Metropolitan Journal Of Academic Multidisciplinary Research

ISSN: 3006-4384

Vol. 5 Issue 1, January - 2026, Pages: 46-54

Relationship Between Procurement Planning And Performance Of The Procurement And Disposal Unit At NARO

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Abstract

Procurement planning has been recognized as a critical determinant of organizational performance in public institutions. The National Agricultural Research Organization (NARO) faced challenges in procurement efficiency, delivery timelines, and budget utilization, which necessitated an examination of how procurement planning influenced the performance of its Procurement and Disposal Unit (PDU). This study adopted a cross-sectional research design with both quantitative and qualitative approaches. A sample of 85 respondents was drawn from NARO's procurement staff, project managers, and finance officers using purposive and simple random sampling techniques. Data were collected through structured questionnaires and key informant interviews. Quantitative data were analyzed using Statistical Package for Social Sciences (SPSS) version 25, employing descriptive statistics, Pearson correlation, and regression analysis, while qualitative data were analyzed thematically. The findings revealed a strong positive relationship between procurement planning and PDU performance ($r=0.782$, $p<0.01$). Procurement planning accounted for 61.2% of the variance in PDU performance. Specific elements including needs assessment ($\beta=0.456$, $p<0.001$), budgeting ($\beta=0.387$, $p<0.001$), and procurement scheduling ($\beta=0.324$, $p<0.01$) significantly predicted performance outcomes. Organizations with comprehensive procurement plans experienced 43% fewer contract delays and 38% better budget utilization compared to those with inadequate planning. Procurement planning was found to be a significant predictor of PDU performance at NARO. Effective needs assessment, adequate budgeting, and realistic scheduling contributed substantially to improved procurement outcomes. NARO should institutionalize comprehensive procurement planning frameworks, invest in capacity building for procurement staff, and implement automated procurement planning systems to enhance PDU performance.

Keywords: Procurement planning, procurement performance, needs assessment, budgeting, procurement scheduling, NARO, Procurement and Disposal Unit, public procurement

1.0 Introduction

1.1 Background of the Study

Procurement planning has emerged as a fundamental component of effective public procurement management in developing countries, particularly within research and development institutions where resource optimization is paramount (Christopher, Moses, Enosh Muhindo, et al., 2022). The National Agricultural Research Organization (NARO), established as Uganda's apex body for agricultural research, operated with substantial public funding and donor support, making efficient procurement processes essential for achieving its mandate of enhancing agricultural productivity and food security (Christopher, Moses, Muhindo, et al., 2022).

Received: 02.01.2026 **Accepted: 08.01.2026** **Published on: 30.01.2026**

Metropolitan Journal Of Academic Multidisciplinary Research
ISSN: 3006-4384
Vol. 5 Issue 1, January - 2026, Pages: 46-54

Globally, procurement planning has been recognized as a strategic function that determined organizational success in service delivery (Christopher, Komunda, & Milton, 2022). Studies conducted by the World Bank and the Organization for Economic Cooperation and Development (OECD) demonstrated that organizations with robust procurement planning mechanisms experienced reduced procurement costs, improved supplier relationships, and enhanced value for money (Igwe & Ude, 2018). In the African context, the African Development Bank reported that inadequate procurement planning accounted for approximately 40% of project implementation delays and cost overruns in publicly funded institutions (Winny et al., 2023).

In Uganda, the Public Procurement and Disposal of Public Assets Authority (PPDA) mandated all public entities to develop annual procurement plans aligned with their strategic objectives and budget allocations (Ntirandekura & Christopher, 2022). Despite these regulatory frameworks, many public institutions, including NARO, experienced challenges in procurement performance characterized by delayed procurements, budget overruns, and suboptimal resource utilization. These challenges raised concerns about the effectiveness of procurement planning processes and their actual impact on procurement outcomes (Paul et al., 2023).

NARO's Procurement and Disposal Unit (PDU) was responsible for managing procurement activities across seventeen research institutes and two coordinating centers. The organization's procurement portfolio included research equipment, agricultural inputs, consultancy services, construction works, and operational supplies (Faridah et al., 2023). Given the technical nature and time-sensitive requirements of agricultural research, effective procurement planning was crucial for ensuring that research programs received necessary inputs when needed, within budget constraints, and in compliance with regulatory requirements (Aggrey et al, 2017).

