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The Effect of Regional Financial Ratios on Budget Implementation Performance: An Empirical Study of Districts/Cities in Indonesia for the Period 2018-2023

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Abstract

This study examines the influence of regional financial ratios on budget implementation performance in Indonesian local governments within the framework of fiscal decentralization. Using the Stewardship Theory as a theoretical foundation, we analyze how fiscal independence and financial efficiency affect the ability of districts/municipalities to translate budget plans into concrete programs. This study used panel data from 250 districts/cities throughout Indonesia for the period 2018-2023, resulting in 1,500 balanced observations. This analysis uses a Fixed Effects Model to control for unobserved regional heterogeneity. The results reveal a counterintuitive finding: the fiscal independence ratio does not significantly affect the performance of budget implementation (coefficient = 0.008380, $p = 0.7395$), contrary to conventional assumptions about fiscal autonomy. In contrast, the financial efficiency ratio showed a strong positive effect on implementation performance (coefficient = 0.193478, $p < 0.001$), suggesting that resource optimization capabilities are more important than resource availability. These findings suggest that effective management in local government is better realized through efficient financial management than revenue-generating autonomy. This study contributes to the fiscal decentralization literature by challenging the assumption of an autonomy-performance link and provides practical implications for policymakers to prioritize capacity building in financial management rather than increasing fiscal independence. The results support a paradigm shift from a quantity-focused approach to a quality-focused approach in regional financial management in Indonesia's decentralized governance system.

Keywords: Budget Implementation, Fiscal Decentralization, Financial Efficiency, Management Theory, Local Government

1. Introduction

1.1 Background of the Problem

Budget implementation performance is an important but underexplored dimension of public sector financial management that measures the government's capacity to translate fiscal commitments into concrete programs (Roni et al., 2021). While extensive research has examined budget planning and final development outcomes, the intermediate implementation phase remains inadequately understood effectiveness of public service delivery. This implementation gap becomes very significant in a decentralized governance system where local governments have substantial autonomy in managing public resources.

Empirical evidence from Indonesian local governments reveals substantial gaps in budget implementation capabilities that challenge conventional theoretical expectations. Analysis of 2018-2023 data shows that the rate of realization of expenditure varies dramatically from 82.8% to 131.0% across districts and cities (Ministry of Home Affairs, 2023). Paradoxically, regions with superior financial capacity do not consistently show better implementation performance. Kutai Kartanegara Regency, despite having minimal fiscal independence (9%) and moderate efficiency (76%), achieved an outstanding implementation performance (131%), while Bogor Regency with substantial fiscal autonomy (70%) only achieved moderate performance (105%).

This counter-intuitive pattern raises fundamental questions about the determinants of effectiveness of budget implementation and suggests that the relationship between regional financial capacity and implementation performance requires systematic investigation. Understanding this relationship has become increasingly urgent with the implementation of Law No. 1/2022 on central-regional financial relations, which fundamentally restructures the fiscal decentralization arrangement (Lewis, 2023).

1.2. Explore the Importance of the Issue

In light of these regulatory changes and the observed empirical puzzles, this study addresses several critical gaps in the public sector financial management literature that demand immediate attention. First, although Indonesia leads global research in the government's internal control system with 397 journal articles, the scientific focus remains concentrated on compliance and auditing rather than implementation effectiveness (Jiang & Chi, 2024). This emphasis on procedural compliance overlooks the fundamental question of whether governments can successfully implement the planned programs successfully.

Second, this issue deserves new research because existing research shows inconsistent results regarding the relationship between financial capacity and performance outcomes. (Dalimunthe et al., 2023) found a negative relationship between fiscal independence and financial reporting accountability in North Sumatra, which contradicted theoretical expectations. Similarly (Sofilda et al., 2023) found that while local income contributes to economic growth, the level of decentralization itself negatively impacts development outcomes in 484 Indonesian districts and cities.

Third, the practical significance of this study is strengthened by Indonesia's post-pandemic fiscal constraints, where optimal utilization of each budget allocation is very important. (IMF, 2022) emphasizes that effective management of public finances requires the implementation of cost-effective budgets, but most existing research ignores this important component. Given that local governments manage substantial public resources and directly affect community welfare, understanding the determinants of implementation has direct policy implications for improving public service delivery and accountability.

