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DATA-DRIVEN LEADERSHIP AND STRATEGIC DECISION MAKING IN PUBLIC SECTOR IN KENYA. A CASE OF THE MINISTRY OF COOPERATIVE AND MICRO, SMALL AND MEDIUM ENTERPRISES DEVELOPMENT

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ABSTRACT
The Ministry of Cooperative and MSME Development holds a key position in promoting the expansion of small and medium-sized enterprises (SMEs), which are vital to economic growth and job creation. To improve service delivery and support strategic planning, the Ministry has begun incorporating data driven leadership into its operations. However, the impact of this data driven leadership on strategic decision-making has not been thoroughly examined. Despite the government's ongoing push to digitize public services, significant obstacles remain in fully integrating data driven leadership into the Ministry's strategic planning and decision-making activities. This study aimed to assess the relationship between Data-Driven Leadership and strategic decision making in public sector in Kenya within the Ministry of Cooperatives and MSMEs Development. The study was guided by transformational leadership theory. A descriptive research design guided the study. The target population comprised 300 officials from the Ministry of Cooperative and MSME Development, from which a sample of 120 respondents was selected. Primary data were collected using both structured and semi-structured questionnaires. quantitative data were analyzed using both descriptive and inferential statistical methods. Multiple regression analysis was employed to evaluate the relationship between the independent and dependent variables. The findings indicated that Data-Driven Leadership ($\beta = 0.615$, $p < 0.05$) significantly impact the effectiveness of decision-making. The study concludes that Data-Driven Leadership significantly enhances strategic decision-making by fostering evidence-based insights, efficiency, and organizational adaptability.
Keywords: *Data-Driven Leadership*, *Strategic Decision Making, Public Sector, Kenya.*

INTRODUCTION
In the contemporary era, strategic decision-making is increasingly shaped by data analytics, artificial intelligence, and cloud-based technologies, all of which enhance decision accuracy and strengthen stakeholder participation (OECD, 2022). This global transformation underscores the pressing need for public institutions in developing nations to integrate digital innovations to drive efficiency, accountability, and

institutional effectiveness (UNDP, 2023). Worldwide, data-driven leadership has emerged as a pivotal catalyst for organizational transformation, reshaping institutional operations and strategic choices. Consequently, governments and public agencies are progressively leveraging digital tools to improve policy formulation, execution, transparency, and responsiveness in service delivery (World Bank, 2023).

In recent years, advancements in data analytics, artificial intelligence, and strategic management frameworks have transformed how organizations approach strategic decision making. These tools support evidence-based decisions and scenario planning, enabling firms to anticipate challenges and capitalize on opportunities more effectively (Brynjolfsson & McElheran, 2016). However, despite technological progress, human judgment remains central to strategic thinking, especially in ambiguous or novel situations. As organizations continue to face global competition and rapid technological change, understanding and improving strategic decision-making practices remains a vital area of academic and managerial interest (Mintzberg, Ahlstrand, & Lampel, 2005).
Across Europe, data-driven leadership has become a central driver of digital transformation, shaping how organizations formulate and implement strategic decisions (Tawil et al., 2023). Empirical evidence from a study of 85 UK SMEs revealed that leaders integrating data science, analytics, and business intelligence into strategic planning significantly enhance innovation, operational efficiency, and competitive responsiveness (Tawil et al., 2023). Similarly, luxury brands such as Hugo Boss have established centralized data hubs to embed analytics into product development, marketing, and supply chain decisions, thereby strengthening strategic alignment and leadership accountability in digital transformation processes (Hugo Boss, 2023).

Across Africa, data-driven leadership is increasingly recognized as a critical enabler of digital transformation and strategic decision-making. According to *BusinessDay*, Ibeji (2025) emphasizes that African enterprises now view data not merely as an IT asset but as a board-level priority, prompting investments in analytics infrastructure, data literacy, and strategic alignment. Leading organizations such as Jumia and MTN demonstrate how data-led leadership enhances innovation, operational efficiency, and competitive agility across diverse sectors (Ibeji, 2025). Despite persistent challenges related to digital infrastructure and analytical skills, data-centric leadership continues to reshape strategic decision-making across Africa's corporate landscape.

