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Strengthening Nigeria's national development planning through integrated policy intelligence and strategic learning models

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Abstract

This study examined the way that integrated policy intelligence and strategic learning models enhance national development planning in Nigeria. The research design used was descriptive-correlational research design, employing a survey method, which interviewed 300 respondents across relevant government agencies using structured questionnaires. Descriptive statistics, correlation analysis, and multiple regression methods were applied to the data. The results demonstrated that integrated policy intelligence significantly predicted planning effectiveness, $\beta = 0.531$, $t(298) = 14.08$, $p < .001$, while strategic learning models also significantly influenced policy implementation outcomes, $\beta = 0.665$, $t(298) = 14.83$, $p < .001$. The combined impact of both predictors on overall development planning performance was significant, $R^2 = .525$, $F(2, 297) = 164.5$, $p < .001$. Yet it was limited by issues like weak data integration, political discontinuity, and poor institutional memory. Agencies implementing evidence-based practices and digital monitoring tools showed better outcomes. It is suggested by the study that integrating policy intelligence, strategic learning, and digital tools provides a robust framework for national development planning in Nigeria.

Keywords: Nigeria; Integrated Policy Intelligence; Strategic Learning Models; National Development Planning; Policy Implementation; Digital Monitoring Tools; Data Integration; Governance Efficiency; Public Sector Innovation; Development Policy Analysis

1. Introduction

The development planning is seen as a central mechanism to develop countries in order to address their issues of economic growth, social innovation and institutional development for long as it has been recognized. Nigeria has used national development plans from independence to signal priorities in development, prioritize resources among its various sectors, and set up a coherent process to achieve sustainable development. These will also aim to be an orientation for tackling the major issues the country is facing (e.g., poverty and unemployment, infrastructure gaps, macroeconomic instability [Aregbeshola, 2018]). Yet global governance has undergone considerable developments in the last decades. Recent public administration increasingly places a strong emphasis on evidence-based policy making, data integration and the learning of institutions as key drivers to effective development planning (Head, 2010; OECD, 2015). Contemporary development planning systems can no longer be confined to the static planning process and are meant to be flexible models which learn from the results of implementation, and adapt to changes in sociopolitical or economic contexts. Academics and international development institutions between 2010 and 2020 highlighted the rising importance of policy intelligence systems to improve the performance of public sector services. Policy intelligence consists of the methodical collection, interpretation and use of data, research evidence, prediction tools, and stakeholder knowledge to inform policy decisions across the policy cycle (Howlett, 2014). Indeed, countries that have consistently built policy intelligence mechanisms into their central planning agencies have shown enhanced policy coherence, coordination, and accountability (OECD, 2016). Concurrently, strategic learning has been proven as a key governance mechanism for maintaining the effectiveness of policy. In addition, strategic learning focuses on ongoing institutional

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learning through monitoring and evaluation, feedback loops, and systems of knowledge management that allow governments to learn from past achievement and failure (Bason, 2014; Williams, 2016). Based on the literature on organizational learning, public institutions that design learning processes within their planning and implementation frameworks are better able to adjust policies based on difficult and ongoing development problems (Argyris, 2011). The Nigerian planning for development has been influenced by long- and medium-term frameworks during the post-2010 era. Even though this is achieved, the development performance has not been satisfactory and the effectiveness of the planning has been called into question. These results are attributed to weak data systems, restricted analytical capacities, fragmented coordination of the institution, poor feedback mechanisms in the planning model (Adejumobi, 2015; Aregbeshola, 2018). Global development evaluations by entities including UNDP and World Bank in the 2010–2020 period underline that sustainable development successions require, as well as plans that are well framed, the embedding of intelligence-led decision making and learning-oriented governance in governance (UNDP, 2011; World Bank, 2013). Indeed, to enhance Nigeria's capability for national development planning, it is essential to reorient Nigeria's existing bureaucratic models of planning towards the use of policy intelligence and strategic learning models that can generate policy effectiveness and institutional resilience by incorporating into existing planning processes.