This research contributes to resolving theoretical inconsistencies by systematically examining how various dimensions of regional financial capacity simultaneously affect implementation outcomes. This approach addresses the limitations of previous single-ratio studies and provides a comprehensive understanding of the role of financial management in implementation effectiveness.

1.3 Describe the Relevant Scholarship

Recent scholarship in public sector budget implementation reveals increasing recognition of implementation challenges while highlighting significant research gaps. (Roni et al., 2021) examined accountability through participatory budgeting in Malaysia, focusing primarily on the adequacy and participation of planning rather than the effectiveness of implementation. Their findings suggest that budget performance depends on adequacy and participation, but the study did not investigate how financial management capabilities affect actual implementation outcomes.

International evidence shows the complexity of implementation in a variety of contexts. (Matthew et al., 2023) analyzed the implementation of public sector budgets across southwestern Nigerian states, finding significant variation in performance despite similar budget allocations. However, their research did not systematically examine the determinants of financial ratios of these variations. Similarly (Abidin Tarigan & Muda, 2017) investigates the performance factors of budget implementation in Indonesian provincial governments but limits the analysis to internal organizational factors without considering the comprehensive dimension of financial capacity.

Methodological approaches in this area have evolved from simple ratio analysis to more sophisticated frameworks. (Jiang & Chi, 2024) redefining performance budgeting as "performance budget management", emphasizing managerial functions and implementation accountability rather than just a planning tool. Their research on budget performance management reform shows a significant impact on local fiscal relief, suggesting that the focus on implementation yields practical benefits. However, their study concentrated on the effects of policy reforms rather than the determinants of underlying financial capacity.

The relationship between fiscal decentralization and implementation outcomes presents a diverse body of evidence that requires theoretical clarification. (Lewis, 2023) critically assesses Indonesia's new fiscal decentralization law, arguing that the reforms emphasize upward accountability to the central government rather than increasing downward accountability to the community. This criticism highlights the need for research that focuses on actual implementation effectiveness rather than procedural compliance.

Stewardship Theory provides a relevant theoretical foundation for understanding these relationships, as demonstrated by recent applications in public sector contexts. (Salomonsen et al., 2024) Found that effective administrators develop closer collaboration with principals regarding organizational goals and implementation strategies. This theoretical perspective suggests that local governments with superior financial management skills should exhibit implementation performance due to stronger motivation and management capacity.

1.4. State Hypothesis and Its Correspondence with Research Design

Based on Stewardship Theory and empirical evidence, this study proposes that regional financial ratios systematically affect the performance of budget implementation through different mechanisms. The theoretical framework assumes that local governments function as administrators responsible for managing public resources to achieve community welfare, with financial management capabilities that reflect the effectiveness of management (James H. Davis et al., 1997), (Mardiasmo, 2018)

Main Hypothesis:

H1: The fiscal independence ratio has a positive impact on the performance of budget implementation.

This hypothesis stems from the Theory of Management's proposition that greater control of resources encourages responsible utilization. Regions with higher fiscal independence have greater autonomy and develop stronger ownership of budget management, as these funds come from the efforts of local communities rather than central transfers (Dharmawati et al., 2024) The study design used panel data regression to test these relationships while controlling for temporal and regional variations.

H2: The financial efficiency ratio has a positive impact on the performance of budget implementation.

This hypothesis reflects the theoretical argument that efficient utilization of resources indicates a superior management system that is essential for effective implementation. Regions that demonstrate financial efficiency have structured procedures and optimization capabilities that facilitate successful program execution (Mahmudi, 2019). Longitudinal design allows for the examination of efficiency-implementation relationships in various economic conditions and policy environments.

2. Methods

The Methods section explains how this research was conducted, including the conceptual and operational definitions of the variables used. This full description allowing the reader to evaluate the suitability of the method and the reliability and validity of the results, and enabling other to replicate the study.

2.1 Research Design

This study uses an explanatory research design to investigate the cause-and-effect relationship between regional financial ratios and budget implementation performance through hypothesis testing. The research was conducted in a naturalistic manner, observing the subjects without manipulation or experimental intervention. The study used a longitudinal panel data design covering the period 2018-2023 to analyze changes in patterns between variables over time.

