

# Determinants and Performance of Regional Development Planning: Evidence from Nduga Regency

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## Abstract

**Purpose:** This study examines the factors influencing regional development planning performance in Nduga Regency, focusing on the contribution of planning document consistency, integration, and quality (RPJMD, RKPD, Renstra OPD, and Renja) to overall performance.

**Research Methodology:** A quantitative approach was used, with primary data collected through structured questionnaires from 56 respondents across 28 regional government organizations in Nduga Regency. Data were analyzed using structural equation Modelling (SEM-PLS) with WarpPLS 8.0 software.

**Results:** Internal factors—document quality, process effectiveness, resource commitment, and implementation readiness—had a significant positive effect on planning performance ( $P < 0.01$ ;  $R^2 = 0.608$ ;  $f^2 = 0.608$ , large effect). External factors had a positive but non-significant effect ( $P = 0.08$ ;  $R^2 = 0.179$ ;  $f^2 = 0.179$ , medium effect). Planning document consistency and quality contribute significantly to performance but underperform because of a disconnect between planning documents and budgeting instruments.

**Conclusions:** Internal capacity and document alignment are key determinants of planning performance. Despite challenges such as geographical isolation and security disruptions, the main issue lies in limited human resource competence and weak coordination between planning and budgeting in the health sector.

**Limitations:** The study's sample size is relatively small, consisting of only 56 respondents from 28 regional government organizations, which may limit the generalizability of the findings of this study. Additionally, the research focuses solely on Nduga Regency, a single urban area, and may not fully reflect the diverse challenges faced by other regions in the country. The study also did not account for potential biases in the data collection process, such as respondent perception or external variables not included in the model.

**Contribution:** This is the first SEM-PLS study on regional planning performance in Nduga Regency, offering insights into the impact of internal constraints on planning in such regions.

**Keywords:** *Decentralisation, Internal Factors, Nduga Regency, Papua, Planning Performance, Regional Development Planning, RPJMD, RKPD, SEM-PLS*

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## 1. Introduction

Indonesia's transition from a highly centralized New Order state to a decentralized governance system represents one of the most ambitious institutional transformations in the history of modern Southeast Asia. The enactment of Law No. 22 of 1999 on Regional Governance, subsequently revised by Law No. 23 of 2014, devolved extensive planning, budgeting, and administrative responsibilities to provincial, regency, and city governments across the archipelago. The core ambition of this reform was to bring the government

closer to citizens, accelerate context-sensitive development, and foster local democratic accountability ([Talitha, Firman, & Hudalah, 2020](#); [Wajdy, Warsono, Yuwono, & Herawati, 2025](#)).

However, more than two decades of decentralization have produced uneven results. While several regions have leveraged their new autonomy to innovate and improve service delivery, many others, particularly in geographically remote and institutionally under-resourced areas, continue to struggle with coordination failures, fiscal dependency, and inadequate planning capacity. National laws mandate elaborate multi-year planning document hierarchies from the long-term regional plan (RPJPD) through the medium-term plan (RPJMD) to the annual work plan (RKPD) and agency-level plans (Renstra OPD and Renja) to be prepared. However, empirical evidence consistently reveals significant gaps between document preparation and substantive implementation ([Indrijantoro, Irwansyah, & Fahriyah, 2024](#); [Khalik, Alam, & Jamil, 2025](#)).

Nduga Regency in the Papua Highlands Province exemplifies these challenges in their most acute form. The regency is characterized by extreme mountainous topography, severely limited transport infrastructure, near-total dependence on central fiscal transfers, persistent security disturbances, and low institutional capacity across its twenty-eight urban OPDs. Unlike most comparable studies conducted in relatively accessible, institutionally developed regencies, Nduga represents a frontier context where the standard conditions assumed by decentralization theory do not hold. Planning documents are formally prepared on schedule, but their substantive quality is constrained by low human resource competence, fragmented agency proposals, and chronic disconnection between the RKPD and the budgeting instruments that are supposed to operationalize it ([Bhimasta, Surya, & Pramudita, 2025](#); [Suardiyanti, Aripin, & Widnyani, 2025](#)).

