Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Mapping the Latin American neurorights initiatives: Overview of a fragmented, limited, and premature regional legislation

Diego Borbón

diego.borbon@ibme.uzh.ch

University of Zurich

Eduardo Bertoni

American University

Nicolás Otálora-Ardila

Universidad Externado de Colombia

Research Article

Keywords: Neurorights, Neurolaw, Neuroethics, Governance, Comparative Law

Posted Date: October 1st, 2026

DOI: https://doi.org/10.21203/rs.3.rs-10736766/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: Competing interest reported. D.B. and E.B. served as ad-honorem invited experts for the debate on the Chilean neurorights bill before the Future, Science, Technology, Knowledge and Innovation Commission of the Chamber of Deputies of Chile in April 2026.

Mapping the Latin American neurorights initiatives: Overview of a fragmented, limited, and premature regional legislation

Abstract

This paper maps the 33 Latin American neurorights initiatives, examining constitutional reforms, legislative proposals, and soft-law approaches across jurisdictions in Brazil, Costa Rica, Ecuador, Uruguay, Peru, Colombia, the Organization of American States, and with special focus on the cases of Chile, Mexico, Argentina, and the Latin American Parliament. The findings reveal that the initiatives are mostly fragmented and ambiguous, often resulting in vague definitions and, in some cases, a lack of evidence-based scientific rigor. Additionally, of a total of 33 initiatives, just 8 have been approved, of which 5 are of a non-binding soft-law nature. This shows that, although Latin America seems to be the pioneering region on neurorights legislation, little has been achieved in approved regulations and concrete binding protections. The trend that seems widespread is the introduction of many bills that, in the end, do not gather sufficient political support to become a viable legislative priority. The paper also addresses how there is a generalized lack of consensus on critical debates, such as the enhancement and equal access problem or the mere definition of what is exactly a neurorights legislation. Considering these issues, it is concluded that, rather than hastily adopting new frameworks, policymakers should focus on fostering better plural, culturally informed, and open international dialogue and following a genuine public policy cycle that starts with questioning what are the precise technological challenges that the region actually has. Refining a multilevel governance approach also seems advisable. In the meantime, the current neurorights landscape in Latin America shows a fragmented regional legislation with very limited results.

Keywords: Neurorights; Neurolaw; Neuroethics; Governance; Comparative Law

1. An introduction to the neurorights debate

In 2017, Ienca and Andorno conceptualized *neurorights* as a new category of four new rights, grounded in the claim that rapid advances in neurotechnology enable the potential access, collection, sharing, and manipulation of information from the brain that existing human rights may not be sufficiently able to respond to [1]. They propose the rights to cognitive liberty, mental privacy, mental integrity, and psychological continuity [1].

In parallel, Yuste et al. [2] warned that neurotechnology and artificial intelligence were likely to move beyond medical contexts and to raise urgent concerns about privacy, personal identity, agency, and equal access, which they identify as four ethical priorities warranting new human rights, to be added to instruments such as the Universal Declaration of Human Rights of 1948 [2].

As part of their broader advocacy efforts, Yuste and colleagues created the NeuroRights Initiative at Columbia University, which later evolved into the NeuroRights Foundation [3], a US-based non-profit organization, working closely with the Latin American NGO Kamanau Foundation, both which advise and promote these initiatives across the region [4]. Upon this effort, Yuste and colleagues have been calling to act with urgency to incorporate and create those new neurorights [5, 6]. They understand this as an urgent priority since not acting now would risk the frontier of privacy of the mind itself [7].

On that basis, the Initiative proposed a catalogue of five neurorights: mental privacy, personal identity, free will, fair access to mental augmentation, and protection from algorithmic bias [8].

In this paper we offer a mapping of the 33 neurorights initiatives introduced in Latin America since 2020. It covers constitutional amendments, ordinary bills, subnational reforms, executive regulations, and soft-law instruments in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Mexico, Peru, and Uruguay, as well as the instruments adopted by the Organization of American States and by the Latin American and Caribbean Parliament. Here we briefly describe each initiative in terms of its legal form, stated objectives, and core normative mechanisms. In the discussion section, we examine the materials behind those instruments, showing that a substantial share of them do not rely on validated scientific evidence nor peer-reviewed scholarship. Also, we briefly situate the region within the wider comparative picture, contrasting the Latin American trends with the approaches taken in the European Union, the Council of Europe, UNESCO, the OECD, and the United States. The central finding is that only 8 of the 33 initiatives have been approved and just 3 of them are legally binding, which challenges the view that the region is the vanguard of a global new-rights movement, but as a case of premature, fragmented, and largely symbolic legislative activity.