In the Kenyan context, data-driven leadership serves as a critical enabler of digital transformation and strategic decision-making across both the public and private sectors. In government, county administrations have implemented digital platforms such as e-citizen, IFMIS, and sector-specific information systems (e.g. NEMIS) to support evidence-based planning and resource allocation (Tiach, 2023). In the private sector, firms like Safaricom leverage analytics from M-Pesa usage to drive customer-centric strategies, optimise operations, and predict market needs (ResearchLeap, 2024). Moreover, AI

innovations such as Nairobi's "Dukawalla" voice interface project exemplify how data-driven tools empower SMEs and leaders to make strategic decisions effectively (Ankrah et al., 2025).

STATEMENT OF THE PROBLEM

In the modern public sector, effective strategic decision-making increasingly depends on data-driven leadership, which integrates analytics, artificial intelligence, and real-time data insights into policy formulation and implementation. However, many public institutions in Kenya still rely on intuition and traditional administrative processes, resulting in inefficiencies, delayed responses, and suboptimal outcomes. The Ministry of Cooperatives and MSMEs Development faces similar challenges in translating data into actionable strategies that enhance performance and accountability. Limited data literacy, weak digital infrastructure, and fragmented data systems continue to hinder evidence-based decisions essential for inclusive economic development (OECD, 2022; UNDP, 2023).

Despite the government's growing investments in digital transformation initiatives, the adoption of data-driven leadership practices remains inconsistent across departments, leading to uneven performance and policy execution. The lack of empirical evidence linking data-driven leadership to strategic decision-making in Kenya's public sector highlights a critical research gap. Understanding this relationship is vital to improving institutional efficiency, transparency, and service delivery outcomes. Addressing these gaps will enable the Ministry of Cooperatives and MSMEs Development to enhance its strategic planning and responsiveness in a dynamic policy environment

PURPOSE OF THE STUDY

The objective of the study was to assess the relationship between Data-Driven Leadership and Strategic Decision-Making in Public Sector in Kenya.

SIGNIFICANCE OF THE STUDY

The study is significant to various stakeholders as it offers valuable understanding of how data-driven leadership supports effective strategic decision-making, improves operational performance, and promotes accountability within the Ministry of Cooperatives and MSMEs Development. For policymakers, it provides research-based insights to develop and enforce policies that enhance data application, transparency, and evidence-informed leadership, thereby advancing governance and sustainable development in Kenya's public sector.

LITERATURE REVIEW

Theoretical Review

The study was guided by transformational leadership theory, introduced by James MacGregor Burns in 1978 and subsequently advanced by Bernard Bass in 1985, which underscores the capacity of leaders to motivate, inspire, and intellectually engage their

followers to achieve beyond conventional expectations. The theory is grounded on four key dimensions idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (Bass & Riggio, 2006). Scholars have postulated that transformational leaders drive organizational innovation and change by cultivating a unifying vision consistent with institutional objectives (Northouse, 2016). Empirical studies have further associated transformational leadership with heightened organizational performance, employee commitment, and strategic responsiveness, as leaders foster critical thinking, analytical reasoning, and creativity when addressing multifaceted organizational issues (Avolio & Yammarino, 2013). This conceptual model emphasizes leadership's pivotal role in advancing data-informed strategic decisions.

Notwithstanding its merits, Transformational Leadership Theory presents several limitations when contextualized within data-driven leadership and strategic decision-making frameworks. Scholars contend that transformational leaders may become excessively reliant on charisma and aspirational vision, thereby undervaluing empirical validation and rational scrutiny (Eisenbeiss et al., 2008). The reliance on subjective inspiration and emotional influence introduces potential cognitive biases that can distort data interpretation and hinder objectivity (Yukl, 2013). Moreover, transformational leadership often privileges qualitative judgments over quantitative assessment, diminishing its compatibility with data analytics-driven methodologies. These deficiencies imply that, although transformational leaders effectively inspire collective purpose and commitment, they may be less effective in environments demanding rigorous evidence-based analysis, accountability metrics, and quantifiable decision support integral to data-driven leadership practices.

