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Review article

Towards a National Artificial Intelligence Policy in Colombia: A Comparative Analysis of International Frameworks

Hacia una política nacional de inteligencia artificial en Colombia: un análisis comparativo de marcos internacionales

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Abstract: The debate surrounding Artificial Intelligence (AI) no longer centers on if it should be regulated, but rather on what that regulation entails and what its orientation should be. While countries across Europe, Asia, and the Americas have already made progress in AI regulation, Colombia presents a fragmented landscape, featuring 6 withdrawn or archived bills, 7 active projects, 3 specific regulatory proposals, and 2 current regulations, all without a clearly defined path.The methodology used in this analysis is exploratory and qualitative, based on the search, review, and analysis of scientific literature and AI regulatory policies. The analysis reveals a stark divergence in regulatory philosophy: one model, the EU's guarantee-based approach, prioritizes control, traceability, and protection, establishing a high compliance risk, while the other, the Asia-Pacific (APAC) model, leans toward flexibility and the active promotion of innovation. For Colombia, this juncture represents a decisive opportunity to establish clear guidelines that foster innovation and investment, thereby avoiding rigid regulatory barriers that could hinder market development. The regulation must be geared toward an ethical, responsible, and competitive framework that drives sustainable sector growth. It is proposed that Colombian policy adopt a hybrid model, integrating the EU's protection principles with pro-innovation mechanisms and a unique component of social justice and labor retraining, positioning the country as a regional benchmark for responsible regulation adapted to its regional context.

Keywords: Artificial Intelligence; Ethics; Innovation; Policy; Regulation.

Resumen: El debate sobre la inteligencia artificial-IA no se centra en si debe regularse, sino en qué implica dicha regulación y cuál debe ser su orientación. Mientras países de Europa, Asia, y América ya han avanzado en la regulación de la IA, Colombia presenta un panorama fragmentado, el que cuenta con 6 proyectos de ley retirados o archivados, 7 proyectos activos, 3 proyectos normativos específicos y 2 normativas vigentes, sin una ruta clara definida. La metodología

utilizada en este análisis es exploratoria y cualitativa, basada en la búsqueda, revisión y análisis de documentos científicos y políticas regulatorias de IA. El análisis muestra dentro del marco de la regulación un modelo garantista de la UE prioriza el control, la trazabilidad y la protección, estableciendo un alto riesgo de cumplimento y otro modelo de Asía-Pacifico que se inclina por la flexibilidad y el fomento activo de la innovación. Para Colombia, esta coyuntura representa una oportunidad decisiva para establecer directrices claras que fomenten la innovación y la inversión, evitando barreras normativas rígidas que dificulten el desarrollo del mercado. Así, la regulación debe orientarse hacia un marco ético, responsable y competitivo que impulse un crecimiento sostenible. Se propone que la política colombiana adopte un modelo híbrido, que integre los principios de protección de la UE con los mecanismos pro-innovación y un componente único de justicia social y reconversión laboral, posicionando al país como un referente en la regulación responsable y adaptada al contexto regional.

Palabras clave: Ética; Innovación; Inteligencia Artificial; Política; Regulación

1. Introduction

The Organization for Economic Co-operation and Development (OECD) proposes a definition of artificial intelligence (AI) as a "computational system that, for a given set of human defined objectives, can make predictions and recommendations or take decisions that influence real or virtual environments. AI systems are designed to operate with varying levels of autonomy" [10;20]. Along these lines, AI as an interdisciplinary science focuses on the development of systems capable of performing human cognitive functions such as learning, reasoning, perception, adaptation, and autonomous decision-making, based on input data, as well as generating predictions, recommendations, or decisions that impact physical or virtual environments in order to achieve implicit or explicit objectives [12;22].

In this sense, AI has evolved from being an experimental discipline to becoming a cross-cutting driver of economic transformation, directly influencing productivity, operational efficiency, and innovation across numerous sectors. This shift implies that AI has moved from being an emerging technology to a convergent one, driven primarily by the exponential increase in computational capacity, the massive availability of data (big data), and continuous advances in machine learning algorithms, which enable integration with diverse fields of knowledge [3].