Criticism against the idea of neurorights

Apart from the initial ideas on neurorights, the academic reception of the concept has received extensive academic criticism. For example, very early on the debate, Fins warned against problematic regulations in care for people with disorders of consciousness, arguing that regulations must not fall prey to science fiction fantasies that are not grounded in reality, concluding that the Chilean neurorights reforms are vague and premature and should not be adopted by any jurisdictions [9].

Bublitz also argued against neurorights saying that the current proposals amount to rights inflation, rest on weak scholarship, and are tainted by what he calls *neuroexceptionalism* and *neuroessentialism*, and therefore should not be adopted and lobbying on their behalf should stop [10]. The idea on exceptionalism and essentialism can also be seen in the critique that Susser and Cabrera make against creating brain data as an exceptional new category that may be counterproductive to broader efforts towards more robust privacy law [11].

In the Chilean debate, Ruiz et al. maintain that, as drafted, the neuro-rights bill effectively banned neurotechnology use and research in patients unable to consent, thereby undermining neuroscience research and depriving severely ill patients of necessary or even unique treatments [12]. Moreu Carbonell similarly contends that is more important to guarantee existing rights against the risks of neurotechnology by adapting them [13]. López-Silva and Madrid agree that a constitutional amendment may be technically unnecessary, though a statutory approach could be advisable [14]. And De Asís concludes that the most compelling critique is the absence of extensive and in-depth academic debate on neurorights [15]. From a governance and inclusivity perspective, Herrera-Ferrá et al. argue that the debate needs better transnational, transcultural, and contextual considerations [16].

At the conceptual level, Ligthart et al. argue that deep interdisciplinary disagreement about the philosophical and ethical foundations of neurorights casts doubt on whether translating them into specific internationally recognized rights is either desirable or necessary

[17]. Rommelfanger et al. add that, without conceptual clarity and terminological precision, neurorights governance may end up protecting both too much and too little, and they note that the Chilean bill leaves neurotechnologies connected to the peripheral nervous system outside its scope [18]. In a related implementation critique, Fyfe, Lanphier, and Peterson warn that expanding so-called neurorights may produce rights inflation that dilutes enforceability—particularly in prison settings [19]. While Gilbert and Russo report that neurorights discourse is frequently driven by hype and by inflating perceived risks beyond the evidence base [20], that relies on speculative ethics and alarmist reasoning distracting from clinically grounded issues [21].

With respect to enhancement, Cornejo-Plaza and Saracini argue that recognizing a right to cognitive enhancement requires a prior conceptual and practical debate about access across therapeutic, recreational, and commercial contexts [22]. Along similar lines, Muñoz and Borbón question whether equal access to mental augmentation should become a fundamental right at all, warning that such a right would carry unresolved ethical, legal, and socioeconomic complexities [23]. More broadly, Borbón and Borbón criticize the five neurorights proposed by the NeuroRights Foundation as conceptually weak and practically and ethically problematic, concluding they are legally unnecessary [24].

Why Latin America?

Latin America is usually portrayed as the pioneering region in neurorights initiatives. Consider Chile, the country consistently invoked as the first example in debates about neurotechnology regulation in the world. Part of the answer to why the region is a protagonist is rather contingent and biographical. The neurorights agenda found in Chile an unusually receptive political entry point through then-Senator Guido Girardi, a long-time promoter of science-policy debates through the *Congreso Futuro*, an event on the challenges of the future created by Chile's Senate, who invited Professor Rafael Yuste to advise the Chilean Congress process and co-sponsored both the constitutional amendment and a subsequent neuroprotection legal bill.

The Neurorights Foundation then consolidated that regional presence through its partnership with the human rights and technology NGO *Fundación Kamanau*, and both have since advised legislators well beyond Chile [4, 8]. The other part of the answer, however, is normative and structural, as Latin American constitutionalist and legalistic culture has a long tradition of expansive, aspirational rights catalogues. The combination of a high symbolic payoff, such as the narrative of being "the first in the world" in regulation, with a low short-term regulatory cost helps to explain both why the initiatives, that will be mapped below, multiplied so quickly and why so few of them have matured into binding, enforceable law. In the end, many bills are proposed, but they do not receive the attention and priority needed to be approved, in competition with the many other demands on the region's legislative agendas.

