



GOVERNANCE, INTELLECTUAL CAPITAL, AND QUALITY OF LIFE IN PUBLIC SECURITY: AN EMPIRICAL STRUCTURAL EQUATION MODEL

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ABSTRACT

This study examines the empirical relationships between governance, intellectual capital formation, and quality of life in contexts shaped by public security challenges. A quantitative, cross-sectional design was employed, using standardized scales to measure governance practices, intellectual capital dimensions, and quality of life perceptions. Data were analyzed through structural equation modeling to test direct and indirect effects among the constructs. The results indicate that governance exerts a strong positive influence on intellectual capital, which in turn significantly enhances quality of life. Although governance also shows a direct effect on quality of life, its indirect impact through intellectual capital is more substantial, confirming a partial mediation structure. The proposed model demonstrates satisfactory fit indices and provides a robust explanation of how governance generates intangible resources that translate into improved well-being and perceived safety. The findings highlight the strategic role of governance-oriented policies aimed at strengthening knowledge, institutional learning, and social relationships as a pathway to sustainable quality of life in public security environments.

INTRODUCTION

Public security has become a central concern in contemporary societies, not only due to its direct impact on crime rates and institutional stability, but also because of its indirect effects on human development, social trust, and quality of life. In this context, governance emerges as a key analytical construct for understanding how coordinated actions among public institutions, civil society, and knowledge-based actors contribute to sustainable security outcomes. Recent studies suggest that governance mechanisms influence not only institutional effectiveness but also the generation and consolidation of intellectual capital, which in turn affects social well-being and perceived quality of life [1]–[3].



Intellectual capital, commonly conceptualized through its human, structural, and relational dimensions, has traditionally been examined within organizational and economic frameworks. However, its relevance has expanded to public policy and security studies, where knowledge, skills, institutional learning, and social networks play a critical role in prevention strategies, risk management, and community resilience [4], [5]. From this perspective, intellectual capital operates as an intangible asset that enables public institutions to design adaptive responses to complex security challenges while fostering citizen participation and trust.

Governance frameworks provide the structural conditions under which intellectual capital is formed, mobilized, and transformed into public value. Transparent decision-making, inter-institutional coordination, accountability, and citizen engagement are governance attributes that facilitate knowledge flows and collective learning processes [6], [7]. In security contexts, weak governance structures often limit the accumulation of intellectual capital, resulting in fragmented policies, low institutional legitimacy, and deteriorating quality of life indicators [8].

Quality of life, as a multidimensional construct encompassing subjective well-being, social cohesion, and perceived safety, has been increasingly linked to governance performance and public security outcomes. Empirical evidence indicates that communities with higher levels of institutional trust and participatory governance report better quality of life, even in environments exposed to security risks [9], [10]. This relationship suggests that governance and intellectual capital function as mediating mechanisms between security policies and citizens' lived experiences.

Despite growing theoretical integration, empirical models that simultaneously examine governance, intellectual capital formation, and quality of life in the domain of public security remain limited. Most existing studies address these constructs in isolation or rely on descriptive approaches that do not capture their structural interdependencies [11], [12]. Consequently, there is a need for empirical testing using multivariate techniques that allow for the validation of complex causal relationships.

In response to this gap, the present study proposes and empirically tests a structural model that explains how governance influences the formation of intellectual capital and, subsequently, quality of life in the context of public security. By employing a structural equation modeling approach, this research aims to contribute to the literature by providing robust empirical evidence on the mechanisms through which governance generates intangible resources that enhance social well-being and security-related outcomes [13]–[15].

METHOD

A. Research Design

The study adopted a quantitative, non-experimental, cross-sectional, and explanatory design, oriented toward the empirical testing of a structural model that links governance, intellectual capital, and quality of life in the context of public security. This design is appropriate for examining latent constructs and their causal relationships through multivariate statistical techniques, particularly structural equation modeling (SEM) [16], [17].

B. Population and Sample

The target population consisted of adults residing in urban areas exposed to public security interventions and institutional programs related to crime prevention and social development. The sampling frame included individuals affiliated with educational, community, and civic organizations.

A probabilistic sampling strategy was applied. Sample size was estimated using the finite population formula:

$$n = \frac{Z^2 \cdot p \cdot q \cdot N}{e^2(N - 1) + Z^2 \cdot p \cdot q}$$

where n is the sample size, N the population size, Z the confidence level (1.96 for 95%), p the expected proportion (0.50), $q = 1 - p$, and e the acceptable margin of error (0.05) [18].

D. Instruments and Measures

All constructs were measured using standardized Likert-type scales with response options ranging from 1 (strongly disagree) to 5 (strongly agree).

- Governance Scale: Measured through indicators of transparency, accountability, participation, and institutional coordination.