Considering this context, AI requires regulation to ensure that its development and deployment remain fully aligned with the general interests and requirements of societies [16]. Regulation is understood here as direct or indirect interventions by the State through binding and mandatory rules (laws, decrees, resolutions, general instructions, etc.). Such intervention must guarantee a strategic and responsible use of AI, prioritizing respect for human rights and ensuring that this technological advancement is intrinsically at the service of human well-being [7]. In response to these AI-related challenges, various States worldwide have defined strategies for its responsible use, seeking to leverage strong technological management to promote socioeconomic development and enhance public satisfaction or well-being, with the aim of establishing ethical and legal oversight.

The regulation of AI began around 2017, with the first Resolution of the European Parliament to discuss the regulatory challenges of AI and an initial regulatory attempt in Canada. One of the most important milestones is undoubtedly the European Union's AI Act (EU AI Act), which received its first approval in that Parliament in June 2023 [6;21]. This regulation, like the General Data Protection Regulation of 2018, could influence various legislative frameworks worldwide, including those of Latin American countries [19]. The United States (U.S.), for its part, has opted for a different approach, using Executive Order 14110 (signed in October 2023) as its main governance instrument. This order is based on directing existing federal agencies to establish their own safety and transparency standards (sectoral regulation), prioritizing innovation and competitiveness over a central and binding legal framework [23].

In Latin America, there has been progress in defining public policies aligned with technological updating and the digital evolution of nations. According to the Latin American Artificial Intelligence Index 2025 [5],

only El Salvador and Peru have approved AI laws. In Peru's case, the law has been in force since July 2023, while in El Salvador it was approved in the first half of 2025. These countries have become benchmarks and encourage AI regulation and discussion across the region, where 11 of the 19 countries currently have at least one bill on this subject under discussion.

In the case of Colombia, the State has assumed an active role in the promotion, regulation, and oversight of this technology, advancing initiatives such as a regulatory framework for AI that emphasizes principles of transparency, privacy, and non-discrimination. These advances reflect an institutional commitment to: (1) sustainable, responsible, and human-centered technological development; (2) strengthening interinstitutional collaboration; (3) establishing a constant dialogue framework among the institutions involved and international organizations, ensuring alignment of national initiatives with global standards; (4) promoting the generation and dissemination of high-quality data repositories; and (5) encouraging the creation of national open data repositories with criteria of representativeness and quality to facilitate the training and implementation of AI algorithms [12;20].

However, in terms of AI adoption and regulation, a series of challenges have been identified, highlighting the lack of a consolidated formal regulatory framework whose development, although underway, is progressing slowly and generating uncertainty. Moreover, limited strategic capacities at the institutional level are exacerbated by a persistent connectivity gap, given that 36% of households in rural areas lack internet access, and service quality is low, with 41% having speeds below 10 Mbps [1;2]. Additionally, there is a notable lack of high-quality data, deficient interoperability, insufficient investment, improper use of personal data in AI, and limited use of AI in social projects [12;24]. Table 1 presents the AI regulatory bills in Colombia that have been processed in the Senate and the House of Representatives.

Table 1. Progress of Artificial Intelligence Regulation in Colombia

Legislative Status	Bill No. / Year	Quantity
Withdrawn	Bill No. 021 / 2020 (House of Representatives)	1
Archived	Bill No. 354 / 2021 (House); 253 / 2022 (Senate); 200 / 2023 (Senate)	3
Active	Bill No. 059 / 2023 (Senate); 091 / 2023 (Senate); 130 / 2023 (Senate); 005 / 2024 (House); 225 / 2024 (Senate); 293 / 2024 (Senate); 154 / 2024 (House)	7
Specific Regulatory Bills	Statutory Bill No. 111 / 2022 (Senate); Bill No. 156 / 2023 (House); Bill No. 447 / 2024 (House)	3
Enacted Regulations	Decree 1078 of 2015 and Decree 403 of 2020	2
Total		**16**

Source: The authors [20].

Table 1 shows Colombia's fragmented progress in regulatory and legislative matters over the past ten years, totaling 16 initiatives. Among these, it is noteworthy that there is one withdrawn bill and three archived bills. In the Congress of the Republic, there are currently seven active bills, three specific regulatory initiatives, and two regulations in force, without providing a clear orientation for a national AI policy [14]. At present, the country is awaiting the discussions of the new bill submitted by the Ministry of Science, Technology and Innovation in July 2025 Bill No. 43, entitled "An Act to regulate Artificial Intelligence in Colombia in order to ensure its ethical, responsible, competitive, and innovative development, and to issue other provisions.