Despite these critiques, transformational leadership theory remains profoundly pertinent in evaluating the influence of data-driven leadership on strategic decision making. Leaders who integrate transformational attributes with analytical proficiency can harmonize visionary goals with data-derived insights, ensuring that information serves as a guide rather than a constraint in decision formulation (Bass & Riggio, 2006). Through fostering intellectual stimulation and cultivating a culture of shared learning, transformational leaders promote data literacy, innovation, and evidence-based collaboration within organizations (Avolio & Yammarino, 2013). Within Kenya's evolving digital economy, transformational leadership offers a strategic framework for leveraging data analytics to enhance planning, resource allocation, and long-term competitiveness. Thus, the theory offers an essential analytical perspective for understanding how visionary leadership can synergize with data intelligence to strengthen strategic decision outcomes and institutional performance.

Empirical Literature Review

An empirical review critically examines existing studies based on observed and measured phenomena, emphasizing data-driven evidence rather than theory or opinion.

It synthesizes quantitative and qualitative findings to identify patterns, gaps, and implications for further research (Creswell & Creswell, 2018). It seeks to offer a detailed summary of existing knowledge on a topic, highlighting trends, patterns, and research gaps in current studies (Cooper, Hedges, & Valentine, 2019). In the United Kingdom, studies have explored data-enabled leadership and its role in strategic decision-making across corporate and public sectors. Davies and West (2022) found that data-driven leadership supported evidence-based strategic planning in the public sector during COVID-19, while Patel et al. (2024) established a link between strong data governance and improved strategic clarity among CEOs. Nonetheless, most research remains cross-sectional, hindering causal conclusions. Moreover, there is insufficient focus on SMEs and non-profits, as well as limited analysis of mediating variables such as organizational culture and digital infrastructure, which may significantly influence the strategic effects of data leadership.

Recent research in Ghana has examined the connection between data-driven leadership and organizational performance, though limited studies directly assess its influence on strategic decision-making. Osei-Tutu et al. (2021) found that data-oriented leadership enhanced operational efficiency and risk management in financial institutions, while Akomeah and Dadzie (2023) linked executive use of analytics to improved responsiveness and strategic agility in listed firms. However, these studies primarily address short-term tactical outcomes rather than long-term strategic impacts. Additionally, the reliance on self-reported data and the absence of objective performance measures or longitudinal designs restrict causal interpretations, creating a research gap in understanding sustained strategic influence.

Marikar and Bandara (2020) undertook a study to explore why managers don't fully adopt data-driven decision-making. The study conducted qualitative interviews with 12 managers across six Sri Lankan commercial banks to assess data-driven decision-making (DDDM) adoption. Their study found that while business intelligence tools are available, managers often default to intuition due to mistrust, limited data skills, and risk aversion. Visual presentation quality also influenced reliance on gut feelings. The authors recommend enhanced BI training and better visualization design to boost trust and adoption. A clear gap remains in quantitative validation across broader samples to generalize findings beyond the banking sector.

Wangige et al. (2024) carried out a study investigating the factors influencing data-driven decision-making (DDDM) among a sample of 168 healthcare providers in Mombasa County, Kenya. Using a cross-sectional research design, they identified strong positive correlations between DDDM quality and both technical ($r = .642$) and organizational factors ($r = .819$), while behavioral factors showed no significant influence. The researchers concluded that investments in infrastructure, reliable data systems, and staff training are essential for enhancing DDDM. However, they noted a critical research gap

in understanding behavioural and cultural factors that hinder adoption. They recommended further studies focusing on behavioural influences within healthcare environments.

Summary of Research Gaps

Studies from the United Kingdom, Ghana, Kenya, and Sri Lanka reveal increasing scholarly attention to data-driven decision-making (DDDM) across various sectors. In the UK, research links strong data governance with improved strategic clarity but largely excludes SMEs (Davies & West, 2022). Ghanaian studies emphasize data leadership and machine learning but lack focus on long-term strategic implications (Osei-Tutu et al., 2021; Baidoo & Obeng, 2024). In Kenya, technical and organizational enablers dominate healthcare discussions (Muhula et al., 2024), while Sri Lankan findings point to mistrust and inadequate data skills as adoption barriers (Marikar & Bandara, 2020). Overall, gaps persist in causal validation, behavioural analysis, and longitudinal exploration of DDDM impacts.

CONCEPTUAL FRAMEWORK

The conceptual framework illustrates how the independent variables are connected to and influence the dependent variables.

