on demographics, practices (Likert-scale items adapted from established tools such as those by PMI), success measures (encompassing the iron triangle plus stakeholder satisfaction and user adoption), and contextual challenges, was pilot-tested on 12 participants to ensure clarity, relevance, and reliability (Cronbach's alpha values exceeded 0.70 for all scales, confirming strong internal consistency).

3.2 Data Analysis Techniques

The survey data were analyzed using SPSS version 28. Descriptive statistics (frequencies, means, and standard deviations) were used to summarise the respondent profiles and practice adoption levels. Also, reliability was assessed via Cronbach's alpha, while inferential statistics included Pearson correlation analysis was used to examine relationships between practices and success, and multiple linear regression to identify significant predictors while controlling for contextual variables. Assumptions of normality, linearity, multicollinearity (VIF values < 5), and homoscedasticity were checked and adequately met. This rigorous statistical approach ensured

robust validation, reliable insights into the utilization and effectiveness of project management practices, and generalizable findings for the Nigerian public sector context.

4.0 Results and Discussions

4.1 Overview of Respondent and Project Characteristics

The survey captured diverse perspectives from 187 participants involved in 23 public sector ICT projects, in which project managers constituted 28% of respondents, team members 42%, sponsors 12%, and other stakeholders (including IT directors and end-users) 18%. This distribution provided balanced input from individuals with varying levels of involvement and responsibility, allowing for comprehensive insights into project dynamics from both operational and strategic viewpoints. The projects spanned various domains such as e-governance platforms, digital service delivery systems, data centers, cybersecurity initiatives, and enterprise resource planning implementations. Geographically, the projects were centered in the Federal Capital Territory (Abuja), with some data from Lagos State, reflecting the primary administrative and technological hubs of the country. The demographic diversity also allowed for meaningful subgroup comparisons in subsequent analyses.

4.2 Reliability of Research Instruments

Before proceeding with the main analysis, the reliability of the measurement scales was assessed using Cronbach's alpha. All scales demonstrated strong internal consistency, with alpha coefficients ranging from 0.78 to 0.92. Specifically:

- Project Management Practices scale: $\alpha = 0.89$
- Project Success Measures scale: $\alpha = 0.87$
- Challenges scale: $\alpha = 0.91$

These values exceed the recommended threshold of 0.70 (Hair et al., 2019), confirming that the questionnaire items were reliable and consistent for measuring the intended constructs. This high reliability strengthens confidence in the subsequent statistical findings.

4.3 Level of Adoption of Project Management Practices

A central objective of the study was to assess the extent of utilization of established project management practices. Respondents rated each practice on a 5-point Likert scale (1 = Not at all to 5 = To a very great extent). Table 1 presents the mean scores and standard deviations for the seven key practices examined, while fig. 1. represents it in bar chart form

Table 1: Level of Adoption of Project Management Practices

Project Management Practice	Mean	Standard Deviation
Project Planning and Scheduling	4.12	0.78
Stakeholder Engagement	3.85	0.92
Project Monitoring and Control	3.78	0.85
Communication Management	3.67	0.89
Requirements Definition	3.45	0.94
Change Control	3.21	1.02
Risk Management	2.89	1.08

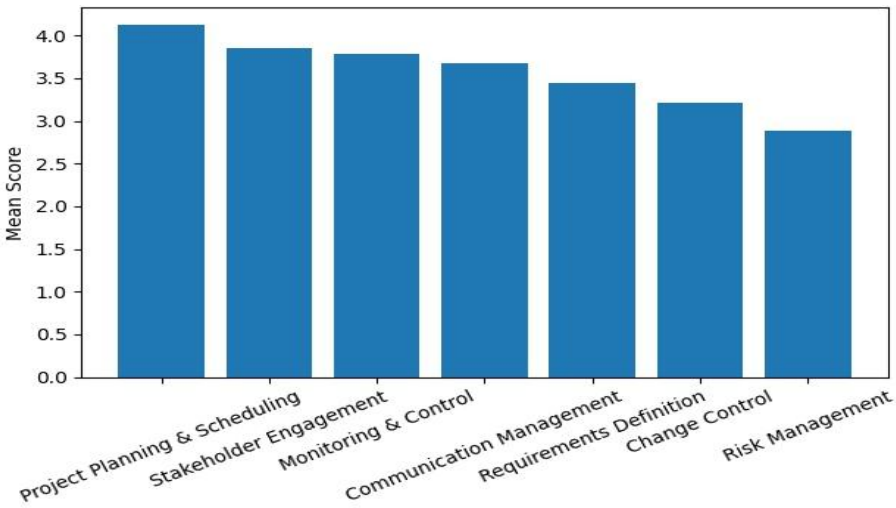

Fig. 1: Level of Adoption of Project Management Practices

From table 1, it was observed that project planning and scheduling emerged as the most adopted practice with a high mean score of 4.12 (SD = 0.78). This strong adoption level reflects the emphasis placed on setting clear project goals, developing detailed work breakdown structures (WBS), estimating resources accurately, and establishing realistic schedules. Such activities are often mandated by government regulatory frameworks and serve as foundational requirements for project approval, funding release, and initial compliance checks in the public sector.