Against this backdrop, this article aims to conduct a comparative analysis of international AI regulatory frameworks in order to identify reference principles and governance mechanisms that may inform the ongoing debate surrounding Colombia's national AI policy. By examining global regulatory models and regional experiences, the study seeks to contribute to the formulation of an ethical, responsible, and inclusive AI governance framework adapted to the Colombian context.

The article is organized as follows. Section 2 outlines the main contributions of the study. Section 3 reviews relevant literature and international experiences in AI regulation. Section 4 describes the exploratory and qualitative methodological approach adopted. Section 5 presents and discusses the results of the

comparative analysis of international regulatory frameworks. Finally, Section 6 summarizes the main findings and highlights their implications for the development of a national AI policy in Colombia.

2. Contributions

This research presents the following contributions:

i. A systematic identification and examination of the main international regulatory frameworks for artificial intelligence is carried out, analyzing their underlying approaches, guiding principles, and governance mechanisms.
ii. A comparative analysis of the current international AI regulatory landscape is performed, identifying key opportunities and reference mechanisms that may contribute to strengthening Colombia's national artificial intelligence policy.
iii. A set of policy-oriented recommendations is formulated to support the development of a national AI policy in Colombia, aimed at ensuring ethical, responsible, and inclusive artificial intelligence governance.

3. Related Works

This section presents selected related studies associated with the review of AI regulatory policy in Colombia and other countries.

[15] present a methodology based on a qualitative approach that employs comparative analysis, using document review to examine regulations and ethical principles within the regulatory environments of Colombia and the European Union (EU). The authors propose a structured methodology for the systematic selection and analysis of policies and academic articles, which identified similarities, key divergences, and regulatory gaps related to the implementation of AI in critical areas such as intellectual property, algorithmic transparency, and data protection. One of the main conclusions emphasizes the urgent need to detect and mitigate biases in AI systems in order to prevent adverse effects on fundamental rights and prohibited discrimination, highlighting the importance of audits and preventive measures to ensure inclusive and equitable development.

Similarly, [11] conducted an independent comparative analysis of national AI strategies in the public sector of six Latin American countries: Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay. Methodologically, they structured their analysis around categories related to objectives, guiding principles, lines of action, and overall vision/goals, with a clear focus on the ethical and human rights dimensions of these policies. Through this approach, they identified strategic characteristics that revealed similarities and differences among the countries. Their findings indicate that AI implementation in the public sector is at a stage of significant, albeit still emerging, progress, and that there is convergence in ethical and human rights–based approaches. The differences identified are largely determined by the distinct political, administrative, and technological contexts inherent to each country.

4. Materials and Methods

The methodology employed is exploratory in nature with a qualitative approach [2]. Its design incorporated a structured process for searching, reviewing, and analyzing scientific documents and AI regulatory policies. The steps followed are detailed below (Figure 1).

4.1. Search

In the search process, a systematic selection strategy was adopted. The search process was divided into two groups of documents for comparative analysis. On the one hand, scientific literature was reviewed, and on the other, AI policy documents from different countries in Europe, Asia, and the Americas were selected.

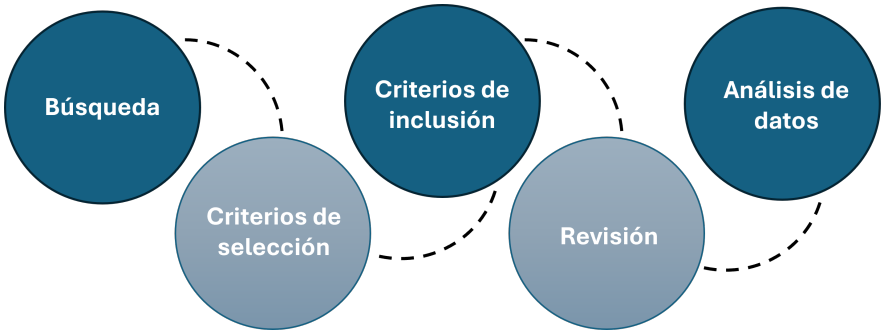

Figure 1. Block diagram of the methodological process of the study.
Source: The authors.