Comparable proposals to create new neurorights have not prospered elsewhere, as the final section of the paper shows. In that sense, the Latin American experience is not the vanguard of a global movement toward new rights, but a regional singularity whose trajectory -and whose stagnation- offers lessons for other jurisdictions considering similar paths.

Having established the context and academic discussion, in the following section we will provide a descriptive mapping of the 33 neurorights initiatives identified across Latin America, organized by regional or intergovernmental organization and by country. For each

jurisdiction or institutional setting, the aim is to summarize the legal form, the stated regulatory objectives, and the core normative mechanisms proposed. The critical assessment is reserved for the discussion section, where the mapped initiatives are compared, problematized, and situated with particular attention to the cases of Chile, Mexico, Argentina, and the Latin American Parliament (Parlatino).

Because "neurorights" increasingly functions as a concept beyond just the 'new-rights' idea [25], the label now is used in Latin America as an umbrella term covering everything from new constitutional rights to mental privacy protection laws, so the mapping here also adopts an inclusive criterion: it covers every legislative, constitutional, executive, or soft-law initiative that either self-identifies as a neurorights instrument, expressly invokes the neurorights debate in its explanatory memorandum, or intends to regulate neurotechnologies with a distinctive approach. This explains why the inventory includes instruments whose titles refer generically to personal data protection or to digital rights, justified in each case by the specific neuro-specific legal provisions identified in the corresponding country subsections.

This heterogeneity is itself a central finding: constitutional amendments, criminal-procedure reforms, novel judicial writs, data-protection regulations, and codes of good practice usually circulate under the same *neurorights* label -which is a first illustration of the conceptual fragmentation that this paper documents-. That might also invite future debates to rather focus on the label *neurotechnology regulation* rather than using the broad and unclear concept of *neurorights*.

Mapping the regulatory developments in Latin America

Since 2020, various countries in Latin America have been working to establish regulatory frameworks addressing the ethical, legal, and social challenges posed by neurotechnologies. These initiatives reflect the region's growing interest in regulation. Table 1 presents the initiatives by country, author (if known), the date it was presented, and its current known legal status. The mapping opens with the two regional bodies, whose instruments have served as models for several national initiatives, and then proceeds country by country. The inventory is closed as of August 2026 with the initiatives that exist to the best of our knowledge, since new bills keep being filed continuously.

Table 1. Informational overview of the 33 neurorights initiatives in Latin America.

Country	Initiative	Status
1. Chile	**Legal Bill** Boletín No. 13828-19, Proyecto de Ley sobre protección de los neuroderechos y la integridad mental, y el desarrollo de la investigación y las neurotecnologías. Retrieved December 28, 2025 "Boletín 13828-19 "Sobre protección de los neuroderechos y la integridad mental, y el desarrollo de la investigación y las neurotecnologías." Authors: Senator - Guido Girardi and others Original date: October 2020	Not yet approved / Stalled
2. **Chile**	**Constitutional Reform**: Ley No. 21.383 mediante la cual modifica la carta fundamental, para establecer el desarrollo científico y tecnológico al servicio de las personas.	Approved