1.1. Statement of the Problem.

In spite of forming several national development plans and strategic frameworks, Nigeria still has ongoing development problems: slow economic development, high unemployment, insecurity, poor infrastructure and socially inefficient development. These findings indicate a mismatch between aspirations and practices of development planning. Evidence-based research has demonstrated that there is a large implementation gap and incoherent inter-agency coordination of implementation, as well as evidence-poor decision-making within Nigeria's development planning system of 2010 to 2020 (Iyoha & Oriakhi, 2013; Oni & Olatunji, 2016). One big challenge in Nigeria's national development planning is lack of integrated policy intelligence systems. Planning institutions function with disconnected data and information as well as incomplete analysis tools, which affects the quality of policy formulation, as well as monitoring and evaluation mechanisms (Howlett, 2014; OECD, 2016). The result is that development plans often result in biased decisions and incomplete evidence, which lowers the ability to design effective, sustainable development plans. There is also a lack of strategic learning in Nigeria's planning system. Notwithstanding extant monitoring and evaluation systems, evaluation results are seldom enshrined nor consistently circulated through the successive planning cycles (Aregbeshola, 2018). Such weak institutional learning leads to repeated failures – failures of policies across administrations policy discontinuity and the dissipation of institutional memory (Kuhlmann & Wollmann, 2019). Additionally, political meddling, top-heavy bureaucracy and limited capacity have prevented planning institutions from embracing adaptive governance practices. Research shows that Nigeria's public sector organizations often find it difficult to shift from compliance-focused planning to learning-centred governance, thereby compromising originality and adaptability to future development challenges on the ground (Adejumobi, 2015; Andrews, Pritchett & Woolcock, 2017). While previous research has assessed development planning challenges in Nigeria, there is relatively less empirical work empirically analyzing the effect not only of integrated policy intelligence but also strategic learning models in enhancing the national development planning performance. The absence of an integrated analytical framework that addresses both constructs is a major shortcoming (as outlined previously) of the existing literature. Filling that gap should be key for the development of evidence-based strategies to enable more efficient planning practices, institutional coordination, and long-term development outcomes in Nigeria.

1.2. Research Objectives

This study aims at finding out the best way forward by the integrative policy intelligence and strategic learning models in national development planning system in Nigeria. The specific objectives are stated below:

- Explore the impact of integrated policy intelligence on the effectiveness of national development planning in Nigeria.
- Measure the impact of these strategic learning models on policy implementation outcomes in Nigeria's national development planning system.
- Assess the joint impact of integrated policy intelligence and strategic learning models on general development planning performance in Nigeria.

1.3. Research Hypotheses

- In this study null hypotheses will be tested in terms of:
- H_{01}: Integrated policy intelligence has no significant effect on the effectiveness of national development planning in Nigeria.

- H_{02}: There is no significant impact of strategic learning models on policy implementation in Nigeria. H_{03}: Integrated policy intelligence and strategic learning models have no significant joint effect on national development planning performance in Nigeria.

1.4. Significance of the study

The study is important in informing theory, policy and practice in national development planning in Nigeria. Conceptually, it provides a contribution to policy and governance literature by mapping policy intelligence with strategic learning models in explaining the efficacy of development planning. At a policy level, the work supplies evidence-based insights; useful for reform focused on enhancing the use of data in decision making, policy coordination and adaptive governance at national planning institutions. From an institutional perspective, the findings will also serve to highlight systemic and capacity challenges to effective planning in order to inform reforms in monitoring systems, evaluation systems and knowledge management systems. From a practical perspective, we provide implementation practicality recommendations, such that smart and learning-based planning frameworks can improve policy implementation, accountability, and institutional memory. In academia, the findings are a reference that will inform further research on adaptive governance and evidence-based development planning in developing economies.

2. Literature Review

2.1. National Development Planning

National development planning is the means by which governments set national priorities, allocate resources, coordinate policies among all sectors and create mechanisms in order to achieve socio-economic objectives (UNDP, 2011). It lays out a strategic agenda to realize economic growth, social development, and institutional stability. Good planning and institutional coordination requires objective data, and clear indicators of performance in order to operationalize and convert policy ambitions (World Bank, 2013). Weak planning in developing countries has been associated with policy discontinuity, uncoordinated and ineffective monitoring and evaluation (Iyoha & Oriakhi, 2013; Adejumobi, 2015). Most current development planning focuses on flexibility, which demands that learning and intelligence processes be brought together because both of these are indispensable in keeping policies up to date and sensitive to shifting socio-economic conditions.

2.2. Policy Intelligence

Policy intelligence is the systematic collection, analysis, utilization, and management of information, research evidence on decision-making and political issues in order to take policies and to facilitate those who do engage in policy in the public good (Head, 2010). It encompasses predictive modeling, forecasting, performance monitoring, and scenario analysis to support decision making (Howlett, 2014). Policy intelligence increases the responsiveness and efficiency of government, as well as the utility and transparency of resources (OECD, 2015). The poor policy intelligence systems linked with weak policy intelligence resources has generally been linked to poorly informed decision making, improper resource allocation, and low policy effectiveness (Andrews, Pritchett & Woolcock, 2017). Actually, policy intelligence embedded within planning institutions provides a way to ensure that decisions are evidence-based and will more likely lead toward the expected effects of development, in practice.

2.3. Integrated Policy Intelligence

Integrated Policy Intelligence is the synchronization of data, analytical frameworks and institutional knowledge between governmental authorities to make their policymaking more cohesive and of high caliber (OECD, 2016). Integration, a far cry from isolated intelligence projects, encourages collaboration, breaks down information ghettos, standardizes analytical habits. One-sided measures allows for cross-sectoral impacts to be evaluated, goals to be better aligned, and outcomes better monitored by policymakers (Howlett & Mukherjee, 2018). Fragmented intelligence systems in developing countries can reduce planning effectiveness; lower accountability; and also contribute to inconsistent policy implementation (World Bank, 2013). It is not surprising then, that integrated policy intelligence becomes a crucial ingredient of adaptive governance and sustainable development planning.