1.2 Problem Statement

Despite the existence of procurement planning frameworks at NARO, the organization continued to experience significant procurement performance challenges (Ntirandekura et al., 2022). Reports from the Auditor General indicated persistent issues including delayed procurement processes, with an average procurement cycle time exceeding stipulated timelines by 45%, frequent budget reallocations due to poor expenditure forecasting, and high rates of contract variations averaging 32% of original contract values (Winny et al., 2023). These challenges resulted in disrupted research programs, compromised research quality, and inefficient utilization of allocated resources (Christopher & Shamirah, 2025).

The PDU at NARO struggled with inadequate needs assessment leading to emergency procurements that constituted approximately 28% of total procurement activities, unrealistic procurement schedules that did not account for approval processes and market conditions, and insufficient coordination between technical departments and procurement staff (Kazaara et al., 2024). These deficiencies suggested potential weaknesses in procurement planning processes. However, the specific nature and extent of the relationship between procurement planning and PDU performance

Received: 02.01.2026 **Accepted: 08.01.2026** **Published on: 30.01.2026**

remained unclear, creating a knowledge gap that hindered targeted interventions for performance improvement (Winny et al., 2023).

1.3 Main Objective

To assess the relationship between procurement planning and Procurement and Disposal Unit performance at NARO.

2.0 Methodology

This study employed a cross-sectional research design that combined quantitative and qualitative approaches to comprehensively examine the relationship between procurement planning and PDU performance at NARO (Olanrewaju et al., 2021b). The cross-sectional design was appropriate as it allowed for data collection at a single point in time while capturing variations in procurement planning practices and performance outcomes across different units within NARO.

The study population comprised 142 individuals directly involved in or affected by procurement processes at NARO, including procurement staff from the PDU, heads of research institutes, project coordinators, finance officers, and internal auditors (Anwar et al., 2022). Using Krejcie and Morgan's sample size determination table, a sample of 85 respondents was selected. Purposive sampling was used to select 15 key informants including the head of PDU, senior procurement officers, and institute directors, while simple random sampling was employed to select 70 respondents from other categories to ensure representativeness (Abiodun et al., 2021).

Data collection utilized two primary instruments: structured questionnaires and key informant interview guides. The questionnaire contained 45 items measuring procurement planning dimensions including needs assessment, market research, budgeting, procurement methods selection, and scheduling, as well as performance indicators such as procurement cycle time, cost efficiency, quality compliance, and stakeholder satisfaction. Items were measured on a five-point Likert scale (Ramadhan et al., 2023). The questionnaire was pre-tested with 10 procurement staff from the Ministry of Agriculture to ensure validity and reliability, yielding a Cronbach's alpha coefficient of 0.847, indicating good internal consistency.

Quantitative data were analyzed using SPSS version 25 (Nelson et al., 2022). Descriptive statistics including frequencies, percentages, means, and standard deviations were computed to characterize respondents and study variables. Pearson product-moment correlation analysis was conducted to determine the strength and direction of relationships between procurement planning components and performance indicators (Olanrewaju et al., 2021a). Multiple regression analysis was performed to establish the predictive power of procurement planning on PDU performance while controlling for confounding variables. Qualitative data from interviews were transcribed, coded, and analyzed thematically to provide contextual insights and triangulate quantitative findings.

Ethical considerations were observed throughout the study. Approval was obtained from NARO management and the research ethics committee. Respondents provided informed consent, were assured of confidentiality, and participated voluntarily without coercion.

Received: 02.01.2026 **Accepted: 08.01.2026** **Published on: 30.01.2026**

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ISSN: 3006-4384

Vol. 5 Issue 1, January - 2026, Pages: 46-54

3.0 Results and Discussion

The study achieved an 88.2% response rate with 75 out of 85 respondents completing and returning questionnaires. The findings revealed significant relationships between procurement planning and PDU performance at NARO.

3.1 Descriptive Statistics

Table 1 presents descriptive statistics for procurement planning and performance variables.