4.1.1. Criteria for the Selection of Scientific Literature

In the article selection process, inclusion and exclusion criteria were established and applied to the Scopus and ScienceDirect databases. The keywords used in the search strings were in English and included: "artificial intelligence," "public policy," and "law."

4.1.2. Criteria for the Inclusion of AI Policy Documents

In the second group of policy documents, primary governmental and international sources were used for selection, regardless of language, in order to ensure the rigor and fidelity of the comparative analysis.

4.2. Review

The methodological review process was conducted using a qualitative approach structured in two phases. The first phase consisted of identifying and selecting scientific articles, which were classified into three main thematic categories reflecting the pre-existing academic discussion: 1) Global governance and foundational ethical frameworks; 2) Analysis of national and regional policies (Latin America); and 3) Technological regulation and challenges.

The second phase focused on the identification and selection of official AI regulatory policy documents. In this study, the two most influential regulatory models were selected, using a comparative approach to contrast rights-based (guarantor) models (such as that of the European Union) with pro-innovation models (such as those of the Asia-Pacific—APAC region). This comparison made it possible to identify reference mechanisms and opportunities to strengthen Colombia's policy model.

4.3. Data Analysis

The analysis of the reviewed documents, both from academic literature and public policy, focused on a comparative examination based on two central thematic axes. These guiding axes were oriented toward the typologies of regulatory models and the reference mechanisms for generating innovation and development in the regions where they are implemented.

5. Results

This section presents the results and discussion related to the object of study of this article, which focuses on identifying the main global regulatory frameworks, analyzing the international regulatory context to determine opportunities and reference mechanisms, and finally proposing recommendations aimed at strengthening Colombia's national AI policy.

5.1. Main International Regulatory Frameworks

The following section presents the results concerning the main international AI regulatory frameworks and the relevant elements identified through the literature review.

5.1.1. International Regulatory Frameworks for AI

Figure 2 provides a detailed overview of the main AI regulatory frameworks that were formalized worldwide during 2024. These frameworks demonstrate the active participation and leadership of the regions of Europe, Asia, and the Americas in shaping AI policy at the global level.

Figure 2. Mentions of AI in legislative procedures by country, 2024.
Source: The authors [25].

Figure 2 shows the intensity with which AI was mentioned in legislative proceedings across 75 geographic areas during 2024. At the global level, Spain led this activity with 314 mentions, followed by Ireland (145) and Australia (123). These nations set the global standard, with activity far exceeding that of the remaining 57 areas analyzed [26]. In Sub-Saharan Africa and other regions with lower levels of institutional development, the percentages are much lower, indicating that there is still significant room for the development of AI policies. Regarding other regions, the percentage distribution is as follows: North America at 100%, Europe at 65%, the Middle East and North Africa at 30%, East Asia and the Pacific at 25%, Latin America and the Caribbean at 19%, and Sub-Saharan Africa at a very low level, with 4%.

Among the advances in regulation, the European Union stands out, having implemented Regulation (EU) 2024/1689, which is based on a graduated risk approach and seeks to ensure respect for fundamental rights and the safety of AI systems [9]. Table 2 presents the central axes of its policies and details of each of these regulatory pillars for AI.

Table 2. Core Axes of the European Union Artificial Intelligence Regulatory Policy

Core Axis	Axis Description
Risk Classification	The regulation defines Unacceptable Risk systems (prohibited), High-Risk, Limited Risk, and Minimal Risk systems.
Prohibited Practices	Includes systems that pose an unacceptable risk to fundamental rights, such as manipulative AI exploiting vulnerabilities, social scoring, and with very limited exceptions, real-time remote biometric identification in public spaces.
High-Risk Systems	Mandatory requirements such as detailed technical documentation, data quality assurance (training, validation, and testing), human oversight, and a Risk Management System throughout the AI lifecycle.
Sanctions	Non-compliance with data requirements for high-risk systems may result in fines of up to €35 million or 7% of global annual turnover (whichever is higher), or violations related to prohibited practices.

Source: The authors [9;15].

The Asia–Pacific region represents a regulatory mosaic, as it does not have a unified approach, instead exhibiting a duality between strict state control and the intensive promotion of innovation. Table 3 presents the AI regulatory frameworks in the Asia–Pacific region.