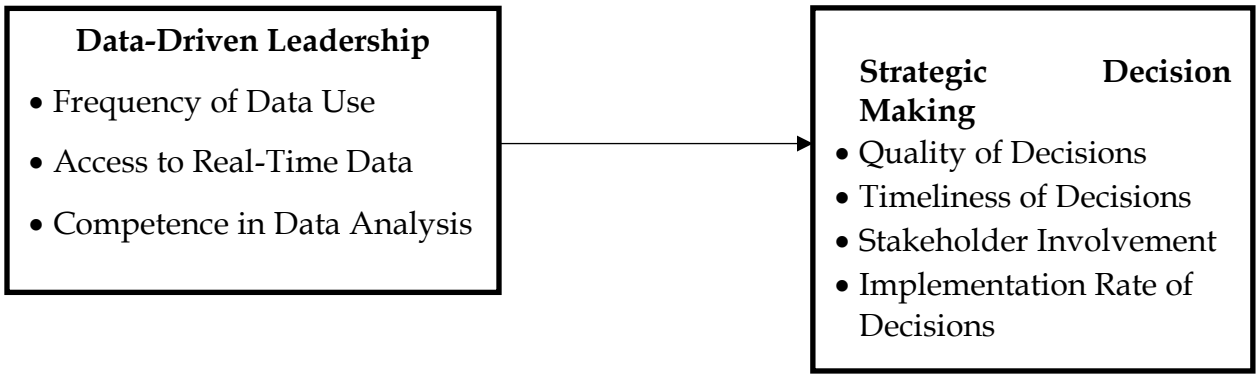

Figure 1: Conceptual Framework

METHODOLOGY

The research investigated how Data-Driven Leadership influences strategic decision making in public sector in Kenya with focus on the ministry of Cooperative and Micro, Small and Medium Enterprises Development. The study adopted a descriptive research design, which facilitated the systematic observation, documentation, and interpretation of the characteristics of a defined population or phenomenon without manipulating variables. This design was suitable for collecting data on specific indicators used to operationalize the study variables, with information obtained from a purposively selected sample of respondents.

The study targeted a population of 300 officials from the Ministry of Cooperative and MSME Development, whose roles in policy formulation and strategic implementation rendered them an appropriate group for providing relevant data for the research. The study adopted a stratified sampling technique, whereby the total population was divided into distinct subgroups based on relevant characteristics such as department and job level. This approach ensured proportional representation and improved the accuracy of results, ultimately yielding a representative sample of 171 respondents for data collection and analysis.

Data were collected using a self-administered semi-structured questionnaire, an instrument that was well-suited for the systematic and efficient collection of quantitative data. The semi-structured format provided flexibility, allowing respondents to seek clarification on specific items while ensuring immediate and accurate data capture upon completion. This approach enhanced both the reliability and validity of the responses. The questionnaire consisted primarily of closed-ended questions designed to obtain structured, comparable, and analyzable information across respondents. Additionally, the design facilitated consistency in responses, minimized researcher bias, and enabled a comprehensive understanding of the variables under investigation within the context of the study objectives.

A pilot study was undertaken to evaluate the reliability and validity of the research instrument and overall data collection process. The exercise involved seventeen participants, constituting 10% of the total sample, randomly drawn from the target population but later excluded from the main study. The feedback and data obtained from this pilot group were analyzed to refine the questionnaire, ensuring its clarity, consistency, and effectiveness in capturing accurate responses.

Data obtained from the field were systematically coded, cleaned, and input into SPSS version 28 for statistical analysis. The results were presented in quantitative formats was organized through tables and frequency distributions. Quantitative findings featured tables displaying mean and standard deviation values to aid interpretation. Furthermore, a regression analysis model was applied to evaluate the effect of the independent variables on the dependent variable, providing insights into their statistical significance and overall relationship.

The multiple regression is;
$Y=\beta_0 +\beta_1 X_1 + \varepsilon$
Y= Strategic Decision Making
X_1 = Data-Driven Leadership
β_0 = Intercept Coefficient
$\beta_{1,}$ = Regression Coefficients

FINDINGS

Response Rate

The study originally aimed at a sample size of 171respondents who were provided with questionnaires for data collection. Out of these, 153 questionnaires were duly completed and returned, yielding a response rate of 89.5%. According to Mugenda and Mugenda (2003), a response rate exceeding 70% is regarded as excellent, with 60% considered good and 50% acceptable for analysis. Therefore, the achieved response rate was deemed highly satisfactory for the study's purposes.