2.2 Characteristics of Participants (Subjects)

The research participants consisted of Indonesian local government entities (districts and cities) during the 2018-2023 period. The target population consists of all 514 districts and cities in Indonesia, consisting of 416 districts and 98 cities according to 2023 data from the Ministry of Home Affairs. These local governments operate under Indonesia's fiscal decentralization framework and are responsible for implementing regional budgets and providing public services to their communities.

*2.3 Sampling Procedure**2.3.2. Sample size, power, and precision*

The study used nonprobability sampling techniques based on specific eligibility criteria to ensure the quality of the data and the validity of the study. The sampling method is designed to select local governments with complete and reliable financial data required for a comprehensive analysis. Eligibility Criteria: (a) Regencies/cities with complete financial data (APBD and realization) during the 2018-2023 period, (b) No change in distribution or administrative status during the study period, (c) Non-specific status regions (excluding DKI Jakarta, DIY, Aceh, Papua and West Papua), (d) Availability of complete data in the official government database.

Based on these criteria, 250 districts/cities representing 48.7% of the total population were selected. With an observation period of 6 years, this resulted in 1,500 total observations (250×6 years), which exceeded the minimum requirements for robust panel data analysis and provided sufficient statistical power for hypothesis testing.

2.3.2. Size and Covariate

Data Collection Methods: Secondary data collection from official government sources including the Central Statistics Agency (BPS), the Ministry of Home Affairs, the SUSENAS database, and the Ministry of Finance-DJP. All data sources represent authoritative databases with established quality control procedures.

Main Outcome Measures:

Budget Implementation Performance = (Regional Expenditure Realization / Regional Expenditure Budget) × 100%

Independent Variables:

Fiscal Independence Ratio = (Regionally Owned Revenue/Transfer Funds) × 100%

Financial Efficiency Ratio = (Total Revenue / Total Expenses) × 100%

Covariate:

- COVID-19 era: Dummy variable (0 = pre-pandemic 2018-2019, 1 = pandemic 2020-2023)
- Geographical Characteristics: Dummy variable (1 = Java-Bali region, 0 = outside Java-Bali)

2.3.3. Research Design

This study utilizes an observational longitudinal design with a panel data structure. Local governments are observed naturally without manipulation of conditions or random assignments to groups. The design captures cross-sectional variation in 250 local governments and time series variations within each government over a 6-year period, allowing for a comprehensive analysis of regional financial performance dynamics while controlling for unobserved regional characteristics.

2.3.4, Data Analysis Procedure

Panel data regression analysis was performed using EViews 13 software. The specifications of the econometric model are:

$$\text{IMPLEMENTATION}_{it} = \alpha + \beta_1 \text{FISCAL_IND}_{it} + \beta_2 \text{EFFICIENCY}_{it} + \beta_4 \text{COVID}_{it} + \beta_5 \text{GEOGRAPHY}_{it} + \varepsilon_{it}$$

Where *i* represents local government entities (1 to 250), *t* represents the time period (2018 to 2023), α is the interception parameter, the β coefficient represents the slope parameter, and ε_{it} is the error term.

Model Selection Procedure: The Chow test (Common Effect Model vs. Fixed Effect), Hausman test (Fixed vs. Random Effect), and Lagrange Multiplier test (General vs. Random Effect) were performed to determine the most appropriate panel data estimation technique.

Classical Assumption Testing: Normality assessment (Jarque-Bera test), heteroskedasticity detection (modified Wald test), multicollinearity evaluation (Variance Inflation Factor), and autocorrelation examination (Breusch-Godfrey test) were performed to ensure the validity and reliability of the model.

3. Results*3.1 Sample Selection Process*

This study used purposive sampling techniques to select districts/cities in Indonesia for the 2018-2023 period. From a total population of 514 districts/cities, the final sample consisted of 250 districts/cities (48.6% of the total population) that met the inclusion criteria: (1) the availability of complete financial data during the study period, (2) there was no regional division or change in administrative status during the observation period, (3) the exclusion of special administrative regions, and (4) the availability of complete financial data in the BPS-SUSENAS and Ministry of Home Affairs databases. This resulted in 1,500 balanced panel observations over six years.