This study addresses two specific research questions: (1) To what extent do internal and external factors influence regional development planning performance in Nduga Regency? (2) How do the consistency, integration, and quality of planning documents (RPJMD, RKPD, Renstra OPD, and Renja) contribute to planning performance? These questions are addressed through a quantitative SEM-PLS analysis of data from 56 respondents across 28 OPDs, which is the first study of this kind in Nduga. This study makes three contributions. Empirically, it provides quantitative evidence of planning performance determinants in one of Indonesia's most challenging governance environments. Theoretically, it tests decentralization theory in a frontier context, revealing the primacy of internal capacity over external factors. Practically, it generates specific evidence-based recommendations for policymakers seeking to improve planning effectiveness in Nduga. The remainder of this paper is organized as follows. Section 2 reviews the relevant theoretical and empirical literature on the topic. Section 3 presents the research methodology used in this study. Section 4 reports the empirical findings of this study. Section 5 discusses the findings in relation to the existing literature and their policy implications. Section 6 concludes with the key findings, limitations, and directions for future research.

## **2. Literature Review and Hypothesis/es Development**

### ***2.1 Decentralisation Theory and Regional Development Planning***

Decentralization, the transfer of authority, responsibility, and resources from the central to the sub-national levels of government, rests on a foundational proposition in public administration theory: locally informed governments are better positioned than remote central authorities to identify community needs, allocate resources efficiently, and deliver responsive services ([Pratama, Frinaldi, Naldi, & Magriasti, 2025](#); [Rahman & Apriyanti, 2024](#)). The theoretical literature distinguishes three principal forms of decentralisation: deconcentration (administrative delegation within the central government hierarchy), delegation (transfer of management responsibility to semi-autonomous agencies), and devolution (the fullest form, granting sub-national units genuine decision-making autonomy) ([Abdullah, 2005](#)).

Fiscal decentralization, a critical dimension of Indonesian reform, is expected to improve resource allocation efficiency, stimulate economic growth, and enhance vertical accountability ([Syarief & Maulana, 2019](#)). However, its effectiveness is heavily conditioned by institutional prerequisites: adequate human resource capacity, robust intergovernmental coordination mechanisms, effective financial management systems, and supportive political environments ([Ayamiseba, Hutajulu, & Marlissa, 2025](#); [Edi & Tjenreng, 2025](#)). Where these prerequisites are absent, as they are in geographically isolated, institutionally limited

regions like Nduga, decentralization may produce not empowerment but institutional overload: local governments suddenly bear planning, budgeting, and implementation responsibilities for which they lack the technical and administrative foundations ([Junita, Animah, & Mariadi, 2022](#)). Indonesia's historical experience with decentralization reinforces this concern. The parliamentary era experiments of the 1950s, characterized by [Habibani, Frinaldi, Hendranaldi, and Magriasti \(2025\)](#) as 'pseudo-decentralization,' demonstrated that formal legislative autonomy without institutional capacity, financial independence, and political stability tends to produce hollow devolution. Contemporary Nduga Regency echoes this pattern: formally compliant with planning norms but substantively limited in translating those norms into developmental outcomes.

## **2.2 Regional Development Planning in Indonesia: Framework and Instruments**

Law No. 25 of 2004 on the National Development Planning System (SPPN) establishes a comprehensive legal and procedural framework for development planning in Indonesia. It mandates a hierarchical planning architecture spanning five instruments at the regional level: the twenty-year long-term regional development plan (RPJPD), the five-year medium-term plan (RPJMD), the annual regional work plan (RKPD), agency strategic plans (Renstra OPD), and agency work plans (Renja). Together, these documents are expected to provide cascading policy coherence from a long-term vision through annual operational programming. The participatory planning forum (Musrenbang) serves as the principal institutional mechanism for integrating community aspirations into regional planning. Mandated at the village, sub-district, regency, and provincial levels, Musrenbang forums are designed to translate bottom-up needs into program priorities, which are then reconciled with top-down policy directives from higher-level plans. [Wajdy et al. \(2025\)](#) observe, however, that in practice Musrenbang forums are frequently dominated by government officials, limiting genuine citizen participation and producing outcomes that reflect bureaucratic preferences more than community needs.

Regulatory guidance has progressively strengthened the quality requirements of planning. Government Regulation No. 8 of 2008 (superseded by Permendagri No. 86 of 2017) established detailed technical procedures for planning document preparation, monitoring, and evaluation. The Government Information System for Regional Government (SIPD), mandated by Instruksi Mendagri No. 2 of 2025, is progressively being integrated into regional planning processes, although implementation challenges persist in remote regions ([Bajo & Zuhdan, 2025](#)). A critical structural weakness in the Indonesian planning system is the disconnection between planning and budgeting instruments. The RKPD, an annual planning document, is formally expected to serve as the primary reference for the General Budget Policy (KUA) and Temporary Budget Ceiling (PPAS) documents that govern APBD preparation. In practice, as documented across multiple regions, the RKPD is frequently set aside at the KUA-PPAS stage under the influence of short-term political dynamics and sectoral interests, breaking the logical chain from the plan to the budget to the expenditure ([Indrijantoro et al., 2024](#); [Patra & Rusli, 2023](#)).