Descriptive Statistics

The objective of the study was to assess the relationship between Data-Driven Leadership and strategic decision making in government ministries in Kenya. The findings related to this objective are presented in the table 1.

Table 1: Data-Driven Leadership and Strategic Decision-Making

Statement	N	Mean	SD
Leaders in this ministry frequently rely on data when making strategic decisions and policies.	153	3.89	0.872.
Management often reviews performance data before approving major cooperative or MSME development programs.	153	3.93	0.739
Real time data systems are available to support quick and accurate leadership decisions.	153	4.01	0.680
Leadership decisions are often guided by real-time performance metrics and operational data.	153	3.90	0.891
Management demonstrates strong competence in analyzing data to support strategic decision-making processes	153	3.78	0.973
Leaders are well-trained in using analytical tools to derive insights from organizational data.	153	3.95	0. 875
Overall		**3.91**	**0.834**

Based on the research findings in table 1, the respondents generally concurred that the Leaders in the ministry frequently rely on data when making strategic decisions and policies., as reflected by a mean score of 3.89 and a standard deviation of 0.872. The data further indicated that participants agreed that management often reviews performance data before approving major cooperative or MSME development programs., with a recorded mean of 3.93 and a standard deviation of 0.739. As regarding if the Real time data systems are available to support quick and accurate leadership decisions a majority of respondents affirmed their agreement, yielding a mean of 4.01 and a standard deviation of 0.680. Participants also acknowledged that leadership decisions are often guided by real-time performance metrics and operational data with responses averaging 3.90 and a standard deviation of 0.891. Furthermore, the study found consensus among

respondents that the Management demonstrates strong competence in analyzing data to support strategic decision-making processes as indicated with a mean response of 3.78 and a standard deviation of 0.973. On the issue that leaders are well-trained in using analytical tools to derive insights from organizational data, respondents largely agreed and strongly agreed with a mean of 3.95 and a standard deviation of 0.875.

Overall, the computed average mean score regarding data-driven leadership and its influence on strategic decision-making within government ministries in Kenya was 3.91. This suggests that data-driven leadership plays a significant role in shaping and guiding strategic decisions across various ministries. The findings of this study are consistent with those reported by Marikar and Bandara (2020), who explored the reasons behind the limited adoption of data driven decision-making among managers. Their research revealed that, despite the availability of business intelligence tools and data infrastructure, many managers tend to rely more heavily on intuition. This tendency was attributed to factors such as mistrust of data, insufficient data literacy, and a general aversion to risk. Additionally, the effectiveness and clarity of data presentation, especially visualizations, were found to further influence the preference for intuitive over data-based decisions.

The study participants were asked to indicate the improvements they would suggest to enhance data use in leadership decision-making processes. The qualitative data collected was then broken down into themes and analyzed. A majority of respondents (42%) advocated for the implementation of capacity-building programs to enhance data analysis competencies among senior decision-makers. Additionally, 31% highlighted the importance of integrating data analytics tools into routine administrative processes to improve efficiency and support evidence-based insights. Furthermore, 27% recommended that ministries invest in secure, centralized data management systems to promote consistency, transparency, and streamlined access to information across departments. Collectively, these findings underscore the critical need for both technical capacity and infrastructure to support data-driven strategic decision-making within government institutions.

Correlation Analysis

Pearson's correlation analysis was employed to examine the nature and strength of the relationship between the independent variable (Data-Driven Leadership**)** and the dependent variable (Strategic Decision Making). The analysis was conducted at a 95% confidence level. The computed correlation coefficients derived from the study's findings are summarized and presented in Table 2 below.