Stakeholder engagement recorded a respectable mean of 3.85 (SD = 0.92). This indicates a solid recognition of the need to identify, analyze, and involve key parties—including government officials, end-users, and oversight bodies—throughout the project lifecycle. Given the dynamic and multifaceted nature of public sector stakeholder environments, this level of adoption is encouraging but suggests room for more consistent and proactive engagement strategies.

Also, project monitoring and control (mean = 3.78, SD = 0.85) and communication management (mean = 3.67, SD = 0.89) demonstrated moderate adoption. These scores suggest that mechanisms for tracking progress against baselines, managing variances, and ensuring timely information dissemination are generally implemented. However, the moderate levels imply potential inconsistencies in application, particularly during later project phases where execution pressures intensify.

In contrast, requirements definition (mean = 3.45, SD = 0.94), change control (mean = 3.21, SD = 1.02), and especially risk management (mean = 2.89, SD = 1.08) showed comparatively lower adoption rates. The notably higher standard deviations for these practices (approaching or exceeding 1.0) indicate substantial variability in their application across projects and organizations. Lower adoption in requirements definition may contribute to scope ambiguities, while limited change control could lead to uncontrolled modifications. The lowest score for risk management may be due to insufficient systematic identification, assessment, and mitigation of potential threats.

4.4 Project Success analysis

Project success was evaluated using a multi-dimensional framework that extended beyond the traditional iron triangle. Technical quality achieved the highest mean rating of 3.78, indicating that delivered systems frequently meet core functional, performance, and reliability criteria. This relatively stronger performance in quality suggests that technical teams often succeed in producing workable solutions despite other constraints.

However, schedule performance (mean = 3.05) and budget performance (mean = 3.12) were substantially lower, highlighting persistent challenges with meeting timelines and controlling costs. These shortfalls are consistent with global trends in public sector ICT projects but appear amplified by local contextual factors. Stakeholder satisfaction averaged 3.45, while user adoption stood at

3.38. These moderate scores reflect partial realization of intended benefits, such as improved service delivery and citizen engagement.

It was shown that these metrics illustrate that although technical outputs are often satisfactory, challenges in delivery efficiency (time and cost) and broader impact realization remain significant. The data reinforce the value of multi-dimensional success criteria when assessing public sector ICT projects and underscore the need for enhanced practices to bridge existing performance gaps.

4.5 Relationships between Project Management Practices and Project Success

To achieve this, Pearson correlation analysis explored the strength and direction of associations between individual practices and overall project success. As detailed in Table 2, and fig. 2, requirements definition exhibited the strongest positive correlation ($r = 0.58$, $p < 0.01$). This robust relationship underscores the critical role of clear, comprehensive, and well-documented requirements in preventing downstream issues such as scope creep and rework.

Also, stakeholder engagement followed closely ($r = 0.52$, $p < 0.01$), highlighting how effective involvement of diverse parties contributes to alignment, support, and smoother execution. Risk management ($r = 0.49$, $p < 0.01$) and change control ($r = 0.47$, $p < 0.01$) also demonstrated significant positive correlations, indicating their importance in maintaining project stability amid uncertainties and modifications. Project planning and scheduling ($r = 0.38$, $p < 0.05$), communication management ($r = 0.35$, $p < 0.05$), and project monitoring and control ($r = 0.32$, $p < 0.05$) showed moderate positive correlations, suggesting they provide necessary but less dominant contributions when considered in isolation.