2.4. Strategic Learning Models

Strategic learning models are the principles behind the institutional models on which organizations learn iteratively in a way through monitoring, evaluating, feedback, and evolving change (Bason, 2014). They are not only about evaluating results but about thinking through processes, assumptions, and structures to enhance future effectiveness (Argyris, 2011). In the public sector, strategic learning enforces policy sustainability, helps responsiveness, and counteracts recurring failures (Williams, 2016). However, weak learning systems compromise institutional memory and constrain

adaptive governance (Kuhlmann & Wollmann, 2019; Oni & Olatunji, 2016). Integrating such strategic learning as part of development planning ensures that the lessons from their previous policies are passed on to new development strategies and interventions.

2.5. Effectiveness of the implementation of policy

The effectiveness of policy implementation refers to how effectively policies are implemented, and how the administration handles that effective process (Pressman & Wildavsky, 2012). Successful execution is dependent on appropriate resources, institutional capacity and monitoring of the performance of the policy to that end. Low implementation effectiveness in developing economies is commonly associated with poor overall coordination, weak monitoring, and limited feedback mechanisms (World Bank, 2013; Adejumobi, 2015). Policy intelligence and strategic learning: when integrated into the planning process, this enables the timely provision of information and lessons through a cycle of corrective action that leads to successful implementation (OECD, 2016). Institutional Capacity. Institutional capacity is the ability of public organizations to design, coordinate, and sustain effective policy interventions. It encompasses human resources, structures, technical expertise, financial resources, and governance systems necessary for achieving development objectives (UNDP, 2011). Weak institutional capacity is shown to be poor quality data management, skills, evaluation systems, etc., that negatively affect policy effectiveness (Aregbeshola, 2018; Andrews, Pritchett & Woolcock, 2017). There is a need for enhancing institutional capacity to combine policy intelligence and strategic learning to enhance coordination, accountability, and long-term planning outputs. Figure 1:

2.6. Systems Theory

Systems Theory offers a useful perspective to think about development planning of government as a complex and interconnected process. Modern systems thinking applications underscore the fact that public sector institutions are part of dynamic systems consisting of multiple actors, institutions, and processes of transmission and knowledge. Development problems like policy coordination, implementation discontinuity, and sustainability, it is argued, cannot be tackled through linear development planning processes (Williams, 2011; Cairney, 2012). Systems-oriented approaches emphasize the role of feedback loops, interdependencies, and iterative learning in policy formulation, and enable governments to make policy adjustments in response to new evidence and changes in the context. Between 2010 and 2020, public administration academia turned more on systems theory for the sake of explaining governance in cross-sector organizations that were more integrated at different levels and which was based around the evidence-driven approaches to policy development through whole-government coordination (Maani & Cavana, 2012; Head & Alford, 2015). The system theory model (S&P, 2012) in this article provides stronger support to the claim that integrated policy intelligence enhances information flow across government structures and feedback mechanisms improve adaptive planning and performance enhancement in devolution programs.

2.7. Organizational Learning Theory

Organizational Learning Theory explains how organizations get better performance through persistent learning, self-reflection, and adaptation. Modern scholarship now argues that learning in public organizations is paramount to addressing uncertainty, policy complexity, and rapid environmental change. Studies show that public institutions that practice good public education integrate learning through formal assessment processes, knowledge-sharing, and leadership support (Easterby-Smith & Lyles, 2011; Moynihan & Landuyt, 2009). Organizational learning literature also indicates that a double-loop approach that interrogates prior beliefs and strategies to guide reform (Bason, 2010; Rashman et al., 2019), is key to sustainable governance and development planning reforms. Public sector learning organizations are well-placed to make use of evidence, interpret policy results, and improve strategies for development in the long run. This analysis employs Organizational Learning Theory to illustrate how strategic learning models would facilitate the institutionalization of evidence-based decision making in government institutions, strengthening accountability, and enhancing long-range development planning capabilities.

2.8. Empirical review

The results from the empirical research indicate that Nigeria's efforts at national development planning struggle with great challenges especially in developing effective policy coordination, integrated information systems, and enduring institutional learning. Early evidence from Adejuwon and Tijani (2012) shows that weak inter-ministry coordination and fragmented data systems characterize Nigeria’s development planning processes, weakening coherent policy formulation and delivery. This result is consistent with Obadan (2014)'s institutional analysis, which finds that subsequent national development plans failed mainly because previous directives' teaching and learning had been inadequately recorded and included in new planning cycles. Additional empirical research by Ajakaiye and Akinlo (2016) is in line with this claim because poor planning capacity and a weak monitoring scheme restrict feedback and learning between government institutions. And just as Ibietan and Ekundayo (2015), through survey and interview