Country	Initiative	Status
	"Ley 21.383 Modifica la Carta Fundamental, para establecer el desarrollo científico y tecnológico al servicio de las personas" Author: Senator - Guido Girardi and others Date: October 2021	
3. Argentina	**Legal Bill** Expediente No. 0339-D-2022, Proyecto de Ley que dispone modificaciones sobre incluir como medios probatorios las técnicas de imagen cerebral y cualquier otro tipo de neurotecnología. "Expediente: 0339-D-2022 Proyecto de Ley. Modificaciones sobre incluir como medios probatorios las técnicas de imagen cerebral y cualquier otro tipo de neurotecnología." Author: Deputy - Ramiro Gutiérrez Date: March 2022	Not approved and archived
4. Argentina	**Provincial Legal Bill** Ley VI – N° 352, Ley neuroderechos "Ley Neuroderechos Cámara de Representantes de la Provincia de Misiones." Author: Provincial Deputy Rafael Pereyra Pigerl Date: April 2023	Official information not available
5. Argentina	**Legal Bill** Expediente S-2446/2023, Proyecto de Ley mediante el cual se dispone la creación de la comisión bicameral especial para la redacción de propuestas legislativas que tiendan a la protección integral de los neuroderechos. "S-2446/2023 Proyecto de Ley de creación de la Comisión bicameral Especial para la Redacción de Propuestas Legislativas que tiendan a la Protección Integral de los Neuroderechos" Authors: Deputy Claudio Marín Doñate Date: December 2023	Not yet approved / Stalled
6. **Argentina**	**Legal Bill** Expediente 5517-D-2024, Proyecto de Ley mediante el cual se realizan modificaciones sobre incorporación de los denominados "neuroderechos" para la libertad probatoria "Expediente 5517-D-2024 Proyecto de Ley. Modificaciones sobre incorporación de los denominados "neuroderechos" para la libertad probatoria." Author: Deputy Ramiro Gutiérrez Date: September 2024	Not yet approved / Stalled
7. Argentina	**Legal Bill** Expediente 2815-D-2025, Proyecto de Ley mediante el cual se dispone el régimen de protección del fuero interno de la libertad de pensamiento y los neuroderechos afines, habeas cogitationem. "Expediente 2815-D-2025 Régimen de protección del fuero interno de la libertad de pensamiento y los neuroderechos afines, habeas cogitationem." Author: Deputy - Ramiro Gutiérrez Date: May 2025	Not yet approved / Stalled
8. **Argentina**	**Legal Bill** Expediente 6880-D-2025, Proyecto de Ley mediante el cual se dispone la protección de la actividad cerebral, privacidad mental y neurodatos (Ley de neuroderechos). "6880-D-2025 Ley de protección de la actividad cerebral, privacidad mental y neurodatos (ley de neuroderechos)" Author: Deputy Oscar Agost Carreño Date: December 2025	Not yet approved / Stalled
9. **Argentina**	**Legal Bill**	Not yet approved / Stalled

Country	Initiative	Status
	Expediente 0825-D-2026, Proyecto de Ley de neuroseguridad y ciberseguridad de dispositivos médicos conectados. "0825-D-2026 Neuroseguridad y ciberseguridad de dispositivos médicos conectados" Author: Deputy Marcela Marina Pagano Date: March 2026	
10. **Argentina**	**Legal Bill** Expediente 0835-D-2026, Proyecto de Ley de protección integral de datos personales (reforma integral de la Ley N° 25.326). "0835-D-2026 Ley de protección integral de datos personales" Author: Deputy Marcela Marina Pagano Date: March 2026	Not yet approved / Stalled
11. Brazil	**Legal Bill** Expediente PL 1.229/2021, Modifica a Lei n° 13.709, de 14 de agosto de 2018 (Lei Geral de Proteção de Dados Pessoais), a fim de conceituar dado neural e regulamentar a sua proteçao "Projeto de Lei PL 1.229, DE 2021 Modifica a Lei n° 13.709, de 14 de agosto de 2018 (Lei Geral de Proteção de Dados Pessoais), a fim de conceituar dado neural e regulamentar a sua proteção" Author: Deputy Carlos Henrique Gaguim Date: April 2021	Not approved and archived
12. Brazil	**Legal Bill** Expediente: PL 522/2022, Modifica a Lei n.º 13.709, de 14 de agosto de 2018 (Lei Geral de Proteção de Dados Pessoais), a fim de conceituar dado neural e regulamentar a sua proteção "Projeto de Lei n.º 522, de 2022: modifica a Lei n.º 13.709, de 14 de agosto de 2018 (Lei Geral de Proteção de Dados Pessoais), a fim de conceituar dado neural e regulamentar a sua proteção." Author: Deputy Carlos Henrique Gaguim Date: March 2022	Not yet approved / Stalled
13. **Brazil**	**Legal Bill** Expediente: PL 2.174/2023, Estabelece as normas e princípios para proteção dos direitos fundamentais relacionados ao cérebro e ao sistema nervoso humano, objetivando garantir a proteção e promoção dos neurodireitos dos indivíduos. "Projeto de Lei PL 2.174/2023. Estabelece as normas e princípios para proteção dos direitos fundamentais relacionados ao cérebro e ao sistema nervoso humano, objetivando garantir a proteção e promoção dos neurodireitos dos indivíduos." Author: Deputy Rubens Pereira Júnior Date: April 2023	Not yet approved / Stalled
14. **Brazil**	**Constitutional Reform**: Expediente: PEC 29/2023 Altera a Constituição Federal para incluir, entre os direitos e garantias fundamentais, a proteção à integridade mental e à transparência algorítmica. "Proposta de Emenda à Constituição n° 29, de 2023" Authors: Senator Randolfe Rodrigues et al. Date: June 2023	Not yet approved / Stalled
15. **Brazil**	**Constitutional Reform**: Emenda Constitucional n.º 85. Constitución do Estado do Rio Grande do Sul "Emenda Constitucional n.º 85, de 20/12/23 - Constituição do Estado do Rio Grande do Sul" Authors: Legislative Assembly from Rio Grande Do Sul State Date: December 2023	Approved