Table 2: Correlation between Project Management Practices and Project Success

Project Management Practice	Correlation with Success	Significance (p-value)
Requirements Definition	0.58	p >0.01
Stakeholder Engagement	0.52	p >0.01
Risk Management	0.49	p >0.01
Change Control	0.47	p >0.01
Project Planning and Scheduling	0.38	p >0.05
Communication Management	0.35	p >0.05
Project Monitoring and Control	0.32	p >0.05

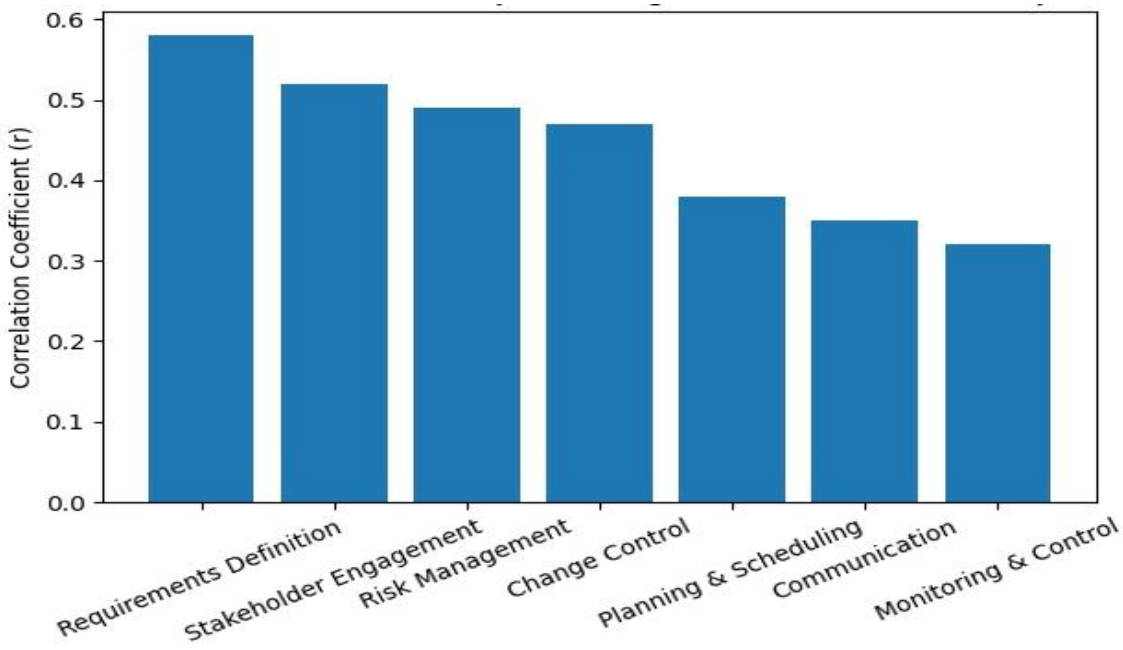

Fig. 2: Correlation Between Project Management Practices and Project Success

Multiple linear regression analysis was conducted to determine the combined predictive power of these practices. The overall model was statistically significant and accounted for 52% of the variance in project success ($R^2 = 0.52$, adjusted $R^2 = 0.49$). As shown in Table 4.6, the key predictors were requirements definition ($\beta = 0.31$, $p < 0.001$), stakeholder engagement ($\beta = 0.28$, $p < 0.001$), risk management ($\beta = 0.22$, $p < 0.01$), and change control ($\beta = 0.18$, $p < 0.01$).

Table 3: Regression Analysis Results

Variable	Beta Coefficient	t-value	Significance
Requirements Definition	0.31	4.82	$p < 0.001$
Stakeholder Engagement	0.28	4.35	$p < 0.001$
Risk Management	0.22	3.41	$p < 0.01$
Change Control	0.18	2.76	$p < 0.01$

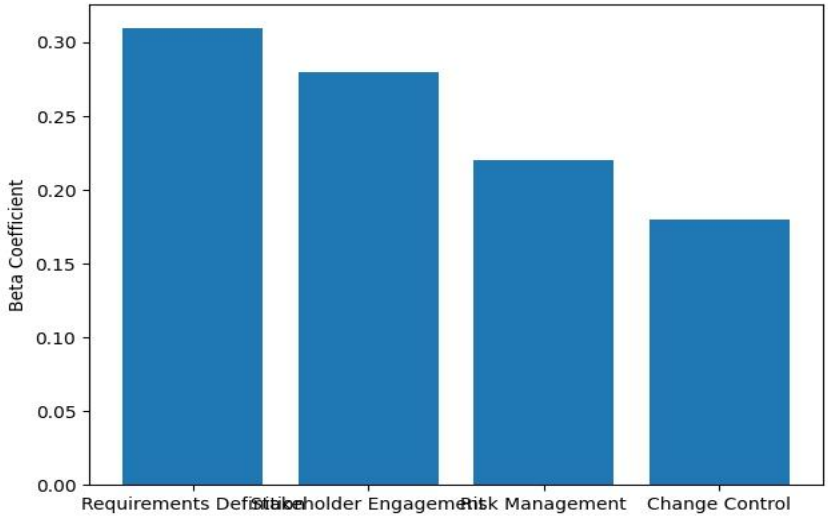

Fig.: 3: Regression Analysis Results

The standardized beta coefficients reveal the relative importance of each predictor, with requirements definition exerting the strongest unique influence. The model fit ($R^2 = 0.52$) indicates that these practices collectively explain a substantial portion of success variance, even after accounting for other factors. These results provide strong empirical support for prioritizing improvements in the identified areas to drive better project outcomes in resource-constrained public sector settings.