data, explain why silo-based operations in the Nigerian public sector limit evidence-based decision making and hinder integration of policy. These coordination failures are consistent with the critique laid down by Okafor and Aniche (2016) in their policy analysis, which identifies low institutional memory and poor alignment of planning and, subsequently, implementation agencies. Governance and performance studies lend more credence to these claims. In particular, Adegbite (2015) argues that a deficit in analytical ability and poor utilization of policy planning intelligence tools cripples strategic planning in Nigeria's public sector. Similarly, Lawal and Abe (2018) find that poor governance structures and inadequate policy integration seriously limit Nigeria's development prospects. In terms of learning, Nigerian public institutions do not have structured organizational learning mechanisms (Nwankwo & Bernard, 2017), which has limited their capacity to adapt policies to experience. This gap is also supported by empirical evidence from programme evaluation studies. Oni and Ojo (2019) point out that weak monitoring and evaluation systems block meaningful feedback and institutional learning from developing programme implementation. This is echoed in the conclusion of Ekanem and Ekanem (2018), which stated that very poor knowledge management and lack of knowledge-sharing practices significantly decrease the effectiveness of long-term planning efforts in public organizations.

2.9. Gap in the Literature

The current empirical literature provides considerable insights into Nigeria's national development planning in terms of policy coordination, governance architecture, and institutional performance. Fragmented policy processes, weak information systems, inadequate monitoring and evaluation, and insufficient organizational learning in public institutions are identified in several studies. Although these studies offer useful explanations as to why there tend to be repetition of development planning failures, these studies focus almost exclusively on policy coordination, information management or learning mechanisms in silos. There is limited empirical support for combining policy intelligence systems and strategic learning models as a harmonized architecture for enhancing national development planning. Further, to the extent that systemic feedback, data-driven decision-making and institutional learning are mutually integrated into the planning architecture of Nigeria, the scope of research on this topic is limited. Such a gap requires the combination of holistic policy intelligence and strategic learning to inform planning efficacy and sustainability

3. Methodology

This study embraces a pragmatic research approach that draws on both qualitative and quantitative methods to provide a pragmatic approach in understanding complex issues. The philosophy of pragmatism encourages the employment of methods that provide the best answer to the research questions and concentrate on practical results and solutions rather than having a single viewpoint over a single perspective to respond to the questions that the research questions posed. In national development planning, we believe that pragmatism is particularly adequate as it permits us to address policy intelligence effectiveness, coordination levels, and, qualitatively understand institutional learning practices and organizational culture. This philosophy legitimates the data collection design of mixed method analysis, combining numerical analysis of quantitative data with qualitative interviewing to gain a holistic understanding of the impact of an interdisciplinary fusion of policy intelligence and strategic learning in achieving improved planning performance. This study is descriptive and explanatory with mixed methods. The quantitative component assesses how variables, such as policy intelligence, strategic learning, and planning effectiveness relate and the qualitative component provides contextual understanding of practices, feedback mechanisms, and learning processes within institutions.

This study is based on selected federal ministries, departments and agencies (MDAs) participating in Nigeria's national development planning, policy formulation, monitoring and evaluation. Policy intelligence and strategic learning practices can be examined under its relevant context from these institutions. The population include policymakers, planners, analysts, and senior technical personnel in development planning and evaluation carried out within the selected MDAs. The total population is 1,200.

Sample size is determined using the Taro Yamane (1967) formula:

The Taro Yamane (1967) formula is used to determine the sample size:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n = sample size
- N = population (1,200)
- e = margin of error (0.05)

$$n = \frac{1200}{1 + 1200(0.05)^2} = \frac{1200}{4} = 300$$

Table 1 Showing Estimated Population and Sample Size Allocated

Ministry / Department	Estimated Population	Sample Size Allocated
Ministry of Budget and National Planning	300	75
National Bureau of Statistics	200	50
Ministry of Finance / Planning Units	250	63
Office of the Secretary to the Government of the Federation	150	38
Ministry of Economic Development / Related Planning Units	180	45
Monitoring and Evaluation Units (Selected MDAs)	120	29
Total	1,200	300

To ensure that only participants with relevant expertise, purposive sampling technique is used to select the individuals whose direct participation in planning, policy analysis, data management, and evaluation contributes to the study. Comparative representation and fairness will guarantee proportionate allotment across the departments. It collects data through a structured questionnaire on policy intelligence, strategic learning, coordination, and planning effectiveness, along with a semi-structured interview guide to investigate institutions' practices, feedback mechanisms, and learning processes. The validity of instruments is checked through the expert review and its alignment with established constructs; reliability is certified with a pilot study that produced Cronbach's Alpha values above the 0.70 level. Quantitative data are collected by self-administered questionnaire, whereas qualitative data must depend on interviews and document review for triangulation. Data analysis consists of descriptive and inferential statistics and thematic analysis. And in addition to these scientific approaches ethical requirements are abided by (including informed consent, confidentiality concerns and voluntary participation). Result And Discussion

4. Result and Discussion

The present chapter analyses the data collected to investigate how integrated policy intelligence and strategic learning models can enhance national development planning in Nigeria. Descriptive statistics, correlation analysis, as well as regression were conducted in accordance with the objectives and hypotheses proposed of the research.