3.2 Basic Data

The final sample consisted of 250 districts/cities spread throughout Indonesia, with 30% in the Java-Bali region and 70% in the outer islands. The temporal distribution shows 33.47% of observations from the pre-pandemic

period (2018-2019) and 66.53% from the pandemic and post-pandemic period (2020-2023), reflecting the impact of COVID-19 on fiscal management patterns.

3.3 Statistics and Data Analysis

3.3.1. Table 1 presents descriptive statistics for all variables used in the analysis, covering 1,500 observations from 250 districts/cities during 2018-2023.

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
Budget Implementation Performance	0.967127	0.963212	5.440549	0.613615	0.175597
Fiscal Independence Ratio	0.255123	0.143523	8.509195	0.019227	0.456288
Financial Efficiency Ratio	0.973348	0.963876	4.032322	0.189630	0.186905
COVID-19 Era	0.665333	1.000000	1.000000	0.000000	0.472031
Geographical Characteristics	0.300000	0.000000	1.000000	0.000000	0.458410

Source: EViews 13 output, processed data (2025)

The performance of budget implementation shows an average of 0.967127 (96.71%), indicating that Indonesian districts/cities generally achieve a good level of budget realization. However, a wide range from 0.613615 (61.36%) to 5.440549 (544.05%) shows substantial variation in implementation capacity between regions.

The fiscal independence ratio shows an average of 0.255123 (25.51%) with a median of 0.143523, indicating that most regions are still heavily dependent on transfer funds. The high standard deviation (0.456288) reflects significant heterogeneity in income-generating capacity among districts/cities.

The financial efficiency ratio showed an average of 0.973348 (97.33%) with a median close to average, indicating that most regions manage their finances with a relatively balanced income-to-expense ratio. The results of the Jarque-Bera test show a non-normal distribution for all variables, which is adequately handled by a large sample size under the Central Limit Theorem.

3.3.2 Model Selection Test

Panel Data Model Selection

Three consecutive tests were performed to determine the most appropriate method of estimating panel data: the Chow test, the Hausman test, and the Lagrange Multiplier test.

The results of Chow's test showed a Cross-Section F = 1.410660 with a probability of 0.0001, indicating that the Fixed Effects Model was preferred over the Common Effect Model ($p < 0.05$). This shows significant heterogeneity across counties/cities that require individual-specific interception.

The Hausman test yielded a Chi-Square statistic = 24.034617 with a probability of 0.0000, confirming that the Fixed Effects Model is more precise than the Random Effects Model ($p < 0.05$). This suggests that the characteristics of the individual that are not observed correlate with the explanatory variable.

The Lagrange Multiplier test shows a Breusch-Pagan = 11.90063 with a probability of 0.0006, supporting the existence of a significant random effect. However, based on the results of Hausman's test, **the Fixed Effect Model** was chosen as the final estimation method.

3.3.3 Diagnostic Tests

Heteroskedasticity Test

The modified Wald test for heteroscedasticity in the Fixed Effects model showed the presence of heteroscedasticity (t-statistical efficiency variable = 3.857184, $p = 0.0001$). This problem is addressed through a strong standard error in the final estimate.

Autocorrelation Test

The Durbin-Watson statistic of 1.512189 is close to 2, indicating no serious autocorrelation problems in the model residue.

3.4 Main results

3.4.1 Model Fit and Overall Significance

The Fixed Effects model shows reasonable explanatory power with R-squared = 0.286837 (28.68%) and Adjusted R-squared = 0.143404 (14.34%). F-statistics = 1.999804 with a probability of 0.000000 indicate that the regional financial ratios jointly have a significant influence on the performance of budget implementation ($p < 0.001$).

3.4.2 Effects of individual variables

Table 2 presents the results of hypothesis testing for individual variables using Fixed Effect estimates.

Table 2: Fixed Effect Model Results - Budget Implementation Performance

Variable	Coefficient	Std. Error	t-Statistics	Prob.	Decision
C	0.776668	0.027313	28.43612	0.0000	-
Fiscal Independence	0.008380	0.025197	0.332596	0.7395	H ₁ Rejected
Financial Efficiency	0.193478	0.026705	7.244895	0.0000	H ₂ Accepted

Source: EViews 13 output, processed data (2025)

Effects of the Fiscal Independence Ratio

The fiscal independence ratio shows a coefficient of 0.008380 with a t-statistic = 0.332596 and a probability = 0.7395. Since the value of $p(0.7395) > 0.05$, H₁ is rejected. **The fiscal independence ratio has no significant effect on the performance of budget implementation** in Indonesian districts/cities.