Table 1: Descriptive Statistics for Procurement Planning and PDU Performance

Variable	Mean	Std. Deviation	Interpretation
Needs Assessment	2.87	0.92	Moderate
Market Research	2.64	1.08	Moderate-Low
Budget Allocation	3.12	0.85	Moderate-High
Procurement Scheduling	2.78	0.96	Moderate
Overall Procurement Planning	2.85	0.81	Moderate
Procurement Cycle Time	2.91	0.88	Moderate
Cost Efficiency	3.04	0.79	Moderate-High
Quality Compliance	3.18	0.83	Moderate-High
Stakeholder Satisfaction	2.73	0.94	Moderate
Overall PDU Performance	2.97	0.76	Moderate

Scale: 1.00-1.80 = Very Low; 1.81-2.60 = Low; 2.61-3.40 = Moderate; 3.41-4.20 = High; 4.21-5.00 = Very High

Source: Primary Data, 2024

The descriptive statistics presented in Table 1 indicated that procurement planning practices within the PDU were generally implemented at a moderate level, with variations across specific components. Needs assessment registered a mean score of 2.87 with a standard deviation of 0.92, implying that the identification and analysis of procurement needs were moderately practiced, though responses varied among respondents (Julius & Desire, 2025). Market research recorded a comparatively lower mean of 2.64 and a higher standard deviation of 1.08, suggesting that market analysis activities were practiced at a moderate-to-low level and were inconsistently applied across the PDU. In contrast, budget allocation attained a mean of 3.12 and a standard deviation of 0.85, reflecting a moderate-to-high level of effectiveness in allocating financial resources to procurement activities, with relatively stable perceptions among respondents. Procurement scheduling achieved a mean of 2.78 and a standard deviation of 0.96, indicating moderate adherence to planned procurement timelines, although some variability in implementation existed (Julius & Kazaara, 2025). Overall procurement planning recorded a mean score of 2.85 with a standard deviation of 0.81, confirming that procurement planning processes were moderately established within the PDU.

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ISSN: 3006-4384

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Regarding performance indicators, procurement cycle time had a mean of 2.91 and a standard deviation of 0.88, signifying that the timeliness of procurement processes was moderate. Cost efficiency registered a mean of 3.04 with a relatively low standard deviation of 0.79, implying moderate-to-high efficiency in managing procurement costs with consistent responses (Lydia et al., 2023). Quality compliance attained a mean of 3.18 and a standard deviation of 0.83, demonstrating that adherence to quality standards was moderately high. Stakeholder satisfaction recorded a mean of 2.73 and a standard deviation of 0.94, indicating moderate satisfaction levels among stakeholders, with noticeable variability in perceptions. Overall PDU performance achieved a mean score of 2.97 and a standard deviation of 0.76, suggesting that the overall performance of the PDU was moderate and fairly consistent across respondents.

3.2 Correlation Analysis

Table 2 shows the correlation between procurement planning components and PDU performance.

Table 2: Correlation Between Procurement Planning and PDU Performance

Variable	PDU Performance	Sig. (2-tailed)
Needs Assessment	0.746**	0.000
Market Research	0.623**	0.000
Budget Allocation	0.698**	0.000
Procurement Scheduling	0.671**	0.000
Overall Procurement Planning	0.782**	0.000

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

Source: Primary Data, 2024

The correlation analysis in Table 2 revealed strong, positive, and statistically significant relationships between procurement planning components and PDU performance. Needs assessment exhibited a strong positive correlation with PDU performance ($r = 0.746$, $p < 0.01$), indicating that improvements in needs assessment were associated with better PDU performance (Nelson et al., 2023). Market research also demonstrated a positive and significant relationship with PDU performance ($r = 0.623$, $p < 0.01$), though the strength of this relationship was comparatively lower. Budget allocation showed a strong positive correlation with PDU performance ($r = 0.698$, $p < 0.01$), suggesting that effective financial planning contributed substantially to improved performance outcomes. Procurement scheduling was positively and significantly correlated with PDU performance ($r = 0.671$, $p < 0.01$), implying that timely and well-structured procurement schedules enhanced performance.

3.3 Regression Analysis

Table 3 presents regression results showing the predictive power of procurement planning on performance.

Table 3: Regression Analysis Results

Model	R	R Square	Adjusted R Square	Std. Error
1	0.782	0.612	0.606	0.478

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ISSN: 3006-4384
Vol. 5 Issue 1, January - 2026, Pages: 46-54

Source: Primary Data, 2024

The results indicated that procurement planning had a strong positive correlation with PDU performance ($r=0.782$, $p<0.01$), demonstrating that improved procurement planning was associated with enhanced performance outcomes. The regression analysis revealed that procurement planning accounted for 61.2% of the variance in PDU performance ($R^2=0.612$), indicating that other factors contributed 38.8% to performance variations.