## **2.3 Internal and External Determinants of Planning Performance**

The literature identifies two broad categories of factors that shape regional development planning performance. Internal factors encompass elements within the organization's direct control: the quality and comprehensiveness of planning documents, effectiveness of planning processes, commitment of leadership and staff, competence of human resources, and readiness of implementation systems. External factors encompass conditions in the organization's operating environment: the magnitude and reliability of fiscal transfers, availability of external technical expertise, quality and timeliness of data from central agencies, and stability of the socio-political environment ([Ndoen, 2025](#)).

In the comparative literature, internal factors consistently emerge as the dominant determinants of planning performance. [Adam, Kelana, and Akadira \(2024\)](#) find that in Gayo Lues Regency, inadequate HR with planning expertise and imbalanced workloads are the primary barriers to effective RKPD preparation. [Rukmana, Nurmasakina, Hilmahera, Rahmawati, and Wahyunadi \(2025\)](#) demonstrated that organizational culture, motivation, and training collectively account for 72.2% of the variance in Bappeda staff performance. [Khalik et al. \(2025\)](#) document that in Makassar's smart city program, planning consistency, particularly the alignment of budget allocations with performance targets, falls below 100% due to internal coordination failures. [A. G. Putri \(2024\)](#) finds that the 'follow-through guarantee' dimension ensuring that

planning documents actually guide implementation contributes 34.81% to the Planning Quality Index, the single largest component.

External factors, while real, tend to operate as moderators rather than direct determinants of planning performance in the Indonesian context. Fiscal dependency on central transfers constrains local budgetary autonomy [Akadun \(2024\)](#) and [Dharmawati, Muhandiana, and Aprisilia \(2024\)](#), and inconsistent or delayed data from central agencies hamper evidence-based planning. Socio-political instability particularly salient in conflict-affected regions like Nduga can disrupt planning processes and undermine the credibility of multi-year commitments. However, when internal capacity is severely limited, the leverage that external improvements can provide is inherently restricted.

#### 2.4 Planning Performance: Dimensions and Assessment Frameworks

Planning performance in the public sector is a multidimensional construct encompassing the quality of the planning process itself, the quality and consistency of planning documents, and the ultimate developmental outcomes achieved through plan implementation. [Sultoni, Anggraeni, Shafira, Hermawan, and Ramdani \(2024\)](#) applied Dunn's six criteria—effectiveness, efficiency, adequacy, equity, responsiveness, and appropriateness—to assess planning performance, while [Qisthi and Pandoyo \(2024\)](#) applied the same framework to monitoring and evaluation, specifically finding an average performance of 3.8 out of 5.0 in Bekasi City. The Planning Quality Index (IKP), developed and applied by [A. G. Putri \(2024\)](#) in Berau Regency, provides a comprehensive instrument that integrates three dimensions: the planning document preparation process (weight: 19.69%), document content quality (26.79%), and follow-through guarantee (34.81%). This framework underscores a key insight: document preparation and content quality, while necessary, are insufficient without robust mechanisms to ensure that planning commitments are translated into budgetary and programmatic action.

A critical distinction in the literature is between formal compliance and substantive performance. Numerous studies find that regional governments are formally compliant with planning norms documents are produced on time, Musrenbang forums are convened, and hierarchical document chains are formally maintained while simultaneously failing on substantive dimensions: documents are internally inconsistent, not grounded in rigorous analysis, not coherently linked to budgets, and not systematically monitored and evaluated ([Aliyevna, 2025](#)). This distinction between formal and substantive planning performance is central to the present study's analysis of Nduga Regency.

#### 2.5 Prior Empirical Studies: Summary

Table 1 summarizes the key prior empirical studies on regional development planning performance in Indonesia that inform this study.