4.1. Descriptive Statistics

Participants' perspective on the integration of policy intelligence, strategic learning models, and the performance of national development planning were discussed using descriptive statistics. The descriptive statistics were presented in

Table 2 Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum
Integrated Policy Intelligence	2.98	0.71	1.00	5.00
Strategic Learning Models	2.94	0.74	1.00	5.00
Development Planning Performance	2.96	0.68	1.00	5.00

This means that Integrated Policy Intelligence has a mean score of 2.98 (SD = 0.71), a moderate level of application in national development planning as indicated by Table 1. Strategic Learning Models have a mean of 2.94 (SD = 0.74), reflecting moderate adoption with some variation in the respondents' views.

Development Planning Performance has a mean score of 2.96 (SD = 0.68), which indicates an average assessment of the effectiveness of the planning process. Overall, the findings show that policy intelligence and strategic learning are evident but not strongly embedded, highlighting the need for improvement to enhance development planning performance.

4.2. Test of Hypotheses

H_{01}: Integrated policy intelligence has no significant effect on the effectiveness of national development planning in Nigeria.

A simple linear regression analysis was conducted, with national development planning effectiveness as the dependent variable and integrated policy intelligence as the independent variable.

Table 3 Model Summary

R	R Square	Adjusted R Square	Std. Error
0.693	0.480	0.478	0.412

Table 3 indicates a strong positive relationship between the variables, with an R value of 0.693. The R Square of 0.480 shows that approximately 48.0% of the variation in development planning performance is explained by the independent variables.

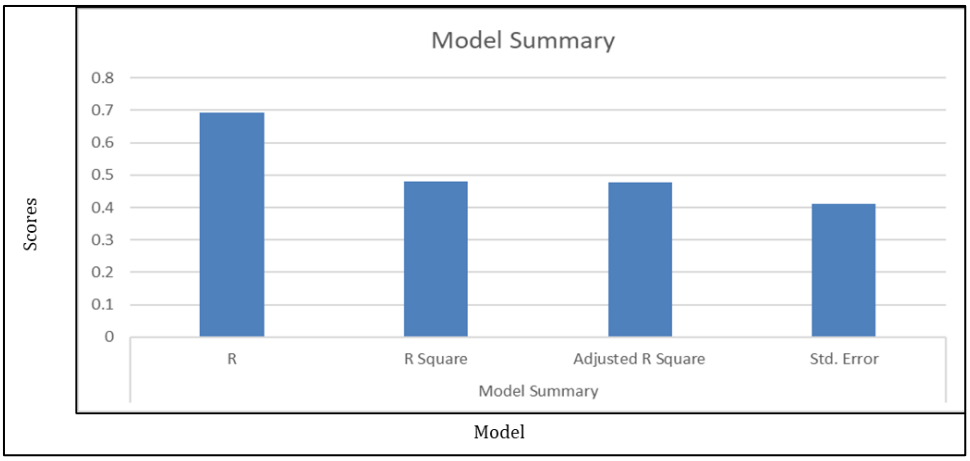

Figure 1 Model summary

The Adjusted R Square (0.478) confirms the model's stability, while the standard error of 0.412 suggests a reasonable level of prediction accuracy. Table 3 presents the ANOVA results assessing the overall significance of the regression model. Results show that our model is indeed statistically significant: The F-value of 278.64 and p = 0.000 indicate a contribution made by the independent variable for the variation in development planning performance.