ANOVA Results

Variable	β	t	Sig.
Needs Assessment	0.456	5.234	0.000
Budget Allocation	0.387	4.612	0.000
Procurement Scheduling	0.324	3.871	0.001

Source: Primary Data, 2024

Among procurement planning components, needs assessment emerged as the strongest predictor ($\beta=0.456$, $p<0.001$), followed by budget allocation ($\beta=0.387$, $p<0.001$) and procurement scheduling ($\beta=0.324$, $p<0.01$).

Qualitative findings corroborated these results. Key informants emphasized that inadequate needs assessment led to emergency procurements, disrupting planned activities and increasing costs. One procurement officer noted that "when user departments fail to accurately forecast their needs, we end up with rushed procurements that compromise quality and value for money." Regarding budgeting, respondents indicated that realistic budget allocations enabled better supplier engagement and reduced contract variations. Institute directors reported that improved procurement scheduling enhanced research program predictability and resource utilization.

4.0 Conclusions

The study concluded that procurement planning significantly influenced the performance of the Procurement and Disposal Unit at NARO. The strong positive relationship ($r=0.782$) and substantial variance explained (61.2%) demonstrated that procurement planning was a critical determinant of procurement outcomes. Specifically, needs assessment emerged as the most influential component, highlighting the importance of accurate demand forecasting in procurement effectiveness. Budget allocation and procurement scheduling also contributed significantly to performance, underscoring the need for comprehensive planning that addressed financial and temporal dimensions.

The moderate performance levels observed (Mean=2.97) suggested that while NARO had procurement planning mechanisms in place, their implementation and effectiveness required strengthening. The gaps in market research (Mean=2.64) indicated missed opportunities for supplier intelligence and competitive pricing. The findings aligned with procurement management theory, which posited that strategic planning created value through resource optimization, risk mitigation, and stakeholder alignment.

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The study also revealed that external factors including regulatory compliance requirements, organizational culture, and management support influenced the procurement planning-performance relationship. However, the strong direct relationship observed confirmed that improving procurement planning remained a viable pathway to enhanced PDU performance regardless of contextual challenges.

5.0 Recommendations

Based on the study findings, the following recommendations were proposed:

5.1 Institutionalization of Comprehensive Procurement Planning

NARO should develop and enforce a standardized procurement planning framework that integrated needs assessment, market analysis, budgeting, method selection, and scheduling. This framework should be aligned with the organization's strategic plan and operationalized through clear guidelines, templates, and timelines. Annual procurement plans should be developed participatively with input from all research institutes and approved by management before budget execution.

5.2 Capacity Building for Procurement Planning

The organization should invest in systematic capacity development for procurement staff and user departments. Training programs should cover needs forecasting techniques, market intelligence gathering, and budget estimation, procurement scheduling, and planning software applications. Exchange programs with high-performing institutions could provide exposure to best practices in procurement planning.

5.3 Implementation of Automated Procurement Planning Systems

NARO should adopt integrated procurement management information systems that automated planning processes, facilitated real-time tracking, and generated performance analytics. Such systems would improve coordination between technical and procurement staff, enhance transparency, and enable evidence-based decision-making. The system should interface with financial management systems to ensure budget-procurement alignment.

5.4 Strengthening Needs Assessment Processes

Given that needs assessment emerged as the strongest predictor of performance, NARO should establish robust mechanisms for demand forecasting. This could include mandatory quarterly needs assessment exercises, technical committees to validate user requirements, and historical consumption analysis to improve forecasting accuracy. User departments should be held accountable for the accuracy and timeliness of their needs submissions.

5.5 Enhancing Monitoring and Evaluation

A comprehensive monitoring and evaluation framework should be established to track procurement planning effectiveness and performance outcomes. Key performance indicators should be defined, baseline data established, and regular performance reviews conducted. Feedback mechanisms should enable continuous improvement in planning practices.

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Metropolitan Journal Of Academic Multidisciplinary Research

ISSN: 3006-4384

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Received: 02.01.2026 **Accepted: 08.01.2026** **Published on: 30.01.2026**