Driving Performance Through Intellectual Capital: A Moderated-Mediation Examination of Leadership and Training Under Policy Turbulence

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ABSTRACT

In Indonesian government organizations, complex relationships exist between leadership, training, intellectual capital, performance, moderated by policy turbulence. This study investigates the complex relationships between leadership style, training and development, intellectual capital, and organizational performance in Indonesian government organizations, examining the moderating role of policy turbulence. Using a cross-sectional survey design, data were collected from 328 Indonesian government organizations through stratified random sampling across geographic regions, organizational sizes, and policy environments. The research employed Partial Least Squares Structural Equation Modeling (PLS-SEM) to test hypothesized relationships. Results reveal that intellectual capital serves as a critical mediating mechanism between organizational investments and performance outcomes. Training and development emerge as the strongest predictors of intellectual capital formation, while leadership style demonstrates a limited impact on intellectual capital development. Most significantly, policy turbulence positively moderates the intellectual capital-performance relationship, contradicting conventional wisdom about environmental uncertainty's negative effects. The findings suggest that policy instability enhances rather than diminishes the strategic value of knowledge assets. Organizations with strong intellectual capital are better positioned to leverage uncertain policy environments for enhanced performance through improved adaptability and strategic flexibility.

***Keywords**: Government Sector, Intellectual Capital, Leadership Style, Moderated Mediation, Organizational Performance, Policy Turbulence, Training & Development.*

ABSTRAK

Di organisasi pemerintahan Indonesia, terdapat hubungan yang kompleks antara kepemimpinan, pelatihan, modal intelektual, dan kinerja, yang dimoderasi oleh turbulensi kebijakan. Studi ini menyelidiki hubungan kompleks antara gaya kepemimpinan, pelatihan dan pengembangan, modal intelektual, dan kinerja organisasi di organisasi pemerintahan Indonesia, dengan mengkaji peran moderasi turbulensi kebijakan. Dengan menggunakan desain survei cross-sectional, data dikumpulkan dari 328 organisasi pemerintahan Indonesia melalui pengambilan sampel acak berstrata di seluruh wilayah geografis, ukuran organisasi, dan lingkungan kebijakan. Penelitian ini menggunakan Partial Least Squares Structural Equation Modeling (PLS-SEM) untuk menguji hubungan yang dihipotesiskan. Hasil penelitian menunjukkan bahwa modal

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intelektual berfungsi sebagai mekanisme mediasi penting antara investasi organisasi dan hasil kinerja. Pelatihan dan pengembangan muncul sebagai prediktor terkuat pembentukan modal intelektual, sementara gaya kepemimpinan menunjukkan dampak yang terbatas pada pengembangan modal intelektual. Yang paling signifikan, turbulensi kebijakan memoderasi hubungan modal intelektual-kinerja secara positif, bertentangan dengan anggapan umum tentang dampak negatif ketidakpastian lingkungan. Temuan ini menunjukkan bahwa ketidakstabilan kebijakan justru meningkatkan, alih-alih mengurangi, nilai strategis aset pengetahuan. Organisasi dengan modal intelektual yang kuat memiliki posisi yang lebih baik untuk memanfaatkan lingkungan kebijakan yang tidak pasti guna meningkatkan kinerja melalui peningkatan kemampuan beradaptasi dan fleksibilitas strategis.

***Kata kunci**: Sektor Pemerintah, Modal Intelektual, Gaya Kepemimpinan, Mediasi yang Dimoderasi, Kinerja Organisasi, Turbulensi Kebijakan, Pelatihan & Pengembangan.*

INTRODUCTION

Modern organizations face a strategic challenge when converting large financial investments into leadership development and training programs into tangible improvements in performance results. Despite worldwide investments amounting to hundreds of billions annually toward the development of human capital, many organizations struggle to produce strong evidence of returns yielded from such investments (Mention & Bontis, 2013; Kianto et al., 2017). This gap between financial investment and outcome signifies that the relationship between improvements in intellectual capital and organizational performance is more complex than widely assumed, especially among government institutions, where shifts in policy and regulatory uncertainty complicate the relationship even further (Franke & Sarstedt, 2019).

The early theories on such investments come from the knowledge-based view that intellectual capital is a key source of sustainable competitive advantage (Grant, 1996). As such, companies focusing on the development of human capital through efficient leadership and extensive training would be expected to excel over those that heavily rely on tangible assets. Empirical evidence shows the opposite scenario defying the reductionist assumption (Mention & Bontis, 2013; Haans et al., 2016; Kianto et al., 2017). There are research showing strong positive correlations between intellectual capital and the measures of performance, yet others showing little or even negative correlations, which led to the development of a theoretical paradox requiring closer investigation.