Financial Efficiency Ratio Effect

The financial efficiency ratio shows a coefficient of 0.193478 with a t-statistic = 7.244895 and a probability = 0.0000. Since the p-value (0.0000) < 0.05 , H₁ is accepted. **The financial efficiency ratio has a significant positive influence on the performance of budget implementation.** An increase of one unit in the financial efficiency ratio led to an increase in budget implementation performance of 0.193478.

3.5 Durability and Additional Analysis

The Fixed Effect specification effectively controls for the heterogeneity of unobserved time invariants across districts/cities. The inclusion of COVID-19 variables and geographic dummies helps to control for temporal and spatial factors that may affect the relationship between financial ratios and budget implementation performance. The results remained consistent across a wide range of specifications, supporting the robustness of the findings.

4. Discussion

4.1 Interpretation of Key Findings

The findings of this study provide important insights into the determinants of budget implementation performance in Indonesian local governments, challenging conventional assumptions about the relationship between fiscal capacity and implementation effectiveness. The results reveal a nuanced relationship between regional financial ratios and budget implementation performance that has significant implications for understanding management behavior in a decentralized fiscal system.

The most striking finding is that the fiscal independence ratio **has no significant effect on the performance of budget implementation** (coefficient = 0.008380, $p = 0.7395$). This counterintuitive result challenges the conventional wisdom that greater fiscal autonomy automatically translates into better program implementation. Instead, our findings suggest that funding sources (self-sourced income vs. transfer funds) are less important than how effectively regions manage available resources. These findings are in line with the empirical phenomenon observed in the background study, where Kutai Kartanegara Regency, despite having low fiscal independence (9%), achieved the highest implementation performance (131%).

On the other hand, **the financial efficiency ratio showed a strong positive effect** on the performance of budget implementation (coefficient = 0.193478, $p < 0.001$). These findings show that regions that are able to optimize their revenue-to-expenditure ratios consistently achieve better budget implementation outcomes. The magnitude of this effect suggests that a single unit increase in financial efficiency leads to an increase in implementation performance of about 19.35%, highlighting the practical significance of efficient financial management.

These findings are in line with Service Stewardship Theory, which emphasizes that effective stewards are motivated by intrinsic factors such as organizational achievement and success rather than the extent to which resources are controlled. The results show that management behavior in local government is better realized through efficient use of resources rather than income-generating autonomy. This supports the theoretical proposition that a good steward focuses on maximizing organizational performance regardless of resource constraints.

4.2 Comparison with Previous Studies

Our findings confirm and contradict the existing literature on fiscal decentralization and local government performance in Indonesia. The insignificant effects of fiscal independence are in line with (Dalimunthe et al., 2023), which found a negative relationship between fiscal independence and financial reporting accountability in the local government of North Sumatra. This suggests that fiscal autonomy may not be a panacea for improving the performance of local governments as is often assumed in the discourse of decentralization.

However, our results contrast with (Sofilda et al., 2023), which found that self-sourced income contributed positively to regional economic growth in 484 districts/cities in Indonesia. The difference may lie in the difference between economic outcomes and the implementation process. While fiscal independence can drive long-term economic development, it seems less important to the immediate operational effectiveness of budget execution.

The positive effects of financial efficiency support the findings of international studies. (Jiang & Chi, 2024) in their evaluation of the Malaysian budgeting system found that routine monitoring and evaluation significantly affected the success of financial management, which relates to our efficiency construct. Similarly (Rashied et al., 2024) emphasizing that the core of budget performance management reform lies in changing working methods to achieve more efficient utilization of funds, directly supporting our efficiency findings.

Our results also resonate with (Matthew et al., 2023), which found that implementation performance varied significantly across regions despite similar budget allocations in Nigeria. This variation, as our research shows,

is better explained by management efficiency than resource availability, suggesting that implementation capacity is more about "how" than "how much".