Table 1. Summary of prior empirical studies on regional development planning performance in Indonesia

Author (Year)	Location / Focus	Method	Key Finding
<a href="#">Khalik et al. (2025)</a>	Makassar City Smart City Planning	Descriptive quantitative (value for money)	Planning is economical and efficient but not effective; consistency of targets is below 100%.
<a href="#">A. M. Putri and Bataha (2024)</a>	Sidoarjo Regency RPJMD Formulation	Qualitative descriptive	Bappeda performance met five indicators: productivity, service quality, responsiveness, and accountability.
<a href="#">Aburaera (2023)</a>	Makassar City Bappeda Performance	Descriptive qualitative	Bappeda coordinated well with stakeholders, but the self-assessment was subjective.
<a href="#">Qisthi and Pandoyo (2024)</a>	Bekasi City Monitoring & Evaluation	Qualitative (Dunn's six criteria)	Monitoring performance score 3.8/5 (adequate) and requires further optimization.

<a href="#">Nisa, Bahri, and Nurkaidah (2025)</a>	Makassar City Stunting Money	Qualitative descriptive	Five key factors were identified: data availability, leader commitment, IT use, cross-sector coordination, and community participation.
<a href="#">Panggabean, Dalimunthe, Ramli, Magdalena, and Lingga (2023)</a>	Medan City Bappeda Performance	Qualitative (BPS data)	Good performance prior to COVID-19; decline in the last two years due to the pandemic.
<a href="#">A. G. Putri (2024)</a>	Berau Regency Planning Quality Index	Evaluative	The follow-through dimension contributed 34.81%, document content 26.79%, and preparation process 19.69%.
<a href="#">Adam et al. (2024)</a>	Gayo Lues Regency — RKPD Process	Qualitative evaluative	Internal factors (low HR and imbalanced workload) are the primary performance barriers.

The comparative literature reveals several consistent themes.

- 1) Planning performance is predominantly shaped by internal organizational factors
- 2) Formal compliance does not guarantee substantive effectiveness
- 3) The planning–budgeting linkage is the most common point of failure across regions
- 4) Human resource capacity, particularly technical competence in performance-based planning, was the most frequently identified internal constraint. These themes are directly relevant to the Nduga context but have not been empirically tested through quantitative methods in this extreme governance environment.

### 3. Methodology

#### 3.1 Research Design and Study Site

This study adopts a quantitative research design employing structural equation Modelling based on Partial Least Squares (SEM-PLS). The quantitative approach is appropriate because the study tests specified causal hypotheses about the relationships among internal factors, external factors, and planning performance relationships that require the statistical estimation of path coefficients, effect sizes, and explained variance. SEM-PLS was specifically chosen because it is suitable for small to medium samples, does not require multivariate normality assumptions, and can simultaneously model multiple relationships among latent constructs ([Ghozali & Latan, 2015](#)).

The study site was Nduga Regency, located in the Papua Highlands Province (Provinsi Papua Pegunungan), Indonesia. The regency covers an extensive mountainous territory accessible almost exclusively by air, experiences persistent security disturbances from armed conflict, and has one of the lowest human development index scores among all Indonesian regencies. The regional government comprises 59 OPDs, of which 28 are located in and around the regency capital (Distrik Kenyam) and are thus accessible for research purposes. Data collection will be conducted in March 2026.

#### 3.2 Population, Sampling, and Respondents

The study population comprised all heads of sub-divisions for planning (Kepala Sub Bagian Program) and relevant heads of divisions or agencies (Kepala OPD/Kepala Bidang) across the 59 OPDs of Nduga Regency. Given the regency's extreme geographic inaccessibility, purposive sampling was applied, restricting the study to the 28 OPDs based in the regency capital, where the fieldwork was feasible. Two respondents per OPD were selected: the OPD Head and the Planning Sub-Division Head, yielding a total of 56 respondents. For several larger or more complex agencies (including the Regional Secretariat, Bappeda, BPKAD, and the Inspectorate), additional respondents holding specific planning-relevant positions were included, consistent with sampling criteria. The sample provides a high-quality, expert perspective on planning performance: 83.33% of respondents held undergraduate (S1) or postgraduate degrees, 63.33% had more than 15 years of experience as civil servants (ASN), and the majority were aged

over 45. This demographic profile confers credibility to the respondents' assessments of the planning system in which they have operated for extended periods.