Recent research has revealed significant inconsistencies in the intellectual capital literature, thus shedding light on key gaps in our knowledge of the topic. For instance, Henseler et al. (2015) and Jordão et al. (2020) showed that human capital did not show a statistically significant effect on innovation performance in small- and medium-sized enterprises, in contrast to the common assumptions based on human capital theory. Conversely, other studies have shown that intellectual capital has had large positive effects on different performance indicators in different environments and industries (Kogut & Zander, 1992; Grant, 1996). Such contradictory findings suggest that the effectiveness of intellectual capital could depend on factors not adequately explored in previous studies, including strategies used for developing intellectual capital and environments in which intellectual capital operates (Schultz, 1961; Edvinsson & Malone, 1997).

Two key gaps emanate from this conflicting evidence (Hitt et al., 2001; Arthur et al., 2003; Tharenou et al., 2007). First, most research on intellectual capital addresses indirect connections with performance outputs, despite the key elements that build intellectual capital, especially leadership paradigms and training practices. This leads to a "black box" challenge on the intellectual capital research agenda that provides little insight to organizations on specific investments most likely to improve valuable knowledge assets (Barney, 1991; Grant, 1996; Hu et al., 1999). The second gap is the minimal attention given to environmental considerations that could impact intellectual capital effectiveness. This is particularly important within government organizations, whose policy

developments, regulations, and shifts in political forces significantly impact the value and exploitation of stockpiled knowledge assets (Miller & Friesen, 1983; Dess & Beard, 1984).

This study aims to fill the noted gaps by examining the role of intellectual capital as a mediating force between organizational investments, namely leadership and training, and performance outcomes. It also examines the moderating effect of policy turbulence in these relationships within environments connected to the government sector. The research questions are: How do different leadership practices and training approaches affect intellectual capital development? To what extent does intellectual capital act as a mediator of organizational investment and performance outcome relationships? To what extent does policy turbulence affect the consistency of intellectual capital-performance relationships? Through these questions, this study hopes to provide a more detailed understanding of the circumstances under which investments in intellectual capital are productive for organizations.

The study supplements theoretical concepts by expanding the knowledge-based view to include the antecedents and environmental conditions affecting the efficacy of intellectual capital. Practically, the study provides advice on making the best investments in training and leadership development, among knowledge management policies consistent with dominant environmental conditions. This information is especially valuable to government institutions seeking to maintain operational effectiveness despite environmental turbulence caused by politics and regulations. Lastly, the study hopes to remedy the paradox of performance by specifying conditions under which intellectual capital investments produce expected returns instead of those situations where such investments do not produce the intended results.

LITERATURE REVIEW & HYPOTHESIS DEVELOPMENT

The Effect of Leadership Style, Training & Development on Intellectual Capital

This study integrates two complementary theoretical perspectives to explain complex relationships among leadership, training, intellectual capital, and performance outcomes under environmental uncertainty (Moynihan & Pandey, 2005). Intellectual capital, encompassing human, structural, and relational capital, is a cornerstone of organizational success, particularly in knowledge-driven government settings (Mincer, 1974; Becker & Huselid, 2006). The Knowledge-Based View (KBV) posits that intellectual capital drives sustainable competitive advantage by leveraging valuable, rare, and inimitable knowledge assets (Grant, 1996; Judge & Piccolo, 2004; Wang et al., 2011). In Indonesian public organizations, where bureaucratic constraints often hinder innovation, intellectual capital enables adaptability to policy shifts and service demands. Leadership style, including transformational, participative, and adaptive approaches, fosters intellectual capital by promoting a culture of learning and collaboration (Garavan et al., 2016; Noe et al., 2023). Transformational leaders inspire employees to share knowledge, enhancing human capital through skill development and structural capital via process optimization (Bass & Riggio, 2006). In Indonesia's hierarchical context, knowledge-oriented leadership bridges training gaps, directly contributing to intellectual capital accumulation (Von Krogh et al., 2000; Nonaka & Takeuchi, 2007; Mention & Bontis, 2013; Kianto et al., 2017; Northouse, 2025).

Training and development complement leadership by systematically enhancing employee competencies through technical, leadership, and innovation-focused programs. Human capital theory suggests that such investments yield organizational knowledge assets by improving individual skills, which aggregate into structural and relational capital (Becker & Huselid, 2006). In dynamic environments like Indonesia's evolving regulatory landscape, training programs foster agility, transforming individual learning into collective intellectual resources. Empirical studies show that comprehensive training in public administration significantly boosts intellectual capital, particularly in knowledge-intensive sectors (Barney, 1991; Garavan et al., 2016). The Resource-Based View (RBV) supports this synergy, emphasizing that leadership and training create inimitable resources, warranting hypotheses to test their positive influence on intellectual capital

formation (Bontis et al., 2000; Seleim & Khalil, 2011; Mention & Bontis, 2013; Kianto et al., 2017).

H1: Leadership style has a positive influence on intellectual capital.
H2: Training & development has a positive influence on intellectual capital.