Country	Initiative	Status
16. Brazil	**Legal Bill** Projeto de Lei n° 4, de 2025. Dispõe sobre a atualização da Lei nº 10.406, de 10 de janeiro de 2002 (Código Civil), e da legislação correlata. "Provides for the update of Law No. 10,406, of January 10, 2002 (Civil Code), and related legislation" Author: Senator Rodrigo Pacheco (PSD/MG) Date: January 2025	Not yet approved / Stalled
17. Mexico	**Constitutional Reform**: Iniciativa Con Proyecto De Decreto Por La Que Se Adiciona Un Noveno Parrafo Y Se Recorren Los Subsecuentes Del Artículo 4°; De La Constitución Política De Los Estados Unidos Mexicanos "Iniciativa con proyecto de decreto por la que se adiciona un noveno párrafo y se recorren los subsecuentes del artículo 4°; de la Constitución Política de los Estados Unidos Mexicanos" Author: Deputy María Eugenia Hernández Pérez Date: August 2023	Not yet approved / Stalled
18. **Mexico**	**Constitutional Reform:** Iniciativa Con Proyecto De Decreto Por El Que Se Reforma La Fracción XVII, al Artículo 73 De La Constitución Política De Los Estados Unidos Mexicanos, En Materia De Inteligencia Artificial, Ciberseguridad Y Neuroderechos "Iniciativa Con Proyecto De Decreto Por El Que Se Reforma La Fracción Xvii, Al Artículo 73 De La Constitución Política De Los Estados Unidos Mexicanos, En Materia De Inteligencia Artificial, Ciberseguridad Y Neuroderechos" Authors: Senator Alejandra Lagunes Soto Ruíz et al. Date: September 2023	Not yet approved / Stalled
19. **Mexico**	**Constitutional Amendment** Iniciativa Ante El Congreso De La Unión Con Proyecto De Decreto Por El Que Se Adiciona Un Noveno Párrafo Y Se Recorren Los Subsecuentes Al Artículo 4, De La Constitución Política De Los Estados Unidos Mexicanos, Relativo A Neuroderechos "Iniciativa ante el Congreso de la Unión con Proyecto de Decreto por el que se adiciona un noveno párrafo y se recorren los subsecuentes al artículo 4, de la Constitución Política de los Estados Unidos Mexicanos, relativo a neuroderechos" Authors: Deputy Víctor Hugo Lobo Román Date: May 2024	Not yet approved / Stalled
20. **Mexico**	**Legal Bill** Iniciativa Con Proyecto De Decreto Por El Que Se Expide La Ley General De Neuroderechos Y Neurotecnologías Y Se Reforman Y Adicionan Diversas Disposiciones En Materia De Neuroderechos y neurotecnologías "Iniciativa con Proyecto de Decreto por el que se expide la Ley General de Neuroderechos y Neurotecnologías y se reforman y adicionan diversas disposiciones en materia de neuroderechos y neurotecnologías" Authors: Senator Alejandra Lagunes Soto Ruíz Date: July 2024	Not yet approved / Stalled
21. **Mexico**	**Constitutional Amendment** Iniciativa Con Proyecto De Decreto Por El Que Se Reforman Y Adicionan Diversas Disposiciones De La Constitución Política De Los Estados Unidos Mexicanos, En Materia De Ciberseguridad, Inteligencia Artificial, Cibertecnologías, Neurotecnologías Y Neuroderechos "Iniciativa con proyecto de decreto por el que se reforman y adicionan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en	Not yet approved / Stalled