### 3.3 Research Variables and Instruments

Table 2. Research variables, dimensions, and indicators

Variable	Dimension	Indicator
Internal Factors ( $X_1$ )	Document Quality	Completeness, regulatory compliance, measurable indicators, strategic analysis depth
	Process Effectiveness	Participatory planning, Musrenbang quality, inter-agency coordination
	Resource Commitment	Human resource capacity, technical competence, budget adequacy
	Implementation Readiness	Budget linkage (RKPD–APBD), monitoring & evaluation system
External Factors ( $X_2$ )	Fiscal Dependency	Reliance on central transfers, PAD vulnerability, fiscal space
	External Human Resources	Availability of planning experts in regional labour market
	Data Environment	Timeliness and consistency of data from central agencies
	Socio-political Dynamics	Security conditions, political intensity, social stability
Planning Performance ( $Y$ )	Document Performance	Consistency of RPJMD → RKPD → Renstra → Renja hierarchy
	Process Performance	Planning cycle adherence, Musrenbang integration
	Output Performance	Programme achievement, budget realisation, target attainment

All constructs were measured using reflective indicators on a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The internal factors construct ( $X_1$ ) encompasses four dimensions: document quality, process effectiveness, resource commitment, and implementation readiness, operationalized through nine indicators. The external factors construct ( $X_2$ ) encompasses four dimensions: fiscal dependency, external human resources, data environment, and socio-political dynamics, measured through ten indicators. The planning performance construct ( $Y$ ) was measured through twenty-nine indicators spanning document, process, and output performance.

### 3.4 Analytical Procedures

Data analysis was performed using the WarpPLS 8.0 software. The analysis was conducted in two stages. In the first stage, outer model evaluation assessed the reliability and validity of the measurement model through convergent validity (loading factors > 0.6; AVE > 0.5), discriminant validity (cross-loadings and HTMT ratio < 0.90), composite reliability (> 0.70), and Cronbach's alpha (> 0.60). In the second stage, inner model evaluation assessed the structural relationships through path coefficients ( $\beta$ ), R-squared ( $R^2$ ), adjusted  $R^2$ , effect sizes ( $f^2$ ), and  $Q^2$  predictive relevance. Hypothesis testing was performed using a significance threshold of  $P < 0.05$ .

## 4. Results and Discussion

### 4.1 Results

#### 4.1.1 Measurement Model (Outer Model) Assessment

All indicators passed the convergent validity threshold (loading factors exceeded 0.6 for all items; AVE exceeded 0.5 for all constructs). Composite reliability values exceeded 0.70, and Cronbach's alpha values exceeded 0.60 across all three constructs, confirming reliability. Discriminant validity was established through cross-loading analysis and HTMT ratios below 0.90, confirming that the three constructs measured

empirically distinct phenomena. Therefore, the measurement model provides a valid and reliable basis for structural model testing.

#### 4.1.2 Structural Model (Inner Model) and Hypothesis Testing

Table 3. Hypothesis testing result direct effects

H	Relationship	Path Coefficient ( $\beta$ )	P-Value	f <sup>2</sup>	Decision
H <sub>1</sub>	Internal Factors → Planning Performance	Positive (>0)	<0.01	0.608 (Large)	Accepted
H <sub>2</sub>	External Factors → Planning Performance	Positive (>0)	=0.08	0.179 (Medium)	Rejected

H<sub>1</sub>, which states that internal factors exert a direct positive effect on planning performance, is accepted with high significance (P<0.01). The positive path coefficient confirms that improvements in internal factors are associated with improvements in the planning performance. H<sub>2</sub>, which states that external factors exert a direct positive effect on planning performance, was not supported. Although the path coefficient was positive, the effect did not reach statistical significance (P=0.08, exceeding the 0.05 threshold).

#### 4.1.3 Explained Variance and Effect Sizes

Table 4. R-squared contributions and effect sizes

Predictor	R <sup>2</sup> Contribution	Effect Size (f <sup>2</sup> )	Category
Internal Factors (X <sub>1</sub> )	0.608	0.608	Strong / Large
External Factors (X <sub>2</sub> )	0.179	0.179	Weak / Medium

Internal factors explained 60.8% of the variance in planning performance (R<sup>2</sup>=0.608), a contribution classified as strong in the WarpPLS categorization scheme ( $\geq 0.45$  = moderate; approaching  $\geq 0.70$  = strong). The effect size of 0.608 falls into the 'large' category ( $\geq 0.35$ ), indicating a practically significant and substantial impact on the results. External factors contributed only 17.9% of the explained variance (R<sup>2</sup>=0.179), classified as weak ( $< 0.25$ ), with a medium effect size (0.179,  $\geq 0.15$ ). The combined model explained approximately 78.7% of the total variance in planning performance. The stark contrast between the two predictors, internal factors explaining more than three times the variance of external factors, with a large versus medium effect size, constitutes the study's central empirical finding. Internal organisational capacity is not merely statistically significant; it is the dominant practical driver of planning performance in Nduga.