Table 2: Correlation Analysis

Construct		**Data-Driven Leadership**	Strategic Decision Making
Data-Driven Leadership	Pearson Correlation	1	
	Sig. (2-tailed)		
	N	153	
Strategic Decision Making	Pearson Correlation	.741**	1
	Sig. (2-tailed)	.000	
	N	49	49

** Correlation is significant at 0.05 level (2-tailed)

The correlation results in Table 2 reveal a strong and statistically significant positive relationship between data-driven leadership and strategic decision-making ($r = .741$, $p = 0.000$). This indicates that effective data-driven leadership substantially enhances strategic decision-making capabilities, indicating that improvements in data use directly strengthen strategic outcomes. These findings align with Wangige Muhula et al. (2024), who found similarly strong positive correlations between data-driven decision-making and organizational factors among healthcare providers in Mombasa County, Kenya. Their study emphasized that investing in data infrastructure, reliable information systems, and continuous staff training is vital for improving data-driven decision-making effectiveness and organizational performance.

Regression Analysis

Model Summary

The model summary was applied to determine the extent to which variations in Strategic Decision-Making effectiveness could be attributed to changes in the independent variable (Data-Driven Leadership). The model's predictive strength, was assessed through the coefficient of determination (R^2)., which indicates how well the independent variable account for changes in the dependent variable.

Table 3: Model Summary

Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	0.741	0.549	0.540	0.421

The model illustrates the percentage of change in the predicted variable that can be attributed to the predictor variable. The results indicate that the predictor variable, Data-Driven Leadership, accounts for 54.0 % of the variations in the predicted variable (Strategic Decision Making), as evidenced by the adjusted R^2 of 0.540. These findings suggest that Data-Driven Leadership is strong predictors of Strategic Decision Making.

Analysis of Variance

An Analysis of Variance (ANOVA) was performed to evaluate the model's suitability in predicting the dependent variable, namely the effectiveness of Strategic Decision Making. An F-test conducted at a 95% confidence level was utilized to determine the statistical significance of the study variables. The outcomes of this analysis are summarized and presented in Table 4 below.

Table 4: Analysis of Variance

Model	Sum Of Squares	D.F	Mean Square	F	Sig
Regression	56.94	1	56.94	26.12	.000[b]
Residual	331.36	152	2.18		
Total	388.30	153			

a. Dependent Variable: Strategic Decision Making
b. Predictors: (Constant), Data-Driven Leadership**.**

The ANOVA results revealed an F value of 26.12 and a p-value of 0.000, which is below the 0.05 threshold. This indicates that Data-Driven Leadership have a significant impact on Strategic Decision Making

Regression Coefficients

Table 5: Regression Coefficients

Model		Unstandardized coefficients		Standardized coefficients	t	p-value
		B	**Std Error**	**Beta**		
1	Constant	2.639	2.358		3.514	.001
	Data**-Driven Leadership**	0.615	0.319	.297	2.379	.003

a. Dependent variable (Strategic Decision Making)

Table 5 shows the regression coefficients. The regression equation developed is as follows:

Y-.2.639 +0. 615 X_1

Where**;**

Y= Strategic Decision Making

X_1 = Data-Driven Leadership

The regression model summarized in Table 5 reveals that the coefficient for Data**-**Driven Leadership is β = 0.615, with a corresponding p-value of 0.003, which is statistically significant at the 0.05 level. This indicates a positive and significant influence of the Data**-**Driven Leadership on Strategic Decision Making. These findings are consistent with

those of Baidoo and Obeng (2024) on how machine learning enhances strategic economic decision-making in Ghana, focusing on inflation forecasting and demonstrated that Ghana's central bank could better predict inflation trends, enabling more proactive monetary policies. Their findings emphasized that integrating advanced predictive analytics supports more informed, timely decisions in economic planning

CONCLUSION AND RECOMMENDATIONS

The study sought to assess the relationship between Data-Driven Leadership and strategic decision-making in Kenya. The outcomes underscore the crucial role of Data-Driven Leadership in enhancing strategic decision-making. The aggregate mean score reflected a high level of agreement among participants regarding the critical impact of this construct on strategic decisions in government ministries in Kenya. The study concludes that Data-Driven Leadership significantly improves strategic decision making. It is recommended that the Ministry of Cooperative and MSMEs Development institutionalize data-driven leadership practices by training senior managers in data analytics, evidence-based management, and performance monitoring. Establishing a data governance framework will enhance the integration of analytics into strategic decision-making, ensuring that policy choices are consistently guided by reliable, real-time data insights.

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