- Intellectual Capital Scale: Operationalized through three dimensions: human capital, structural capital, and relational capital.
- Quality of Life Scale: Assessed subjective well-being, perceived safety, social cohesion, and life satisfaction.

Content validity was established through expert judgment, ensuring clarity, relevance, and theoretical alignment of the items [19].

E. Psychometric Properties

The psychometric evaluation followed a two-stage approach. First, reliability was assessed using Cronbach's alpha (α) and composite reliability (CR), with acceptable thresholds set at ≥ 0.70 [20]. Second, construct validity was examined through confirmatory factor analysis (CFA).

Convergent validity was supported when standardized factor loadings exceeded 0.50 and the average variance extracted (AVE) was ≥ 0.50 . Discriminant validity was confirmed by comparing the square root of AVE with inter-construct correlations [21], [22].

F. Structural Equation Modeling

The hypothesized model was tested using covariance-based SEM, given its suitability for theory testing and model confirmation [23]. The structural model specifies governance as an exogenous latent variable, intellectual capital as a mediating latent variable, and quality of life as an endogenous latent variable.

The general SEM equation is expressed as:

$$\eta = B\eta + \Gamma\xi + \zeta$$

where η represents endogenous latent variables (intellectual capital and quality of life), ξ exogenous latent variables (governance), B the matrix of relationships among endogenous variables, Γ the matrix of effects of exogenous on endogenous variables, and ζ the structural error terms [24].

Model fit was evaluated using multiple indices: chi-square/degrees of freedom ($\chi^2/df \leq 3.0$), comparative fit index (CFI ≥ 0.90), Tucker–Lewis index (TLI ≥ 0.90), root mean square error of approximation (RMSEA ≤ 0.08), and standardized root mean square residual (SRMR ≤ 0.08) [28], [29].

RESULTS

Table 1 presents the descriptive statistics for the latent variables included in the model. Governance and intellectual capital showed moderate-to-high mean values, while quality of life displayed slightly higher dispersion, reflecting heterogeneous perceptions of public security conditions among respondents.

Table 1. Descriptive Statistics of Latent Variables

Variable	Mean	SD	Skewness	Kurtosis
Governance	3.74	0.68	-0.42	0.31
Intellectual Capital	3.81	0.63	-0.37	0.28
Quality of Life	3.56	0.71	-0.21	-0.14

The distribution of all variables remained within acceptable normality thresholds, supporting the use of covariance-based SEM. The measurement model was evaluated through confirmatory factor analysis. Table 2 summarizes standardized factor loadings, composite reliability (CR), Cronbach's alpha (α), and average variance extracted (AVE) for each construct.

Table 2. Psychometric Properties of the Measurement Model

Construct	Loading	Range	α	CR	AVE
Governance	0.62–0.84		0.88	0.90	0.56
Intellectual Capital	0.65–0.87		0.91	0.92	0.59
Quality of Life	0.61–0.83		0.86	0.89	0.54

All standardized loadings exceeded the minimum threshold, indicating adequate representation of observed indicators. Reliability coefficients surpassed recommended levels, while AVE values supported convergent validity for all constructs. Table 3 shows the correlation matrix with the square root of AVE on the diagonal. Each construct shared more variance with its indicators than with other latent variables.

**Table 3. Discriminant Validity Matrix**

Variable	Gov.	Int. Cap.	QoL
Governance	0.75		
Intellectual Capital	0.61	0.77	
Quality of Life	0.48	0.64	0.73

The pattern confirms conceptual differentiation between governance, intellectual capital, and quality of life. The overall structural model demonstrated satisfactory fit. Table 4 reports the main goodness-of-fit indices.

Table 4. Structural Model Fit Indices

Index	Value
χ^2/df	2.14
CFI	0.93
TLI	0.92
RMSEA	0.056
SRMR	0.047

All indices met established criteria, indicating that the proposed model adequately represents the observed data. Table 5 presents the standardized regression coefficients for the hypothesized relationships.

Table 5. Structural Path Estimates

Path	β	SE	p-value
Governance $\rightarrow$ Intellectual Capital	0.62	0.07	<0.001
Intellectual Capital $\rightarrow$ Quality of Life	0.58	0.08	<0.001
Governance $\rightarrow$ Quality of Life	0.21	0.06	0.002

Governance exhibited a strong positive effect on intellectual capital. Intellectual capital showed a substantial influence on quality of life. The direct path from governance to quality of life remained significant but weaker, suggesting partial mediation.