4.6 Contextual Challenges Affecting Project Management Implementation

Respondents rated the severity of various challenges on a 5-point scale (1 = Not severe to 5 = Extremely severe). The results showed that political interference received the highest mean severity score of 4.32 (SD = 0.78), followed by bureaucratic procurement processes (4.21, SD = 0.82) and frequent leadership changes (4.08, SD = 0.85). These top-rated challenges point to significant external and institutional pressures that disrupt project continuity and decision-making. Additional challenges included inadequate project management training (3.95, SD = 0.91), insufficient budget for project management tools (3.78, SD = 0.94), and lack of clear project management standards (3.65, SD = 0.98). The relatively high standard deviations across most challenges indicate varying degrees of impact depending on specific organizational or project contexts. It is shown in table 4 and fig.4.

Table 4: Challenges Affecting Project Management Implementation

Challenge	Mean Severity	Standard Deviation
Political Interference	4.32	0.78
Bureaucratic Procurement Processes	4.21	0.82
Frequent Leadership Changes	4.08	0.85
Inadequate Project Management Training	3.95	0.91
Insufficient Budget for Project Management Tools	3.78	0.94
Lack of Clear Project Management Standards	3.65	0.98

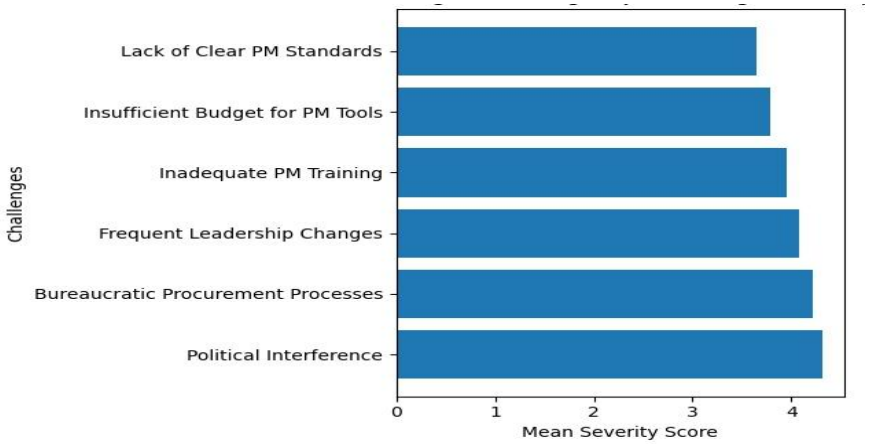

Fig. 4: Challenges Affecting Project Management Implementation

These quantitative ratings highlight systemic barriers that likely contribute to the observed gaps in practice adoption and the moderate success metrics. High-severity institutional challenges such as political and bureaucratic factors appear particularly disruptive, potentially explaining variability in practice effectiveness.

5.0 Conclusion

The research finds that the implementation of structured project management activities in the public sector ICT projects in Nigeria is uneven. Although project planning, project scheduling is a normal practice, risk management, requirements definition and change control are critical practices that are either not practised appropriately or inadequately. This discrepancy is part of the project performance issues experienced in the industry. In conclusion, this research demonstrates that while foundational project management practices are reasonably adopted in Nigerian public sector ICT projects, critical areas such as risk management, requirements definition, and change control remain underutilized, directly impacting success rates. Strengthening these, alongside targeted interventions to mitigate political interference, bureaucratic delays, and capacity gaps, offers a pathway to higher performance. By providing empirical, context-specific evidence, the study contributes actionable insights for policymakers, NITDA, and practitioners seeking to enhance ICT project delivery and public service outcomes in Nigeria.

6.0 Recommendation

It is recommended that there should be mandatory training programs in the concerned organisations or institutions, and which should be focused on high-impact areas, procurement reforms for greater agility, mechanisms for leadership continuity, and clearer national standards aligned with NITDA

guidelines. Organizations could implement benchmarking, standardized tools, and periodic maturity assessments to raise adoption levels.

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