Country	Initiative	Status
	materia de ciberseguridad, inteligencia artificial, cibertecnologías, neurotecnologías y neuroderechos” Authors: Senator Agustín Dorantes Lámbarri, Date: February 2025	
22. **Mexico**	**Soft-law (non-binding)** Carta De Derechos De La Persona Código De Buenas Prácticas “Carta de Derechos de la Persona en el Entorno Digital” Authors: Blanca Lilia Ibarra Cadena et al. Date: January 2024	Approved (non-binding)
23. **Colombia**	**Legal Bill** Expediente No. 156/2023. Proyecto de Ley por la cual se dictan disposiciones para el régimen general de protección de datos personales. “Bill No. 156/2023 (por la cual se dictan disposiciones para el Régimen General de Protección de Datos Personales.)” Authors: Representative Duvalier Sánchez Arango Date: August 2023	Not approved and archived
24. **Colombia**	**Legal Bill** Expediente No. 395/2025. Proyecto de Ley por el cual se regulan principios en materia de neurociencias, neurotecnologías, derechos humanos y se dictan otras disposiciones. “Bill No. 395/2025,Por el cual se regulan principios en materia de neurociencias, neurotecnologías, derechos humanos y se dictan otras disposiciones” Authors: Senator Carlos Julio González Villa Date: March 2025	Not approved and archived
25. **Colombia**	**Legal Bill** Expediente No. 037/2025. Proyecto de Ley por el cual se regulan los principios en materia de neurociencias, neurotecnologías, derechos humanos y se dictan otras disposiciones. “Bill No. 037/2025, Por el cual se regulan los principios en materia de neurociencias, neurotecnologías, derechos humanos y se dictan otras disposiciones” Authors: Senator Carlos Julio González Villa Date: July 2025	Not yet approved / Stalled
26. **Ecuador**	**Legal Bill** Expediente AN-OVJC-2023-0027-M, Proyecto de Ley orgánica de neuroprotección y aplicación ética de las neurotecnologías “Proyecto de Ley Orgánica de Neuroprotección y Aplicación Ética de las Neurotecnologías AN-OVJC-2023-0027-M” Authors: Assembly member Johanna Ortiz Villavicencia Date: March 2023	Not yet approved / Stalled
27. **Uruguay**	**Legal Bill** Expediente 4393, Proyecto de Ley No. 18.331 mediante el cual la actividad cerebral y neuronal de las personas se adiciona a la categoría de dato sensible “Actividad Cerebral Y Neuronal De Las Personas Se Adiciona a La Categoría De Dato Sensible” Authors: Representative Rodrigo Goñi Reyes Date: June 2024	Not yet approved / Stalled
28. Costa Rica	**Legal Bill** Expediente N° 24.419, Proyecto de Ley de protección de neuroderechos “Expediente N°24.419 Ley de Protección de Neuroderechos” Author: Deputy Andrea Álvarez Marín Date: June 2024	Not yet approved / Stalled

Country	Initiative	Status
29. **Peru**	**Supreme Decree** Decreto Supremo N° 016-2024-JUS, Reglamento de la Ley n.º 29733, Ley de protección de datos personales "Supreme Decree No. 016-2024-JUS (Regulation of Law No. 29733 on Personal Data Protection)" Authors: President and Minister Council Date: November 2024	Approved
30. OAS	**Soft Law (non-binding)** Expediente: CJI/DEC. 01 (XCIX-O/21): Declaración del comité jurídico interamericano sobre neurociencia, neurotecnologías y derechos humanos: Nuevos Desafíos Jurídicos para las Américas "https://www.oas.org/es/sla/cji/docs/CJI-DEC_01_XCIX-O-21.pdf" Authors: Inter-American Juridical Committee Date: August 2021	Approved (non-binding)
31. **OAS**	**Soft Law (non-binding)** Expediente Resolución CII-O/23. Declaración de principios interamericanos en materia de neurociencias, neurotecnologías y derechos humanos "Inter-American Juridical Committee Resolution on Neuroscience, Neurotechnologies, and Human Rights" Authors: Inter-American Juridical Committee Date: March 2023	Approved (non-binding)
32. Parlatino	**Soft Law Declaration** Declaración con recomendaciones sobre la necesidad de introducción de los neuro derechos en las legislaciones de los congresos de este Parlatino "Declaración con recomendaciones sobre la necesidad de introducción de los neuro derechos en las legislaciones de los congresos de este Parlatino" Date: June 2022 Authors: Latin American and Caribbean Parliament	Approved (non-binding)
33. Parlatino	Ley Modelo de Neuroderechos. "Neurorights Model Law" Authors: Latin American and Caribbean Parliament Date: May 2023	Approved (non-binding)