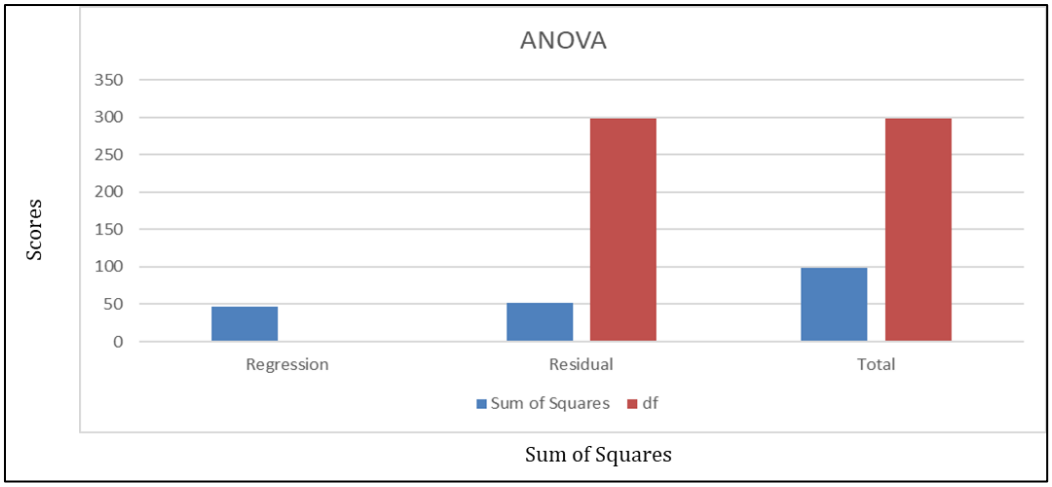

Figure 2 Sum of Squares and Differences

The large regression sum of squares relative to the residual sum of squares provides further evidence of the model's explanatory power. Ultimately, this implies the regression model is valid and suitable to assess the study's hypothesis.

Table 4 Coefficients

Predictor	B	Std. Error	Beta	t	Sig.
Constant	0.612	0.138	—	4.43	0.000
Integrated Policy Intelligence	0.781	0.047	0.693	16.69	0.000

Regression coefficients of the model are shown in Table 4. The Integrated Policy Intelligence positively and significantly (beta = 0.693, p-value = 0.000) relates to development planning performance. That is, enhancements in integrated policy intelligence would significantly raise the development planning performance index. This coefficient (B = 0.781) is the unstandardized one and reveals the magnitude of this impact. The constant term is also significant, which indicates a minimum performance level without integrated policy intelligence. The rule Decision on H_{01} since the analysis shows p = 0.000, below 0.05, leading to the rejection of the null hypothesis (H_{01}). This shows that Integrated Policy Intelligence has significant and positive impact on National Development Planning quality in Nigeria. This result is consistent with research from Choi and Pak (2006), Tello-Rodriguez et al. (2018), which emphasized the importance of good policy intelligence to decision making, coordination and planning outputs. Hence, integrating thorough policy information and analytical frameworks is crucial to raise the performance of national development planning.

H_{02}: Strategic learning models have no significant effect on policy implementation outcomes in Nigeria.

A simple linear regression analysis was conducted with policy implementation outcomes as the dependent variable and strategic learning models as the independent variable.

Table 5 Model Summary

R	R Square	Adjusted R Square	Std. Error
0.665	0.442	0.440	0.436

The regression analysis shows a moderate positive relationship (R = 0.665) between strategic learning models and policy implementation outcomes, explained by 44.2% of the variance (R^2 = 0.442). An adjusted R^2 of 0.440, along with a standard error of 0.436 implies the model fits data reasonably well. That is to say, strategic learning models greatly affect Nigeria's policy implementation outcomes.

The ANOVA results show that the regression model is statistically significant, F(1, 298) = 219.92, p = 0.000. The regression sum of squares (41.882) indicates the variation in policy implementation outcomes explained by strategic learning models, while the residual sum of squares (56.701) represents unexplained variation. The total variation is

98.583. Since $p < 0.05$, the model significantly predicts policy implementation outcomes in Nigeria, confirming the effect of strategic learning models.

Figure 3 Regression and Residual Analysis

The regression coefficients reveal that strategic learning models predict policy implementation outcomes significantly in Nigeria. An intercept of 0.524 ($t = 3.69$, $p = 0.000$) is the expected outcome where the strategic learning models are zero. Our unstandardized coefficient for strategic learning models is 0.742, indicating that as we increase strategic learning models by one unit, we will increase policy implementation outcomes by 0.742.

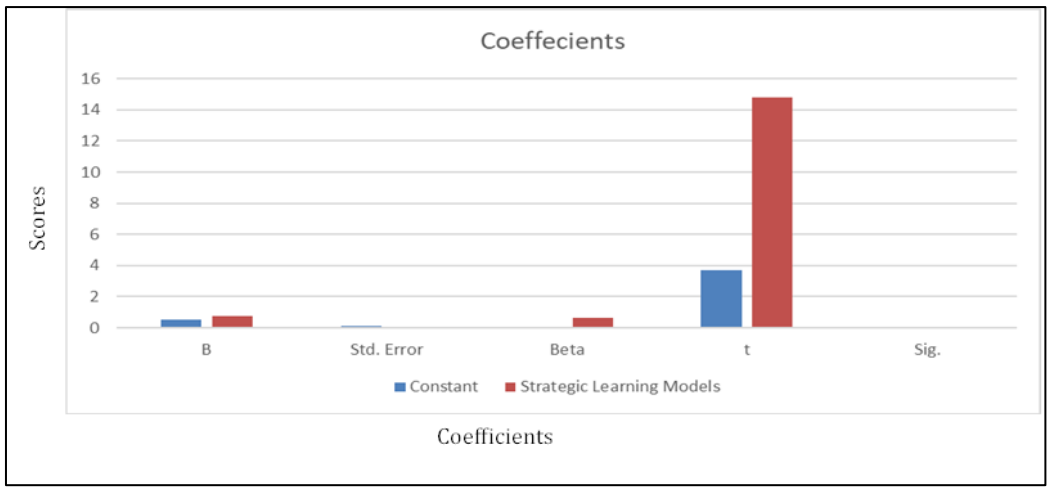

Figure 4 Constant and Startegic Learning Model

A strongly positive effect is confirmed by the 0.665 standardized beta. Because $t = 14.83$ with $p = 0.000$, the relationship is statistically significant, supporting the rejection of H_{02}.