Table 3. Artificial Intelligence Regulatory Frameworks in the Asia-Pacific (APAC) Region

Country	Regulatory Approach	Key Provisions
China	Prescriptive and Control-Oriented	Mandatory labeling (including watermarking) and strict content control for Generative AI.
Japan	Flexible (Soft Law)	Promotion of innovation; flexible intellectual property approach for AI model training.
Singapore	Voluntary Governance	Practical governance frameworks (Model AI Governance Framework) and voluntary certification (AI Verify).
South Korea	Hybrid Model	Promotion of competitiveness with safeguards; requires prior verification for "High-Impact AI" and transparency obligations.

Source: The authors [18].

In Latin America, the most active countries were Mexico, Brazil, Colombia, and Peru, which appear in the medium to high categories of the chart (between 56 and 250 mentions), reflecting a significant regional effort to advance AI governance, despite the regulatory gap with global leaders [25]. Figure 3 shows a map representation of Latin American countries with AI laws and draft bills on AI regulation.

Figure 3 provides an overview of the ongoing legislative activity on artificial intelligence across Latin America. Although data for 2024 indicate a strong regional trend, 11 of the 19 countries analyzed are actively debating or advancing AI related bills, the formal implementation of regulatory frameworks remains limited. According to the Latin American Artificial Intelligence Index 2025 [5], the current regulatory leaders in the region are Peru and El Salvador, the only two countries that have formally enacted specific AI legislation. Peru set an early precedent, with its law entering into force in July 2023. Subsequently, El Salvador joined this vanguard, securing approval of its law during the first half of 2025.

Likewise, according to the Latin American Artificial Intelligence Index [5], only six of the 19 countries that make up Latin America Venezuela, Cuba, Guatemala, Honduras, Jamaica, Uruguay, and Bolivia do not have initiatives in this area. This situation highlights the need for these governments to design policies for AI regulation in order to facilitate digital transformation and address the various ethical and regulatory challenges that arise with the penetration of this technology into society. Within this framework, Colombia is consistently identified as a nation with an advanced regulatory process in AI compared to its regional counterparts. Nevertheless, this advanced position is accompanied by the urgent need to accelerate and deepen the internal legislative debate, which is essential to translate the country's current regulatory proposals

Figure 3. Latin American countries with draft laws on AI.
Source: The authors [5].

into effective and robust legal frameworks aligned with the specific requirements of AI governance in the Colombian context.

5.1.2. Review of the Literature on AI Regulation

The literature review of the articles selected from the databases made it possible to identify and classify thematic categories, the results of which are presented in Table 4. Table 4 synthesizes the main thematic axes that stand out in AI regulation: (1) global governance and foundational ethical frameworks; (2) analysis of national and regional policies (Latin America); and (3) technological regulation and challenges.

5.2. Identifying Opportunities and Reference Mechanisms to Strengthen AI Policy in Colombia

The comparative analysis of international regulatory frameworks reveals a fundamental tension between fostering innovation and protecting rights (control), identifying various global reference mechanisms that can strengthen AI policy in Colombia.

5.3. Safeguard-Based Model and EU Compliance Reference Mechanisms

The EU model is structured around a tiered risk-based framework, which definitively establishes the standard of safeguards for regulation. Consequently, its governance focuses largely on traceability, risk management throughout the product life cycle, and strong sanctioning powers (with fines that may reach up to 7% of a company's annual global turnover). This rigor sets a precedent for the high risk of non-compliance and is applied extraterritorially, ensuring comprehensive protection for European users even when the provider is based outside the EU.

Within this European context, Italy has been a pioneer in implementing the EU AI Act (Regulation 2024/1689) through its own legislation (DDL), placing particular emphasis on an "anthropocentric" concept [8]. This approach clearly contrasts with Spain's draft bill, which adopts a strongly punitive and safeguard-based spirit, allocating more than half of its regulatory proposal to sanctions and infringements. Specifically, while Spain generally focuses on sanctions, Italian law establishes prison sentences (from 1 to 5 years) for the malicious use of deepfakes that cause harm (for example, impersonating public figures) and, more broadly,