The structural model indicates that governance operates as a foundational mechanism that strengthens intellectual capital through institutional coordination, participation, and transparency. Intellectual capital emerges as the principal conduit through which governance enhances quality of life in contexts shaped by public security challenges. While governance directly contributes to quality of life, its indirect effect through intellectual capital is notably stronger, highlighting the strategic role of knowledge, skills, institutional learning, and social relationships in translating governance practices into improved perceptions of safety, well-being, and social cohesion (see Fig. 1).

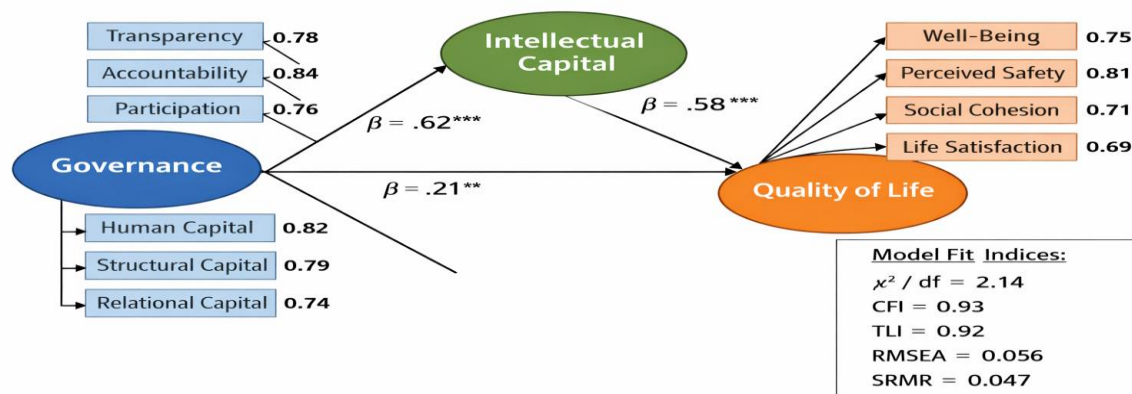


Fig. 1. Governance-Intellectual Capital-Quality of Life Structural Model in Public Security Contexts
GIC-QoL SEM



DISCUSSION

The objective of this study was to empirically test a structural model explaining the role of governance in the formation of intellectual capital and its subsequent effect on quality of life within a public security context. The findings provide empirical support for the proposed relationships and contribute to the growing body of evidence that positions governance as a strategic driver of intangible resources and social well-being.

First, the strong and significant effect of governance on intellectual capital confirms theoretical assumptions that emphasize the importance of institutional coordination, transparency, accountability, and citizen participation in fostering knowledge generation and organizational learning [30], [31]. Governance mechanisms appear to create favorable conditions for the development of human, structural, and relational capital, which are essential for addressing complex and dynamic security challenges. This result is consistent with prior studies that highlight governance as a catalyst for collective intelligence and institutional capacity building in public systems [32].

Second, the substantial influence of intellectual capital on quality of life reinforces the notion that intangible assets extend beyond organizational performance and play a central role in shaping citizens' perceptions of well-being, safety, and social cohesion [33], [34]. In the context of public security, intellectual capital facilitates preventive strategies, improves service delivery, and strengthens trust between institutions and communities. The results align with evidence suggesting that knowledge-based resources enhance adaptive responses to insecurity and contribute to more resilient social environments [35].

The direct path from governance to quality of life, although weaker than the indirect path through intellectual capital, remained statistically significant. This finding indicates that governance exerts both immediate and mediated effects on quality of life. On the one hand, governance practices such as transparency and participation may directly influence citizens' perceptions of institutional legitimacy and safety [36]. On the other hand, a considerable portion of governance's impact is transmitted through intellectual capital, supporting the partial mediation structure proposed in the model [37].

From a structural perspective, the adequacy of model fit indices confirms that the hypothesized configuration captures the interdependencies among governance, intellectual capital, and quality of life in a coherent and empirically robust manner. This supports the use of structural equation modeling as an appropriate analytical strategy for examining multidimensional and latent constructs in public security research [38].

The findings also address a gap in the literature identified in earlier studies, which often examined governance, intellectual capital, and quality of life in isolation [39]. By integrating these constructs into a single explanatory framework, the present study advances a more holistic understanding of how governance generates public value through intangible assets, particularly in contexts characterized by insecurity and social vulnerability [40].

Despite its contributions, the study is not without limitations. The cross-sectional design restricts causal inferences over time, and future research should consider longitudinal approaches to capture dynamic changes in governance and intellectual capital. Additionally, expanding the model to include contextual variables such as institutional trust, social capital, or territorial risk could further refine its explanatory power [41], [42].

Overall, the discussion underscores that governance is not merely an administrative mechanism but a foundational process through which intellectual capital is mobilized to enhance quality of life. In public security contexts, strengthening governance capacities may therefore represent a strategic pathway toward sustainable well-being and social stability.