#### 4.1.4 Descriptive Findings: Planning Document Consistency and Quality

Analysis of the respondents' evaluations of the quality of planning documents revealed a critical pattern of formal compliance coexisting with substantive fragility. On formal quality dimensions, respondents were broadly positive: 66.67% agreed that planning documents complied with regulatory hierarchies and requirements, and 70.00% agreed that performance targets and indicators in documents were measurable and clear. However, on substantive quality dimensions, the picture was considerably weaker. The most revealing finding concerns budget linkage: only 46.67% of respondents agreed that planning documents are coherently linked to budgeting instruments, while 26.67% were neutral, expressing significant doubt about whether the RKPD actually guides APBD preparation. Similarly, while 66.67% agreed that monitoring and evaluation systems support planning implementation, 6.67% actively disagreed, and 10.00% were neutral. Regarding strategic environmental analysis, which is the analytical foundation of robust planning, some respondents noted that depth was insufficient.

Regarding external factors, respondents confirmed high fiscal dependency (50.00% strongly agreed that the regency was heavily reliant on central transfers; 43.33% strongly agreed that local own-source revenue was vulnerable to economic and policy changes). Regarding socio-political conditions, 70.00% acknowledged high-intensity political dynamics, and 20.00% disagreed that the security environment supports planning processes, a direct reflection of the armed conflict conditions that intermittently disrupt Nduga's governance.

## 4.2 Discussion

### 4.2.1 The Primacy of Internal Factors in a Frontier Governance Context

The finding that internal factors exert a dominant, statistically significant effect ( $R^2=0.608$ ,  $f^2=0.608$ ,  $P<0.01$ ), while external factors are not significant ( $P=0.08$ ), carries important theoretical and practical implications. Theoretically, this challenges a common assumption in the decentralization literature that frontier regions' planning failures are primarily attributable to external constraints, such as physical inaccessibility, conflict, resource insufficiency, and policy inconsistency from the center. While these external constraints are empirically real and operationally disruptive in Nduga, they do not constitute the primary statistical explanation for variations in planning performance. Instead, the data point to internal organizational capacity as a binding constraint. This finding aligns with [Adam et al. \(2024\)](#), who identified the shortage of qualified planning HR and disproportionate workloads as the primary internal barriers in Gayo Lues; with [Gumiwa et al. \(2024\)](#), who found that organisational culture, motivation, and training account for 72.2% of performance variance in Bappeda; and with the theoretical arguments of [Junita et al. \(2022\)](#) and [Rahman and Apriyanti \(2024\)](#), who argue that decentralisation without institutional capacity generates not enhanced governance but institutional overload.

The specific internal pathologies most evident in Nduga include the following:

- 1) Limited technical competence among planning staff in performance-based planning methodologies, despite relatively high formal educational credentials and long service tenure
- 2) Inadequate understanding across many OPDs of RKPD's function as a binding policy instrument rather than a compliance document
- 3) Weak intra-governmental coordination, particularly through the Regional Government Budget Team (TAPD), whose role in ensuring RKPD–KUA–PPAS–APBD consistency is insufficiently assertive; and (4) insufficient analytical depth in strategic environmental analysis, which constrains the evidence base for priority setting.

The non-significance of external factors does not imply that external conditions are irrelevant; the descriptive findings confirm that high fiscal dependency, socio-political volatility, and data access limitations are real operational constraints. Rather, it implies that in Nduga's context, these external constraints are not the primary source of variance in planning performance. Central transfers and national policy commitments are available, but the regency's internal limitations prevent their optimal utilization. This is precisely what [Junita et al. \(2022\)](#) describe as the 'institutional overload' paradox of rapid decentralization: autonomy without capacity.