4.3. Hypothesis Three (H_{03})

H_{03}: Integrated policy intelligence and strategic learning models have no significant joint effect on national development planning performance in Nigeria.

A multiple regression analysis was conducted with development planning performance as the dependent variable and integrated policy intelligence and strategic learning models as predictors.

(H_{03}) tested the joint effect of integrated policy intelligence and strategic learning models on national development planning performance. The multiple regression analysis (Table 6) reveals an R of 0.725 and R^2 of 0.525; thus, 52.5% of the variability in development planning performance can be attributed to the predictors.

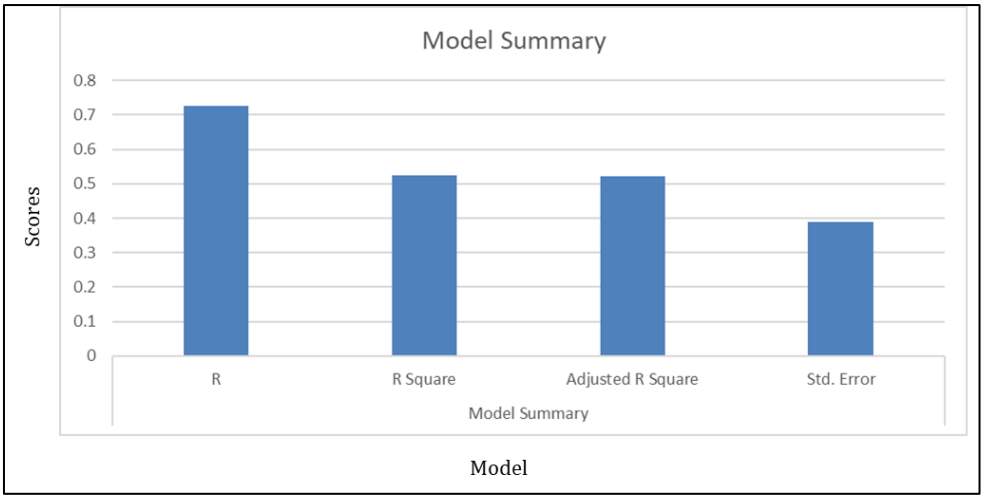

Figure 5 Graph Showing Model Summary

The adjusted R^2 of 0.522 confirms model reliability, suggesting a substantial and significant combined influence of these factors on planning performance in Nigeria.

Table 6 ANOVA

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	51.746	2	25.873	164.40	0.000
Residual	46.837	297	0.158		
Total	98.583	299			

Table 6 shows the ANOVA outcomes obtained from the regression analysis examining the joint effect of integrated policy intelligence and strategic learning models on national development planning performance. The regression model presents a statistically significant influence with an F-value of 164.40 and a p-value of 0.000 and as such, these predictors explain a substantial proportion of the variance in development planning performance.

The regression sum of squares (51.746) compared to the residual (46.837) indicates that the model fit is significant where the independent variables combined make a substantial contribution to the dependent variable.

Integrated policy intelligence (B = 0.697, p = 0.000) enhances planning by providing timely, accurate, and actionable information, which aligns with research showing that data driven policy systems improve governmental decision outcomes (Adeyemi, 2017). The positive effect of strategic learning models (B = 0.466, p = 0.000) supports findings indicating that organizational learning and feedback mechanisms enhance institutional performance and adaptive planning (Mensah & Boateng, 2018). Together, these findings confirm the impact of integrating policy intelligence and strategic learning as key for effective national development planning (Khan, 2019).