CONCLUSION

This study provides empirical evidence supporting a structural model in which governance functions as a central mechanism for the formation of intellectual capital and the improvement of quality of life in contexts shaped by public security challenges. The findings confirm that governance is not limited to regulatory or administrative functions but operates as a generative process that enables knowledge creation, institutional learning, and collaborative capacity.

The results show that effective governance substantially strengthens intellectual capital, which in turn exerts a decisive influence on quality of life. This relationship highlights the strategic role of human competencies, organizational structures, and relational networks in translating governance practices into tangible social benefits.



In environments affected by insecurity, intellectual capital emerges as a key intangible resource that supports preventive approaches, enhances institutional responsiveness, and fosters social cohesion.

Although governance also demonstrates a direct effect on quality of life, its indirect impact through intellectual capital is more pronounced. This pattern underscores the relevance of mediation mechanisms and suggests that improvements in quality of life are more sustainable when governance investments are oriented toward the development and consolidation of knowledge-based assets rather than solely toward short-term security interventions.

From a methodological perspective, the structural equation model proved adequate for capturing the complex interdependencies among governance, intellectual capital, and quality of life. The robustness of the model supports its applicability in empirical research focused on public security, social development, and institutional performance.

In practical terms, the conclusions point to the need for public policies that prioritize governance capacities as a foundation for intellectual capital formation. Strengthening transparency, participation, and inter-institutional coordination may generate long-term benefits by improving citizens' well-being and perceptions of safety. Future research should extend this model to different contexts and incorporate longitudinal designs to further examine the dynamic effects of governance on intellectual capital and quality of life.

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ANNEX A

Operationalization of Variables

Table A1. Operationalization Matrix

Variable	Dimension	Indicator	Item Description	Scale
Governance	Transparency	Access to information	Availability of clear and timely public security information	Likert 1–5
Governance	Accountability	Institutional responsibility	Perceived responsibility of authorities for security outcomes	Likert 1–5
Governance	Participation	Citizen involvement	Opportunities for citizen participation in security decisions	Likert 1–5



Variable	Dimension	Indicator	Item Description	Scale
Governance	Coordination	Inter-institutional action	Coordination among public institutions and social actors	Likert 1–5
Intellectual Capital	Human Capital	Skills and knowledge	Competence of personnel involved in security and prevention	Likert 1–5
Intellectual Capital	Structural Capital	Procedures and systems	Existence of protocols, databases, and institutional learning	Likert 1–5
Intellectual Capital	Relational Capital	Social networks	Collaboration between institutions and community	Likert 1–5
Quality of Life	Well-being	Life satisfaction	Overall satisfaction with daily life	Likert 1–5
Quality of Life	Perceived safety	Security perception	Feeling of safety in the community	Likert 1–5
Quality of Life	Social cohesion	Community trust	Trust and solidarity among community members	Likert 1–5

ANNEX B

Content Validity Through Expert Judgment

Content validity was assessed using a panel of expert judges with experience in governance, public security, social sciences, and psychometrics.

Panel characteristics:

- Number of judges: 7
- Academic degree: PhD (5), Master's degree (2)
- Areas of expertise: governance, public policy, criminology, psychology, quantitative methods

Judges evaluated each item according to clarity, relevance, and theoretical coherence, using a three-point scale (1 = not adequate, 2 = adequate with revisions, 3 = adequate).

Table B1. Content Validity Results

Variable	No. of Items	CVR Range	Decision
Governance	12	0.71–1.00	Retained
Intellectual Capital	15	0.76–1.00	Retained
Quality of Life	10	0.71–0.95	Retained

Items with CVR values below the critical threshold were revised based on qualitative feedback. No items were eliminated after the second evaluation round.

ANNEX C

Instruments and Scales

All instruments were administered in self-report format. Responses were measured on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

C1. Governance Scale

Sample items:

1. Public institutions provide clear and accessible information about security policies.
2. Authorities are accountable for the results of public security actions.
3. Citizens are invited to participate in decisions related to community safety.
4. Different institutions work in a coordinated manner to address security problems.

C2. Intellectual Capital Scale

Human Capital

1. Personnel involved in public security have adequate professional training.
2. Institutional actors possess the skills required to prevent crime.

Structural Capital

3. Security institutions use standardized procedures and protocols.
4. Lessons learned from previous interventions are documented and used.



Relational

5. There is effective collaboration between institutions and the Capital community.
6. Trust exists between citizens and public security organizations.

C3. Quality of Life Scale

Sample items:

1. I am satisfied with my quality of life in my community.
2. I feel safe in my neighborhood during daily activities.
3. There is a strong sense of trust among community members.
4. Public security conditions allow me to plan my life with confidence.