The theoretical implications are in line with recent developments in the application of Service Management. (Salomonsen et al., 2024) Finding that effective stewards tend to have better management systems, supports our finding that efficiency-oriented regions exhibit superior implementation performance. This shows that stewardship effectiveness is more about organizational capabilities than resources.

4.3 Practical Implications and Policy Recommendations

4.3.1 Policy Implications for Central Government

These findings have significant implications for Indonesia's fiscal decentralization policy, especially given the new Law No. 1/2022 on central-regional financial relations. The results suggest the focus of the central should shift from simply increasing regional fiscal autonomy to increasing regional capacity for efficient financial management. This implies that the transfer fund allocation mechanism should prioritize areas that demonstrate efficient financial management over areas with higher potential self-sourced income.

The Ministry of the Interior should consider developing a performance-based transfer mechanism that rewards efficient financial management over revenue-generating capacity. This approach will align incentives with implementation effectiveness and encourage regions to focus on optimizing their financial management systems.

4.3.2 Implications for Local Government Management

For local governments, the findings show that pursuing fiscal independence should not be the main focus to improve budget implementation performance. Instead, regions should prioritize developing a strong financial management system, optimizing the revenue-expense balance, and building administrative capacity for efficient resource utilization.

Local governments should invest in management information systems, staff training, and procedural standardization to improve financial efficiency. The results show that these investments are more likely to result in real improvements in budget implementation than efforts to increase revenue from sources themselves.

4.3.3 Capacity Building Focus

The implications of the study support a capacity-building approach that emphasizes managerial competence over fiscal autonomy. Training programs for regional finance managers should focus on efficiency optimization, budget execution procedures, and performance monitoring systems rather than revenue improvement strategies. The finding that efficiency is more important than independence suggests that technical assistance programs should prioritize helping regions develop better expense management, procurement systems, and project implementation capabilities.

4.4 Limitations and Future Research Directions

4.4.1 Study Limitations

This research has several limitations that must be acknowledged. First, Regionally owned revenue variable due to multicollinearity issues limits our understanding of how target achievement affects implementation performance. Future studies should explore alternative specifications to include these important dimensions of fiscal management.

Second, the relatively modest R-square (28.68%) shows that the financial ratio only partially explains the variation in budget implementation. This suggests that other factors such as the quality of human resources,

institutional capacity, political dynamics, and administrative systems play important roles that require investigation.

Third, the study period (2018-2023) covers the COVID-19 pandemic, which may have altered normal fiscal management patterns. Although we control for this through dummy variables, the specific mechanisms by which the pandemic affects the financial-implementation relationship have not yet been explored.

4.4.2 Future Research Opportunities

Future research should expand the analytical framework to include non-financial determinants of budget implementation performance. Variables such as human resource capacity, institutional quality, political stability, and the effectiveness of the administrative system can provide a more comprehensive understanding of the drivers of implementation.

Methodologically, future studies can use dynamic panel models to capture the temporal dynamics of the finance-implementation relationship. Additionally, qualitative case studies from high-performing regions can provide deeper insights into the mechanisms by which financial efficiency translates into implementation effectiveness. The heterogeneity revealed by the Fixed Effects Model suggests that region-specific factors play an important role. Future research may explore these factors through a mixed-methods approach that combines quantitative analysis with in-depth case studies from regions with different performance patterns.

4.5 Contributions and Theoretical Implications

This study contributes to the Stewardship Theory literature by providing empirical evidence that stewardship effectiveness in a public sector context is more strongly related to resource optimization capabilities than resource control. These findings suggest that public sector management research should focus more on managerial competence and less on formal authority or resource availability.

The study also contributes to the literature on fiscal decentralization by challenging the assumption that fiscal autonomy automatically improves government performance. Our findings suggest that the quality of financial management is more important than the quantity of revenue sourced itself, providing a more nuanced understanding of the autonomy-performance relationship.

For the performance budgeting literature, this study supports the emerging view that implementation capacity is just as important as planning quality. The emphasis on efficiency is in line with the recent reconceptualization of performance budgeting as "performance budget management" that prioritizes the effectiveness of execution over the sophistication of planning.

These findings have broader implications for public stewardship theory, suggesting that organizational effectiveness in the public sector context may depend more on operational efficiency than resources. It supports a capabilities-based approach to public sector reform that emphasizes building management systems rather than expanding fiscal authority.

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