The Parlatino

Let us begin with the description of these initiatives. The Latin American and Caribbean Parliament (Parlatino) is a regional parliamentary organization that brings together national parliaments to promote cooperation in the region. Established in 1964 and later institutionalized by treaty in 1987, as of today, its member parliaments represent 23 countries and territories. This organization first published its "Declaration with recommendations on the need to introduce neuro-rights into the legislation of the Congresses of this Latin American Parliament" back in 2022 [26]. Those recommendations were the basis of the 2023 Model Law, which translated them into a soft-law instrument intended to unify regulation in the region.

The *Parlatino Model Law on Neurorights for Latin America and the Caribbean* [27] is organized into a Preamble and 13 articles, with the normative core in Arts. 5–10 and Article 5 as the principal catalogue of "fundamental principles and rights." It lists a set of 13 neurorights that extends beyond mental privacy and identity/autonomy to include free

will/self-determination, equitable access to cognitive augmentation, and protection against algorithmic or automated decision-making bias; it also prohibits any intervention via neurotechnology without free, express, and informed consent, "even in medical circumstances," and prohibitions of hypnosis and suggestion [27].

Articles 6–7 then mandate the creation of a nationally designated "Competent Authority" and outline an extensive menu of at least 21 different functions, from policy planning and public education to administrative adjudication, sanctions, and specific expectations for criminal justice and penitentiary contexts. Articles 8–10 complement with universal-application, expedited protection against unlawful threats, and a commitment to integral reparation. The law also incorporates an Annex (called "General Conceptual Theoretical Framework") as an "inseparable" part of the instrument, with the justificatory premises, a glossary, and sources intended to guide interpretation [27].

The Organization of American States

The Inter-American Juridical Committee, as the advisory body on international law of the Organization of American States, presented a 2021 Declaration on the challenges of neurotechnology [28] which was then followed by a resolution on March 2023, which developed that declaration into ten "Inter-American Principles on Neuroscience, Neurotechnology and Human Rights" [29]. Principle 1 affirms the right to identity, personal autonomy, and protection of neural activity as the necessary basis for self-determination, personality, and freedom of thought. Principle 2 requires that human rights protection be built in from design. Principle 3 classifies neural data as highly sensitive personal data and mandates reinforced safeguards for its collection, processing, security, and cross-border circulation. Principle 4 involves free, express, and informed consent for any access to or use of neural data. Principle 5 articulates equality, non-discrimination, and equitable access to neurotechnologies while Principle 6 confines the use of neurotechnologies for cognitive enhancement only to therapeutic or rehabilitative purposes aimed at preserving or restoring autonomy and wellbeing, thus drawing a normative line between treatment and non-medical enhancement. Principle 7 protects neurocognitive integrity by prohibiting coercive, deceptive, or manipulative uses. Principles 8 and 9 call for transparent governance, clear allocation of responsibilities, and independent, technically competent oversight. Finally, Principle 10 guarantees access to effective judicial and administrative remedies, including measures of prevention, cessation, and full reparation [29].

Chile

Chile stands out as the pioneer with the first constitutional reform. The constitutional bill was enacted on October 25, 2021, becoming Law No. 21,383, and consists of a single article that amends paragraph 1 of Article 19 of the Political Constitution of the Republic of Chile as follows:

> Scientific and technological development shall serve the people and shall be carried out with respect for life and for physical and mental integrity. The law shall regulate the requirements, conditions, and restrictions for its use on individuals, with special emphasis on safeguarding brain activity as well as the information derived therefrom [30].

Parallel to that, Chile tried to incorporate a legal bill to specify this constitutional amendment into concrete enforceable law. However, the "Neuroprotection Law" [31] stalled in Congress since 2020 and has not been approved. The 2020 draft framed "neurorights" as new rights and pursued a broad, rights-based agenda (mental privacy, autonomy, and access to enhancement), largely through sweeping prohibitions. Later versions seem to narrow the purpose to protecting life and physical/psychic integrity via a health-law regulatory scheme.

In April 2026, a Committee of the Chamber of Deputies, in charge of the second constitutional stage of the neuroprotection bill—which had been approved in general by the Senate—reopened its in-depth discussion and heard government authorities and invited experts [32, 33].