### 4.2.2 The Planning Budgeting Disconnect: From Potential to Actual Performance

The second major finding, that planning document consistency and quality contribute substantially as potential performance drivers but fall short as actual performance drivers, reveals a critical bottleneck in Nduga's planning system. Formally, Nduga's planning documents are prepared on schedule and comply with regulatory requirements. Substantively, however, they function as administrative artifacts rather than governance instruments, as they are displaced from their intended role as the primary reference for budgetary allocation decisions. The mechanism of this displacement is the frequent and undocumented alteration of RKPD priorities at the KUA-PPAS stage of the KUA-PPAS. Priorities agreed upon through Musrenbang and formally adopted in the RKPD are modified under the influence of short-term sectoral pressures and political dynamics, without the systematic evaluation-based justification required by Permendagri No. 86 of 2017. The consequence is multi-layered: the RKPD loses credibility as a binding instrument; OPDs rationally invest less effort in quality RKPD preparation; programme continuity across years is disrupted; and cumulative underachievement of development targets perpetuates the cycle.

This pattern resonates strongly with [Khalik et al. \(2025\)](#) finding of poor planning consistency in Makassar's smart city programme and [Indrijantoro et al. \(2024\)](#) characterisation of RKPD as an instrument that 'should be carefully reviewed by regional inspectorates to ensure quality and alignment between RPJMD and annual plans.' The critical institutional gap in Nduga is precisely the absence of effective oversight and accountability mechanisms that would enforce a planning–budgeting linkage. [A. G. Putri \(2024\)](#) Planning Quality Index finding that the follow-through guarantee dimension contributes the largest share (34.81%) to planning quality is particularly instructive for Nduga. Even if document preparation quality (19.69%)

and document content quality (26.79%) were substantially improved, planning performance would remain limited without the 'follow-through guarantee' that planning commitments actually translate into budgeted and implemented programmes. Therefore, Nduga's priority must be to establish enforceable institutional, regulatory, and political mechanisms to maintain the RKPD's integrity through the budgeting cycle.

#### *4.2.3 Decentralisation Theory: Frontier Evidence*

This study extends decentralization theory by providing quantitative frontier evidence that challenges the assumption of external environmental primacy. Classical decentralization arguments, as synthesized by [Rahman and Apriyanti \(2024\)](#), posit that decentralized governments deliver superior outcomes because they possess local knowledge and are directly accountable to local constituents. However, these advantages presuppose minimum levels of institutional capacity. Below this threshold, the informational and accountability advantages of decentralization cannot be realized, and the dominant constraint shifts from external governance design to internal organizational capacity.

Nduga Regency is clearly below this threshold. The combined effect of geographic isolation, conflict disruption, HR limitation, and planning–budgeting disconnect creates what Nduga's planners themselves describe as a 'vicious circle': weak planning capacity produces poor quality RKPD; poor quality RKPD is easily displaced by political pressures at the KUA-PPAS stage; displacement erodes planning credibility; eroded credibility reduces planning effort; and reduced planning effort perpetuates weak capacity. Breaking this cycle requires not incremental improvement within existing institutional arrangements but deliberate, sustained, and externally supported institutional reform.

The non-significance of external factors is also consistent with [Akadun \(2024\)](#) pseudo-decentralization' concept applied to the contemporary context: when fiscal transfers are available but internal absorptive capacity is insufficient, the devolution of financial resources does not translate into developmental performance. Nduga receives substantial central transfers, confirmed by 50.00% of respondents who strongly agree on fiscal dependency; however, these resources are not optimally planned, coordinated, or monitored due to internal limitations. This finding reframes the policy problem from insufficient central support to insufficient local capacity to utilize the available central support.

#### *4.2.4 Policy Implications: Five Strategic Priorities*

The study's findings translate into five interconnected strategic priorities for improving planning performance in Nduga Regency. First, human resource capacity building must be a foundational intervention. Systematic and sustained training in performance-based planning methodology, regulatory compliance, indicator development, and evidence-based analysis is essential for planning staff across OPDs. Partnerships with Universitas Cenderawasih and national planning training institutions (Pusdiklat), supplemented by secondment programs from more experienced regional governments, would provide structured capacity development pathways.

Second, the planning–budgeting linkage must be strengthened institutionally. A specific mechanism, such as a formal cross-reference matrix requiring every KUA-PPAS line item to cite its corresponding RKPD programme and activity, would make the linkage transparent, auditable, and politically defensible. The Regional Inspectorate, in collaboration with Bappeda, should be mandated and empowered to conduct systematic RKPD–KUA-PPAS consistency reviews before budget approval, with deviation reports submitted to the Regional People's Legislative Council (DPRD).