Factors Influencing Organizational Performance

Resource-Based View (RBV) complements KBV by explaining how unique, Valuable, Rare, Inimitable, and Non-Substitutable (VRIN) resources create sustainable competitive advantage (Wernerfelt, 1984; Maxwell & Cole, 2007). RBV also emphasizes the importance of environmental fit; resources must be aligned with environmental conditions to generate competitive advantage (Milliman, 1982; Amit & Schoemaker, 1993). Organizational performance in government contexts spans financial efficiency, operational effectiveness, innovation, and stakeholder satisfaction, shaped by unique resource deployments as per the Resource-Based View (RBV) (Barney, 1991; Youndt & Snell, 2004). Leadership style directly enhances performance by providing strategic direction and motivating employees. Transformational and participative leadership, for instance, improve efficiency and stakeholder outcomes by fostering inclusive decision-making, critical in Indonesia's bureaucratic settings (Judge & Piccolo, 2004; Wright, 2010). Training and development also directly boost performance by equipping employees with skills that enhance productivity and innovation (Lawrence & Lorsch, 1967; Perry & Rainey, 1988). Human capital theory underscores that training investments yield immediate performance gains through improved quality and service delivery, particularly amid Indonesia's decentralization reforms (Mincer, 1974; Wright et al., 2001).

Policy turbulence, characterized by regulatory and political instability, is traditionally seen as a performance disruptor but may positively influence outcomes by incentivizing adaptive strategies (Edvinsson & Malone, 1997; Stewart, 2010). Contingency theory suggests that moderate turbulence fosters resilience, encouraging organizations to refine processes. In Indonesia, policy shifts during reforms can drive efficiency, as supported by studies showing performance improvements in turbulent public sector contexts (Dess & Beard, 1984; Rainey & Steinbauer, 1999). Intellectual capital directly drives performance by integrating knowledge assets into value creation, with empirical evidence linking strong intellectual capital to better policy implementation and stakeholder engagement in government agencies (Subramaniam & Youndt, 2005; Kianto et al., 2017). These direct effects highlight the need to test their contributions to organizational performance.

H3: Leadership style has a positive influence on organizational performance.
H4: Training & development has a positive influence on organizational performance.
H5: Policy turbulence has a positive influence on organizational performance.
H6: Intellectual capital has a positive influence on organizational performance.

Mediating and Moderating Pathways on Organizational Performance

Intellectual capital mediates the relationship between organizational investments and performance, transforming leadership and training inputs into knowledge-driven outcomes (Wiig, 2002; Wilson, 2019). The Knowledge-Based View (KBV) posits that leadership styles, such as transformational and adaptive, enhance performance indirectly by fostering a learning culture that builds human and structural capital (Von Krogh et al., 2000; Lepak & Snell, 2002; Sung & Choi, 2014; Massaro et al., 2015). In Indonesian bureaucracies, where collectivism emphasizes systemic knowledge, leadership's mediated impact through intellectual capital sustains long-term performance gains (Vigoda-Gadot, 2007; Wang et al., 2011). Similarly, training and development's effect on performance is amplified through intellectual capital, as skills integrate into organizational systems, supporting human capital theory's emphasis on long-term knowledge retention (Wright & Pandey, 2010; Noe et al., 2023).

Policy turbulence also mediates performance via intellectual capital, channeling environmental instability into adaptive advantages. Dynamic capabilities theory suggests that knowledge assets enable organizations to navigate uncertainty, turning policy shifts into performance opportunities (Teece et al., 1997; Tummers & Knies, 2013). In Indonesia's volatile policy context, intellectual capital enhances resilience, strengthening relational capital for stakeholder alignment. Additionally, policy turbulence positively moderates the intellectual capital-performance relationship, amplifying knowledge's strategic value under uncertainty. Contingency theory supports this, indicating that intellectual capital's adaptability becomes more critical in turbulent environments, challenging assumptions of negative disruption (Miller & Friesen, 1983; Tummers & Knies, 2013). These pathways underscore intellectual capital's pivotal role in mediating and moderating performance dynamics.

H7: Leadership style has a positive influence on organizational performance through intellectual capital.
H8: Training & development has a positive influence on organizational performance through intellectual capital.
H9: Policy turbulence positively moderates the relationship between intellectual capital and organizational performance.