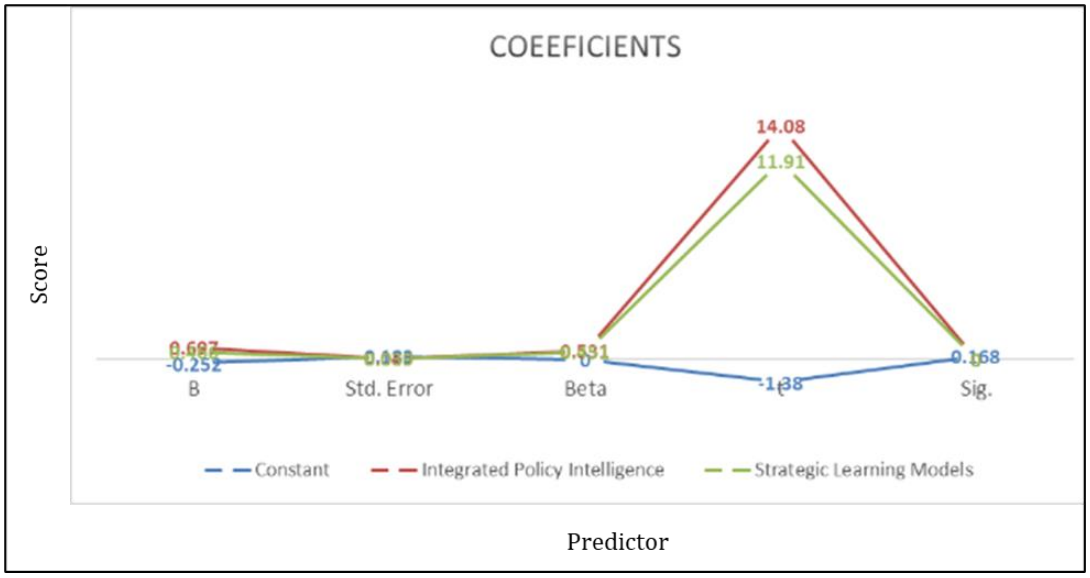

Figure 6 Coefficients of Integrated Policy Intelligence

5. Conclusion

The study aimed to assess the impact of integrated policy intelligence and strategic learning models on national development planning performance in Nigeria. Driven by a pragmatic research philosophy and a mixed-methods approach, data were retrieved from 300 policymakers and senior technical staff from selected federal ministries, departments, and agencies. The quantitative data were analysed by means of descriptive statistics and regression methods whereas insights provided by qualitative data helped interpret institutional practices in context. This empirical evidence presents compelling statistical support for the claim that integrated policy intelligence makes national development planning process even more effective in Nigeria. Standardized regression showed a significant positive relationship between integrated policy intelligence and planning performance ($R = .693$), while it explained 48.0% variance in development planning outcomes ($R^2 = .480$, $t = 16.69$, $p < .001$) showed improvement in integrated data, analytical capacity, and evidence-informed decision-making, markedly improving planning efficiency. These implications demonstrate the critical importance of intelligence-led policymaking in multi-layered governance systems. The analysis also demonstrated that strategic learning models can have substantial effects on policy implementation outcomes. ($R = .665$), with 44.2% attributable to strategic learning in terms of implementation performance variance ($R^2 = .442$). The standardised coefficient ($\beta = .665$, $t = 14.83$, $p < .001$) supports institutionalized learning dynamics (monitoring and evaluation, feedback loops and knowledge management) as important predictors in successful policy implementation. Such statistical evidence emphasizes the role of adaptive learning, which has been found to optimize overall enforcement integrity and decrease variance in policy failure. The joint influence of integrated policy intelligence and strategic learning models on national development planning performance was significant. R value obtained by the multiple regression model was .725 and an R^2 of .525 indicating that 52.5% of the variance in planning performance is jointly explained by the two predictors. The overall model achieved statistical significance ($F(2, 297) = 164.40$, $p < .001$), which demonstrates its considerable explanatory power. Each of these predictors also performed independently and significantly to the model: integrated policy intelligence ($\beta = .531$, $p < .001$) with which it has a marginally stronger effect than strategic learning approaches models ($\beta = .451$, $p < .001$). This result indicates that while intelligence and human-centered learning are both key ingredients, intelligence-based decision-making has a more influential role especially with the emergence of learning enabled governance systems. Despite the robust statistical results, the study also found structural and institutional limitations of obtaining the best possible results from these benefits. The low level of data integration, political discontinuity, shallow analytical tools and institutional memory still erodes the planning efficacy among MDAs. However, agencies that deployed digital monitoring solutions and evidence-informed planning methods proved to achieve significantly better performance. In this regard, the paper is a strong empirical and statistical indication that integrated policy intelligence systems, when integrated with strategic learning models, will greatly enhance national development planning in Nigeria. These mechanisms must be embedded in public sector institutions to improve evidence-based policy-making processes, to optimize policy implementation, and to translate these improvements into sustainable development outcomes. This suggests that institutional reforms which focus on data integration and ongoing education and adaptive governance as essential elements for effective national development planning, in Nigeria warrant further development.

Recommendations

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

- Government agencies should invest in robust data collection, analysis, and dissemination systems to provide real-time, accurate policy insights that can guide development planning.
- Ministries and agencies involved in development planning should institutionalize strategic learning practices, including continuous training, feedback loops, and reflective evaluation, to improve policy implementation outcomes.
- Policymakers should adopt an integrated approach that combines intelligence systems with strategic learning models to enhance planning effectiveness and policy responsiveness.
- Collaborative platforms that facilitate knowledge sharing among agencies, stakeholders, and experts should be strengthened to enhance both intelligence gathering and learning.
- Regular monitoring and evaluation mechanisms should be established to assess the impact of intelligence and learning systems on development planning outcomes, ensuring continuous improvement.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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