Table 4. Categories of Analysis of the Literature on AI Policy

Prior Literature Category	Main Focus of Previous Studies	Similarities	Differences
Global Governance and Foundational Ethical Frameworks [27]	Focus on establishing ethical principles and the need for regulation to ensure ethical, transparent, and responsible AI development. Address the profound impact of AI on fundamental rights and productive systems [19].	Recognition that regulation is mandatory and necessary to protect human rights and manage systemic risks. Adoption of AI conceptual frameworks [3].	The theoretical framework integrates innovation, ethics, and digital sovereignty, proposing a typology of regulatory models (e.g., EU vs. APAC), moving beyond isolated ethical frameworks.
National and Regional Policy Analysis (Latin America) [13;21]	Focus on the design of national strategies and the analysis of ethical and human rights approaches in specific Latin American countries.	Shared interest in digital modernization and public policy formulation in Latin America. Agreement on the need to incorporate rights protection and mitigate algorithmic bias.	Unlike regionally focused studies, this article situates the Colombian case within a renewed global perspective by comparing it with key models such as the EU, China, and other APAC countries.
Technological Regulation and Challenges [4]	Address the need for regulatory frameworks in the face of uncertainty and the rapid evolution of converging technologies.	Highlight the need for regulatory frameworks as institutional responses that reconcile innovation with the protection of human and democratic values.	The current analysis emphasizes that the debate has tended to focus on a market-driven perspective, prioritizing industry interests, a challenge that requires going beyond minimum regulatory frameworks.

Source: The authors.

increases penalties for fraud. This divergence highlights a key philosophical debate regarding whether national AI regulation should prioritize a human-centered development vision (Italy) or a law-enforcement approach predominantly focused on sanctions (Spain) [17].

5.4. Lessons on Implementation and Flexibility (APAC)

In contrast, the APAC landscape offers valuable lessons on implementation and flexibility. South Korea's approach adopts an intermediate position that imposes clear obligations for "high-impact" AI systems and requires the designation of a national agent for foreign providers, thereby establishing targeted oversight. At the flexibility end of the spectrum, Japan and Singapore actively seek to avoid regulatory barriers through the use of soft law and the implementation of regulatory sandboxes, promoting innovation. China, for its part, imposes prescriptive control focused on the security of generated content, requiring technical solutions such as watermarking. The reference mechanisms identified in APAC demonstrate that it is possible to foster innovation (Japan/Singapore) or impose specific control (South Korea/China) [27].

By reviewing the typologies of regulatory models (EU vs. APAC) and situating the Colombian case within a renewed global perspective, this comparative exercise makes it possible to identify Colombia's regulatory proposal as a hybrid framework. It adopts best practices from the EU's risk-based approach and its ethical principles, while integrating innovation-promoting practices (sandboxes) from the APAC model. In addition, it is distinguished by introducing a strong component of social and labor justice (reskilling and just transition) and by addressing the criminal implications of the malicious use of AI (such as deepfakes). The analysis highlights that the global regulatory debate has tended to focus on a market-oriented perspective, a challenge that requires Colombian policy to go beyond minimum frameworks. The country's great opportunity lies in using this hybrid vision to reconcile innovation with the protection of human

and democratic values, strengthening digital sovereignty, human talent, and the social appropriation of technology.

5.5. Recommendations for Strengthening the National AI Policy under Consideration in Colombia

The analysis of global regulatory models is applied directly to the Colombian bill, identifying critical areas for its strengthening and effective implementation. The regulatory framework currently being developed in Colombia is an ambitious bill that seeks comprehensive regulation aligned with the principles of key international organizations (UNESCO, OECD, EU). The central elements of the policy currently under consideration are presented in Table 5.

Table 5. Core pillars of the EU AI regulatory policy

Core Pillar	Pillar Details
Risk Classification	The Act defines systems as Unacceptable Risk (prohibited), High Risk, Limited Risk, and Minimal Risk.
Prohibited Practices	Includes systems that pose an unacceptable risk to human rights, such as manipulative AI exploiting vulnerabilities, social scoring, and under very strict exceptions, real-time remote biometric identification in public spaces.
High-Risk Systems	Mandatory requirements such as detailed technical documentation, data quality assurance (training, validation, testing), human oversight, and a Risk Management System throughout the AI lifecycle.
Sanctions	Non-compliance with data requirements for high-risk systems may result in fines of up to EUR 35 million or 7% of the company's global annual turnover (whichever is higher), or violations related to prohibited practices.