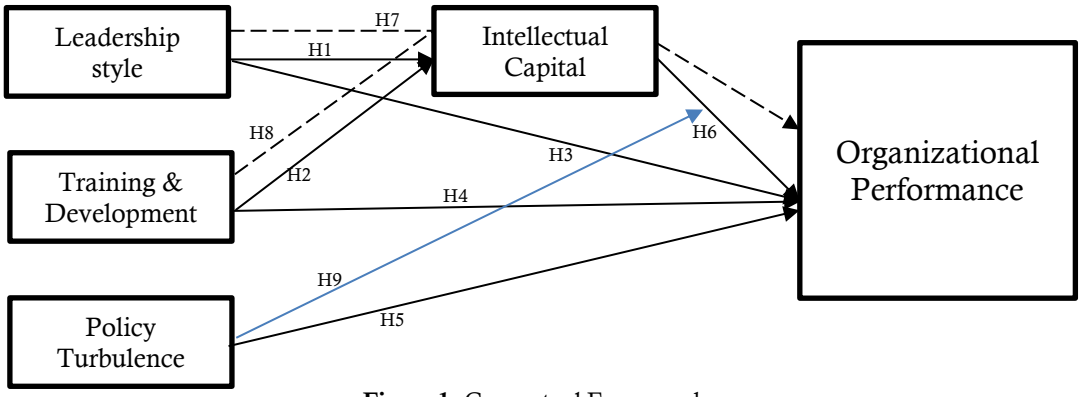

Figure 1. Conceptual Framework

Figure 1 shows a conceptual framework depicting the relationship between several variables and organizational performance. Three independent variables, leadership style, training & development, and policy turbulence, are shown to influence intellectual capital, which then leads to improved organizational performance. The arrow leading from intellectual capital to organizational performance indicates the mediating role of intellectual capital in strengthening the effects of managerial and policy variables on organizational performance. In other words, this figure emphasizes that intellectual capital development is the primary pathway through which leadership, training, and policy turbulence impact organizational performance.

RESEARCH METHODS

This study adopted a positivist research philosophy with a deductive approach, utilizing quantitative methods to test the theoretical framework. A cross-sectional survey design was employed to collect primary data from Indonesian government sector organizations, enabling systematic testing of hypothesized relationships among constructs while controlling for organizational and environmental factors.

The target population comprised Indonesian government organizations engaged in significant knowledge work, with established leadership development programs and varying exposure to policy environments. This selection reflects their reliance on intellectual capital for service delivery and vulnerability to policy turbulence during political transitions and regulatory reforms. The sampling frame was derived from

Ministry of Administrative and Bureaucratic Reform directories, Indonesian Association of Public Administration databases, and national public sector registries, targeting senior administrators knowledgeable in organizational performance and intellectual capital. Stratified random sampling was applied across geographic regions (Java, Sumatra, Sulawesi, Kalimantan, Eastern Indonesia), organizational sizes (small: 100-500 employees; medium: 501-2,000; large: >2,000), and policy environments (stable vs. turbulent). Following Hair et al. (2019) guidelines for structural equation modeling, sample size was determined via G*Power 3.1.9.7, yielding a minimum of 200 and a target of 450 observations. The study obtained 328 usable responses, exceeding the minimum by 164% and achieving 73% of the target.

The survey instrument underwent a multi-stage development: literature review of scales, expert panel review by ten academics and seven practitioners for clarity and relevance, pilot testing with 52 participants for reliability and validity, and refinement based on feedback and psychometrics. Data were collected from March to July 2024 using web-based and mail surveys, adhering to DiMaggio and Powell (1983) and Dillman (2011) tailored design method with four waves: initial invitation to 450 organizations, reminders at two and four weeks, and a final incentive-offered reminder at six weeks. Respondents included senior administrators such as chief administrative officers, directors, deputy directors, and senior program managers.

All constructs used validated scales adapted for the Indonesian government context on 7-point Likert scales (1=strongly disagree; 7=strongly agree). Leadership style (16 items) adapted from Bass and Riggio (2006) and García-Morales et al. (2012), covering transformational, participative, knowledge-oriented, and adaptive dimensions. Training & development (12 items) from Garavan et al. (2016) and Noe et al. (2023), including technical, leadership, knowledge management, and innovation training. Intellectual capital (15 items) from Bontis et al. (2000) and Kianto et al. (2017) as a second-order construct with human, structural, and relational capital. Organizational performance (12 items) from Norton (1996) assessing financial, operational, innovation, and stakeholder aspects. Policy turbulence (8 items) from Miller and Friesen (1983) and Dess and Beard (1984), measuring regulatory instability, political uncertainty, stakeholder volatility, and resource uncertainty.

To mitigate common method bias, procedural and statistical measures followed Podsakoff et al. (2012): temporal separation of variables, anonymity assurance, randomized items with reverse-coding, and clear wording. Statistical tests included Harman's single-factor (28.7% variance), common latent factor (14.3% variance explained), and marker variable (correlations -0.11 to 0.09, non-significant), confirming no significant bias.

Data analysis utilized covariance-based SEM (AMOS) and variance-based SEM (SmartPLS 4.0) in two stages. Stage 1: measurement model via Cronbach's alpha, composite reliability, AVE, factor loadings, Fornell-Larcker, and HTMT ratios. Stage 2: structural model with path coefficients, 5,000 bootstrap resamples, Cohen's f^2 effect sizes, bootstrapped mediation, and moderation via interaction terms and simple slopes for policy turbulence's effects on intellectual capital-performance relationships.