Third, the Regional Government Budget Team (TAPD) should be revitalized. As the institutional coordinator of planning–budgeting integration, TAPD's effectiveness in Nduga is currently insufficient to prevent arbitrary priority revisions at the KUA-PPAS stage. Clearer operational protocols, stronger Bappeda leadership within TAPD, and regular performance audits of TAPD processes would strengthen its gatekeeping function.

Fourth, data management systems must be improved to ensure data quality. The SIPD should be progressively expanded across all Nduga OPDs, with technical assistance to ensure that data quality, timeliness, and accessibility meet the requirements for evidence-based planning. Central agencies should

be engaged through provincial coordination channels to ensure timely data provision for RKPD preparation and implementation.

Fifth, the monitoring, evaluation, and accountability systems must be strengthened. Moving from periodic, report-based monitoring to real-time performance tracking, facilitated by SIPD integration, would provide early warning signals of implementation deviations, enabling corrective action within rather than across planning cycles. Community-based social accountability mechanisms, including public reporting on RKPD implementation progress, would provide external accountability pressure to complement internal monitoring systems.

## **5. Conclusions**

### **5.1 Conclusion**

This study provides the first quantitative SEM-PLS analysis of regional development planning performance in Nduga Regency, one of Indonesia's most geographically isolated and institutionally challenging governance environments. The central finding is unambiguous: internal factors comprising planning document quality, process effectiveness, resource commitment, and implementation readiness are the dominant and statistically significant determinants of planning performance ( $R^2=0.608$ ,  $f^2=0.608$ ,  $P<0.01$ ). External factors, while positive in direction, did not reach statistical significance ( $P=0.08$ ) and explained only 17.9% of the performance variance.

The secondary finding that planning document consistency and quality contribute substantial potential to performance but have not yet become actual performance drivers reveals the planning–budgeting disconnect as a critical structural vulnerability. Documents are formally compliant, but their authority is undermined by the persistent alteration of RKPD priorities at the KUA-PPAS budgeting stage, driven by short-term political dynamics rather than systematic evaluation. This disconnect is the operational manifestation of the same internal weakness identified by the quantitative model: inadequate HR competence, weak coordination, and insufficient institutional enforcement of planning commitments.

These findings extend decentralization theory by demonstrating that in frontier governance contexts, where institutional capacity falls below the minimum threshold for autonomous planning, external environmental conditions, however challenging, are secondary to internal organizational capacity as determinants of planning performance. The policy implication is correspondingly clear: improving Nduga's planning performance requires sustained, multi-year investments in human resource capacity, institutional coordination mechanisms, and planning–budgeting integration tools. External policy interventions, however well-designed, will not achieve their intended impact until these internal foundations are in place.

### **5.2 Research Limitations**

Several limitations constrain the interpretation and generalizability of these findings. The purposive sample of 56 respondents from 28 OPDs, while appropriate for the study's qualitative purposive logic, does not permit probabilistic statistical inference to the full Nduga OPD population or other frontier regencies. The study was conducted at a single point in time, precluding causal inferences regarding the temporal dynamics of the identified relationships. The restriction of the sample to OPDs based in the regency capital, while operationally necessary, excludes planning actors in the regency's more remote districts, whose experiences may differ substantially. Finally, while SEM-PLS is suited to small samples, larger samples in future research would increase the statistical power and model stability.

### **5.3 Suggestions and Directions for Future Research**

Four priority directions for future research have emerged from this study. First, longitudinal studies tracking planning performance before and after the implementation of the recommended institutional reforms would provide evidence of the effectiveness of specific interventions. Second, comparative multi-site studies across other frontier regencies in Papua and Eastern Indonesia would establish whether the primacy of internal factors is specific to Nduga or generalizable across the frontier governance context. Third, qualitative process tracing of the KUA-PPAS revision process, examining the specific political and institutional dynamics through which RKPD priorities are displaced, would provide the micro-level evidence needed to design effective enforcement mechanisms. Fourth, community welfare impact studies

linking planning performance to developmental outcomes would establish the ultimate policy stakes: whether improvements in planning quality translate into measurable improvements in human development indicators for the Nduga population.

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### Author Contributions

HU contributed significantly to the conceptualization, methodology, data analysis, and interpretation of the results. He was the lead author, responsible for drafting and finalizing the manuscript. ERM contributed to the research design, data collection, and analysis, particularly in formulating the research questions and literature review. TPU assisted in the methodology and provided valuable input during the data analysis phase. He also helped revise the manuscript and ensured the clarity of the findings.

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