Source: The authors [9;15].

Taking into account the need to reconcile innovation with the protection of rights and the lessons drawn from international models, Figure 4 proposes a set of recommendations to strengthen AI policy in Colombia:

Figure 4. Recommendations to strengthen AI policy in Colombia.
Source: The authors.

Figure 4 presents as its first recommendation the structuring of AI governance through a multilevel model. While MinCiencias should act as the national authority, it is suggested that it be supported by a Multi-Stakeholder AI Council and a National Observatory on AI and Digital Rights, with active participation from academia, civil society, territorial entities, and the private sector. This would facilitate more transparent, democratic regulation that is adaptable to rapid technological change. The next recommendation concerns establishing rigorous standards for algorithmic transparency and traceability, including explicit regulatory obligations regarding traceability, explainability, and visible labeling of AI-generated content (watermarking). This is especially necessary in contexts of automated decision-making that affect rights in sensitive sectors such as health, justice, education, credit, and public services.

Likewise, Figure 4 recommends that the policy adopt a differential, territorial, and ethical approach, explicitly incorporating differential, territorial, and ethnic perspectives that recognize the potential effects of AI in reproducing structural inequalities. This includes: (1) conducting mandatory impact assessments; (2) guaranteeing prior participation of ethnic communities; and (3) recognizing collective rights over data generated within their territories. Another recommendation is the establishment of mechanisms for just transition and financing. To this end, it is essential to create a Just Digital Transition Fund to ensure financing for labor reconversion, talent training, and technological appropriation in prioritized regions. This would ensure that automation and digitalization do not deepen existing social gaps.

Another recommendation, as shown in Figure 4, is the gradation of sanctions according to the severity of the infringement (use of prohibited systems, non-compliance with high-risk requirements, lack of transparency) and the actual or potential harm to fundamental rights. It is proposed that a significant portion of the fines collected be allocated to the Just Transition Fund and to financing research projects on responsible AI in public and regional universities.

Finally, the internal discussion on Colombia's AI regulatory policy should be grounded in an anthropocentric core as the central regulatory premise. In this sense, it is necessary for the regulatory framework to strategically avoid imposing excessively rigid regulatory barriers that could actively hinder foreign investment and limit the country's capacity to catalyze the development of domestic technological products. The approach should focus on establishing clear rules of participation and well-defined operational limits for AI deployment. For this reason, the path forward requires maintaining a philosophical deliberation that positions the country as a significant contributor of ethical and technological value. Therefore, this approach must preserve the necessary levels of policy flexibility to effectively adapt and integrate AI as a fundamental support mechanism for human development in the national context.

6. Conclusions

The regulation of artificial intelligence in Colombia represents a decisive strategic opportunity to establish clear guidelines that foster innovation and attract investment, making it imperative to consciously avoid excessive regulatory rigidity or the creation of barriers that could inhibit market development; the resulting framework should be oriented toward cultivating an ethical, responsible, and highly competitive ecosystem capable of ensuring sustainable sectoral growth and firmly positioning the national territory as a preferred destination for technological investment. In the regulatory process currently underway in Colombia, the primary guideline must be to unequivocally anchor the entire framework to an anthropocentric core, guaranteeing the preservation of fundamental rights above all else; accordingly, emphasis should be placed on the institutionalization of agile, multi-actor governance mechanisms that provide the flexibility necessary for continuous adaptation, enabling the country to design a distinctive and robust model that successfully reconciles compliance assurance with the strategic imperative of national innovation and inclusion. Finally, Colombia's AI policy should be implemented through a multilevel governance model that integrates multiple stakeholders, ensuring transparency, algorithmic traceability, and explainability, while adopting a differential, territorial, and ethical approach to mitigate structural inequalities.

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All authors have read and agreed to the published version of the manuscript. Refer to the taxonomía CRediT for term explanations. Authorship should be limited to those who have contributed substantially to the work reported.

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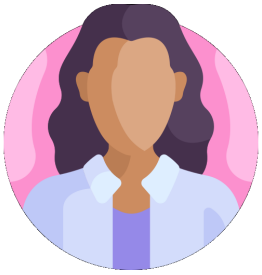
Authors' Biography



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