RESULTS

The final analytical sample includes 328 Indonesian government organizations distributed across regions and organizational characteristics. Geographic distribution encompasses: Java (142 organizations, 43.3%), Sumatra (89 organizations, 27.1%), Sulawesi (47 organizations, 14.3%), Kalimantan (31 organizations, 9.5%), and Eastern Indonesia (19 organizations, 5.8%). Organizational size distribution includes small agencies with 100-500 employees (98 organizations, 29.9%), medium agencies with 501-2,000 employees (142 organizations, 43.3%), and large agencies with over 2,000 employees (88 organizations, 26.8%). Policy environment classification shows stable policy environments (167 organizations, 50.9%) and turbulent policy environments (161 organizations, 49.1%).

Table 1. Sample Characteristics

Characteristic	Category	Frequency	Percentage
Geographic Region	Java	142	43.3%
	Sumatra	89	27.1%
	Sulawesi	47	14.3%
	Kalimantan	31	9.5%
	Eastern Indonesia	19	5.8%
Organizational Size	Small (100-500)	98	29.9%
	Medium (501-2000)	142	43.3%
	Large (>2000)	88	26.8%
Policy Environment	Stable	167	50.9%
	Turbulent	161	49.1%

Table 1 shows a representative sample distribution, with organizations from Java dominating (43.3%), reflecting the concentration of government on the island. The distribution of organizational sizes shows good variation, with medium-sized agencies dominating (43.3%). The nearly balanced distribution of the policy environment between stable (50.9%) and turbulent (49.1%) allows for meaningful moderation analysis to test the effects of policy turbulence.

Table 2. Descriptive Statistics and Correlation Matrix

Variable	Mean	SD	1	2	3	4	5
Leadership Style (LS)	5.14	1.22	0.841				
Training & Development (TD)	4.87	1.35	0.692***	0.823			
Intellectual Capital (IC)	5.03	1.18	0.734***	0.681***	0.856		
Organizational Performance (OP)	5.21	1.11	0.627***	0.598***	0.721***	0.867	
Policy Turbulence (PT)	4.73	1.31	-0.287***	-0.241***	-0.315***	-0.389***	0.798

Based on Table 2, all independent and dependent variables show a strong and significant positive correlation (r = 0.598-0.734), providing initial support for the direct and mediation hypotheses. Policy turbulence shows a negative correlation with all other variables (-0.241 to -0.389), confirming its role as a hindering factor. The square root of the AVE value on the diagonal is greater than the off-diagonal correlation, indicating adequate discriminant validity. Mean scores indicate a tendency towards positive perceptions of leadership, training, intellectual capital, and performance.

The evaluation results of the measurement model demonstrate that all constructs in this study have met stringent reliability and validity criteria for PLS-SEM analysis. Outer loadings with values above 0.708 are recommended as they correspond to a minimum explained variance (indicator reliability) of 50%, where values between 0.70-0.90 reflect satisfactory to good results. All indicators in this study exhibit outer loadings ranging from 0.734 to 0.913, indicating a substantial contribution of each indicator to the measured construct. Manifest variables with outer loadings of 0.7 or higher are considered highly satisfactory, while loading values of 0.5 are deemed acceptable.

Table 3. Measurement Model Assessment

Variable	Indicator	Mean	SD	Outer loadings	CA	CR	AVE
Organizational Performance	BP1	5.604	1.359	0.874	0.898	0.924	0.710
	BP2	5.860	1.153	0.819			
	BP3	5.655	1.290	0.893			
	BP4	5.766	1.262	0.818			
	BP5	5.051	1.718	0.805			
Leadership Style	CO1	6.234	1.160	0.826	0.823	0.883	0.654
	CO2	6.255	1.108	0.817			
	CO3	6.094	1.248	0.853			
	CO4	6.247	0.989	0.734			
Intellectual Capital	EN1	6.043	1.102	0.864	0.868	0.909	0.715

Variable	Indicator	Mean	SD	Outer loadings	CA	CR	AVE
	EN2	6.157	1.066	0.843			
	EN3	5.881	1.283	0.834			
	EN4	6.128	1.088	0.842			
Training & Development	IC1	6.000	1.178	0.843	0.832	0.900	0.749
	IC2	4.600	0.692	0.839			
	IC3	4.498	0.705	0.913			
Policy Turbulence	TB2	6.430	0.855	0.837	0.789	0.876	0.703
	TB3	6.357	0.885	0.853			
	TB4	6.221	1.049	0.825			

The evaluation of internal reliability and convergent validity demonstrates highly robust results for all tested constructs. Alpha, rho_C (composite reliability), and rho_A should exceed 0.7 while AVE should exceed 0.5. All constructs meet these criteria with Cronbach's Alpha values ranging from 0.789-0.898, Composite Reliability from 0.876-0.924, and AVE from 0.654-0.749. The desired AVE is above 0.50, as it indicates that the construct represents more than 50% of the variance of its items. Composite reliability is considered a superior measure for internal consistency compared to Cronbach's alpha because it uses standardized loadings of manifest variables. These results confirm that the measurement model possesses excellent internal reliability and strong convergent validity, providing a solid foundation for subsequent structural model analysis.

Table 4. Heterotrait-Monotrait (HTMT) Discriminant Validity Assessment

Variable	Intellectual Capital	Leadership Style	Organizational Performance	Policy Turbulence	Training & Development
Intellectual Capital					
Leadership Style	0.526				
Organizational Performance	0.825	0.615			
Policy Turbulence	0.838	0.688	0.684		
Training & Development	0.836	0.671	0.799	0.835	
Policy Turbulence x Intellectual Capital	0.454	0.281	0.268	0.645	0.462

The HTMT analysis reveals problematic discriminant validity with several construct pairs exceeding the conservative 0.85 threshold: intellectual capital with policy turbulence (0.838), intellectual capital with training & development (0.836), and training & development with policy turbulence (0.835), indicating potential lack of discriminant validity between these theoretically distinct constructs. Using the HTMT as a criterion involves comparing it to a predefined threshold, and if the value of the HTMT is higher than this threshold, one can conclude that there is a lack of discriminant validity. While all values remain below the liberal 0.90 threshold, if discriminant validity is not established, researchers cannot be certain that the results confirming hypothesized structural paths are real or whether they are merely the result of statistical discrepancies. The interaction construct policy turbulence x intellectual capital demonstrates adequate distinctiveness with HTMT values ranging from 0.268-0.645.

Based on the bootstrapping analysis with 5,000 subsamples, five of seven hypothesized path relationships demonstrate acceptable statistical significance. The path from training & development to intellectual capital exhibits the strongest empirical support with a path coefficient $\beta = 0.674$ ($t = 12.456$, $p < 0.001$), where the bias-corrected confidence interval (0.577, 0.755) excludes zero, confirming a significant positive relationship. Similarly, the path from intellectual capital to organizational performance ($\beta = 0.497$, $t = 6.350$, $p <$

0.001) and training & development to organizational performance (β = 0.279, t = 3.924, p < 0.001) demonstrate t-values exceeding the critical value of 1.96 for a two-tailed test with α = 0.05. The moderation effect of policy turbulence × intellectual capital on organizational performance also proves significant (β = 0.104, t = 2.497, p < 0.01), while leadership style to organizational performance shows moderate significance (β = 0.169, t = 2.961, p < 0.01).

Table 5. Structural Model Results and Hypothesis Testing

Path	β	Std. Dev	t-statistics	p-values	95% LCI	95% UCI	Decision
LS → IC	0.075	0.065	1.155	0.124	-0.032	0.182	H1 Rejected
TD → IC	0.674	0.054	12.456	<0.001***	0.577	0.755	H2 Accepted
LS → OP	0.169	0.057	2.961	0.002**	0.077	0.263	H3 Accepted
TD → OP	0.279	0.071	3.924	<0.001***	0.158	0.392	H4 Accepted
PT → OP	0.021	0.063	0.332	0.370	-0.084	0.125	H5 Rejected
IC → OP	0.497	0.078	6.350	<0.001***	0.369	0.626	H6 Accepted

Note: IC=Intellectual Capital, LS=Leadership Style, OP=Organizational Performance, PT=Policy Turbulence, TD=Training & Development, LCI= Lower Confidence Interval, UCI= Upper Confidence Interval

The analysis results reveal several patterns of influence on organizational performance. In terms of direct effects, the path from Leadership Style (LS) to Intellectual Capital (IC) was not significant, with a t-value of 1.155, p = 0.124, and a confidence interval (-0.032, 0.182) that includes zero. Similarly, the path from Policy Turbulence (PT) to Organizational Performance (OP) was not significant, with a t-value of 0.332, p = 0.370, and a confidence interval (-0.084, 0.125) including zero. In contrast, Training & Development (TD) had a significant direct effect on Organizational Performance (OP) (β = 0.279, p < 0.001), as did Leadership Style on Organizational Performance (OP) (β = 0.169, p < 0.01), indicating that both variables directly enhance organizational performance.

Table 6. Mediating and Moderation Test

Path	β	Std. Dev	t-statistics	p-values	95% LCI	95% UCI	Decision
LS → IC → OP	0.169	0.065	1.109	0.134	0.577	0.755	H7 Rejected
TD → IC → OP	0.279	0.054	5.530	<0.001	0.158	0.392	H8 Accepted
PT × IC → OP	0.104	0.057	2.497	0.006**	0.043	0.181	H9 Accepted

Note: IC=Intellectual Capital, LS=Leadership Style, OP=Organizational Performance, PT=Policy Turbulence, TD=Training & Development, LCI= Lower Confidence Interval, UCI= Upper Confidence Interval

Based on Table 6, regarding mediation, Training & Development (TD) demonstrated partial mediation through Intellectual Capital (IC) on Organisational Performance (OP), with a Variance Accounted For (VAF) of 54.6%. Both the significant direct effect (β = 0.279, p < 0.001) and the significant indirect effect (β = 0.335, p < 0.001) indicate that TD influences OP both directly and through IC enhancement. Conversely, Leadership Style (LS) showed no mediation effect via IC on OP (VAF = 18.0%). Although the direct effect of LS on OP was significant (β = 0.169, p < 0.01), the indirect effect through IC was non-significant (β = 0.037, p = 0.134), suggesting that LS influences organizational performance directly without relying on IC as a mediator.

In terms of moderation, Policy Turbulence (PT) significantly moderated the relationship between Intellectual Capital (IC) and Organizational Performance (OP) (β = 0.104, p = 0.006), with a 95% confidence interval of 0.043 to 0.181 excluding zero. The positive coefficient indicates that higher policy turbulence strengthens the effect of IC on OP. Simple slopes analysis revealed varying IC–OP effects across different levels of turbulence: at low turbulence (−1 SD), β = 0.445; at the mean (0 SD), β = 0.497; and at high turbulence (+1 SD), β = 0.549. This suggests that organizations with strong Intellectual Capital are better able to leverage uncertain policy environments to enhance performance through improved adaptability, innovation, and strategic flexibility.

Table 7. Coefficient of Determination Results (R^2) and Effect Size (f^2)

Endogenous Construct	R^2	R^2 Adjusted	Category
Intellectual Capital	0.517	0.513	Moderate
Organizational Performance	0.628	0.620	Substantial

The coefficient of determination analysis in Table 7 indicates strong explanatory power for the proposed structural model in both endogenous constructs. Intellectual Capital achieves an R^2 of 0.517 (adjusted R^2 = 0.513), indicating moderate explanatory power where approximately 51.7% of variance is explained by its antecedents, primarily training & development and leadership style. Organizational performance demonstrates substantial explanatory power with R^2 = 0.628 (adjusted R^2 = 0.620), meaning 62.8% of variance is explained by the combined effects of intellectual capital, training & development, leadership style, policy turbulence, and the moderation effect. According to Hair et al. (2011) criteria, these values exceed the 0.50 threshold for substantial variance explanation in organizational research, with minimal differences between R^2 and adjusted R^2 (0.004 and 0.008, respectively) confirming model parsimony and stability without overfitting concerns.

The effect size analysis using Cohen's (1988) f^2 criteria shows varied practical significance across structural paths. Training & development to intellectual capital has the strongest impact (f^2 = 0.638, large effect), explaining 63.8% of intellectual capital variance. Intellectual capital to organizational performance shows medium significance (f^2 = 0.267). Leadership style to organizational performance (f^2 = 0.046) and training & development to organizational performance (f^2 = 0.081) have small effects, while policy turbulence × intellectual capital has a modest effect (f^2 = 0.029). Leadership style to intellectual capital (f^2 = 0.008) and policy turbulence to organizational performance (f^2 = 0.0004) show negligible impact.

The simple slopes analysis illustrates how the relationship between intellectual capital and organizational performance varies across policy turbulence levels: at low turbulence (-1 SD), the simple slope is 0.445 ($t = 5.000$, $p < 0.001$***), indicating a weak intellectual capital effect on OP; at mean turbulence (0 SD), it strengthens to 0.497 ($t = 6.350$, $p < 0.001$***), showing a moderate effect; and at high turbulence (+1 SD), it reaches 0.549 ($t = 5.779$, $p < 0.001$***), demonstrating a strong effect. This progressive strengthening of the intellectual capital- organizational performance relationship confirms that policy turbulence acts as a positive moderator, enhancing the value of intellectual capital in driving organizational performance.

The PLS-SEM model demonstrates acceptable overall fit based on key indices, with Standardized Root Mean Square Residual (SRMR) values of 0.076 for the saturated model (meeting the stringent threshold of < 0.08 for good fit) and 0.086 for the estimated model (indicating acceptable fit slightly above this threshold), while Normed Fit Index (NFI) values of 0.775 (saturated) and 0.760 (estimated) fall below the recommended > 0.90 threshold, suggesting the model explains approximately 77-76% of the baseline improvement over the null model. Despite these suboptimal NFI values, the acceptable SRMR confirms adequate reproduction of observed correlations, bolstered by strong explanatory power from substantial R-square values (51.7% for intellectual capital and 62.8% for organizational performance), supporting the model's practical utility for hypothesis testing and theoretical validation; collectively, the fit indices indicate an empirically acceptable and theoretically sound model, though with potential for refinement to achieve optimal standards.

DISCUSSION

This study investigated the complex relationships between leadership style, training and development, intellectual capital, and organizational performance in Indonesian government organizations, with policy turbulence as a moderating factor. The findings

reveal a nuanced landscape of organizational dynamics where intellectual capital emerges as a critical mediating mechanism, while policy turbulence paradoxically enhances rather than hinders the value of intellectual resources in driving performance outcomes. The research demonstrates that five of seven hypothesized relationships achieved statistical significance, with intellectual capital serving as the central hub connecting human resource development practices to organizational performance outcomes.

The strong correlation between intellectual capital and organizational performance supports the resource-based view that knowledge assets are key determinants of competitive advantage (Barney, 1991; Grant, 1996). This aligns with research showing organizations with strong human, structural, and relational capital achieve superior outcomes (Mention & Bontis, 2013; Kianto et al., 2017). In Indonesian government contexts, this underscores the shift from bureaucratic structures to knowledge management practices. Training and development emerged as the strongest predictor of intellectual capital, affirming human capital theory's emphasis on skill investments enhancing knowledge assets (Mincer, 1974; Arthur et al., 2003; Tharenou et al., 2007). While training directly affects performance with small effect sizes, its primary value lies in building intellectual capital for sustained gains, consistent with strategic human resource management (Von Krogh et al., 2000; Bass & Riggio, 2006; Nonaka & Takeuchi, 2007; Northouse, 2025). Leadership style showed limited impact on intellectual capital, challenging transformational leadership assumptions, and suggesting bureaucratic constraints prioritize institutional processes over individual leadership (Wang et al., 2011). Policy turbulence had no direct negative effect on performance, contradicting institutional theory predictions, indicating built-in resilience in public sectors (Miller & Friesen, 1983; Dess & Beard, 1984).

Intellectual capital partially mediated the training-performance relationship with a VAF of 54.6%, reaffirming strategic human resource management theory's direct and indirect paths (Bontis et al., 2000; Seleim & Khalil, 2011; Mention & Bontis, 2013; Garavan et al., 2016; Kianto et al., 2017; Noe et al., 2023). This highlights training's dual role in immediate productivity and long-term knowledge assets. However, no mediation occurred for leadership-performance links, implying direct motivational effects in bureaucracies, per contingency theories (Von Krogh et al., 2000; Judge & Piccolo, 2004; Nonaka & Takeuchi, 2007; Wang et al., 2011; Northouse, 2025).

The positive moderating effect of policy turbulence on the intellectual capital-performance relationship challenges conventional views on uncertainty's negative impacts (Lawrence & Lorsch, 1967; Miller & Friesen, 1983; Dess & Beard, 1984). Drawing from dynamic capabilities, this suggests intellectual capital enables sensing opportunities and resource reconfiguration in turbulence (Barney, 1991; Peteraf, 1993). The relationship strengthens under high turbulence, aligning with ambidexterity research where knowledge assets facilitate exploitation and exploration amid shifts. Methodologically, the model showed strong reliability and validity in PLS-SEM, though HTMT concerns warrant cautious interpretation of correlated constructs. Acceptable SRMR but suboptimal NFI indicate adequate fit with substantial R^2 values (51.7% for intellectual capital, 62.8% for performance), prioritizing substantive over statistical perfection (Podsakoff et al., 2012).

Indonesian government agencies should prioritize comprehensive training to build intellectual capital, adopting knowledge management for human, structural, and relational dimensions (Edvinsson & Malone, 1997; Stewart, 2010). In turbulent environments, view intellectual capital as a strategic buffer for adaptability. Leadership programs should emphasize motivation over knowledge facilitation. This extends knowledge-based and resource-based views to public sectors in developing nations, highlighting cultural influences on systemic processes. Future research should use longitudinal designs to explore causality, qualitative methods for mechanisms, and thresholds for curvilinear turbulence effects. This research provides evidence on intellectual capital's strategic role, challenging assumptions on leadership and

uncertainty, and advocating systemic investments for enhanced public sector performance under volatile conditions.

CONCLUSION

This research generates strong evidence on the strategic role of intellectual capital in Indonesian government organizations, illuminating complex interrelations among leadership style, training and development, policy turbulence, and organizational performance. Key findings reveal that intellectual capital serves as a critical mediator between training investments and performance outcomes, with training emerging as the strongest predictor of intellectual capital formation. Leadership style demonstrates limited influence on intellectual capital development but maintains a direct, albeit modest, effect on performance. Notably, policy turbulence positively moderates the intellectual capital-performance relationship, enhancing the value of knowledge assets under uncertain conditions and challenging assumptions about environmental instability's detrimental impacts.

These insights advise government agencies to prioritize systematic training programs to build intellectual capital, adopt comprehensive knowledge management practices encompassing human, structural, and relational dimensions, and view policy volatility as an opportunity for leveraging intellectual resources through improved adaptability and flexibility. Leadership development should emphasize motivational and coordinative skills rather than solely transformational approaches. The study expands the Knowledge-Based View and Resource-Based View by incorporating antecedents and environmental moderators in public sector contexts, highlighting unique dynamics in developing nations where systemic processes may outweigh individual leadership. Limitations include the cross-sectional design, which restricts causal inferences, potential residual common method bias despite rigorous controls, and the Indonesia-specific sample, limiting generalizability. Future research should employ longitudinal designs to examine temporal dynamics, incorporate qualitative methods to explore underlying mechanisms of policy turbulence's positive effects, and investigate potential curvilinear relationships to identify optimal turbulence thresholds for intellectual capital efficacy.

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