The outcome came shortly afterwards. On 4 May 2026, the committee voted the bill in particular and rejected every article and every pending amendment by a recurrent majority of seven votes against six, dispatching the project to the floor with the committee's recommendation of *rejection* [34]. The content of those hearings, and the significance of that outcome, are examined in the discussion below. Chile thus stands, as of this writing, with a programmatic, general, and short constitutional clause, but no concrete implementing legislation in sight.

Argentina

This country has the most bills with a total of eight initiatives ranging from data protection to evidence law and a new judicial mechanism. In this sense, the federal bill 0339-D-2022 [35] proposes to amend the Federal Criminal Procedure Code's to expressly admit "brain imaging techniques and any other neurotechnologies" capable of inferring mental activity, but only under judicial order and explicit, informed consent, and it also amends the prison-execution statute (Law 24,660) to also require consent and a court warrant to use neurotechnologies in custodial contexts. As that bill was not approved, it was later presented again under bill 5517-D-2024 [36].

A different technique appears in Bill 2815-D-2025, which frames something called *habeas cogitationem* as a type of judicial remedy similar to the *habeas corpus* but to protect the inner forum of freedom of thought and related neurorights against external intrusion [37]. The bill opens with statutory definitions of neurorights, cognitive liberty, mental integrity, mental privacy, personal identity, and psychological continuity. It then devotes an entire chapter to a summary judicial proceeding modelled on the constitutional *amparo*, with broad standing granted to the affected person, third parties acting on their behalf, public prosecutors, the ombudsperson, and human rights organizations.

Meanwhile, Bill 6880-D-2025 creates a 24-article bill to be a comprehensive "neurorights law" on cerebral activity, mental privacy, and neurodata, combining a rights catalogue with consent rules and data-governance duties in a single statute [38]. Bill S-2446/2023 would create a special bicameral commission tasked with drafting legislative proposals aimed at the integral protection of neurorights [39].

Two further bills filed in March 2026 depart from that pattern. Bill 0825-D-2026 establishes a cybersecurity regime for connected medical devices and for neurodevices, defined by reference to both the central and the peripheral nervous system, with four risk levels, security-by-design duties, incident notification, mandatory certification of critical implants, and the sanitary authority as the enforcing body [40]. Bill 0835-D-2026, which replaces the personal data statute, defines neurodata by the same criterion, treats them as

sensitive in all circumstances, and attaches strict civil liability and the gravest administrative sanction to their unlawful processing [41]. Neither declares new rights. At the provincial level, the Provincia of Misiones law [42] indicates subnational uptake of neurorights-style protections to provincial competences in domains such as public health, education, innovation policy, consumer protection, or administrative policing of technologies. To the date of drafting this paper, none of those eight initiatives have been approved, and have been either archived or remain stalled.

Brazil

This country has six initiatives. At the constitutional level, Brazil's bill PEC no. 29/2023 seeks to incorporate, among fundamental rights and guarantees, explicit protection for mental integrity and algorithmic transparency, framing neurotechnologies and AI as issues that warrant constitutional protection [43]. In parallel, the State of Rio Grande do Sul adopted Constitutional Amendment 85/2023, modifying the sole paragraph of Article 235 of the state constitution to add the mental integrity of the human being among the axiological constraints guiding scientific and technological policy and research [44]. This is the only initiative approved.

At the statutory level, legislative initiatives converge on treating neural data as a distinct regulatory object within Brazil's data-protection architecture: PL no. 1.229/2021 and PL no. 522/2022 both propose amendments to the privacy law (Law no. 13.709/2018) to define "neural data" and regulate its protection, with commentary highlighting that PL 522/2022 also introduces definitional elements about brain–computer interfaces and neurotechnologies [45, 46].

In addition, PL no. 2.174/2023 advances a broader "neurorights" approach by proposing norms and principles aimed at safeguarding fundamental rights connected to the brain and human nervous system [47]. Finally, PL no. 4/2025 is a wide-ranging modernization of the Civil Code that, within a new chapter on personality rights in the digital environment, declares neurorights an inseparable part of personality and creates six neurorights: cognitive liberty, mental privacy, mental integrity, continuity of personal identity and mental life, equitable access to cognitive enhancement technologies, and protection against discriminatory bias derived from brain data [48]. Out of six initiatives, just the Rio Grande do Sul amendment was approved.

México

Mexico also has presented six initiatives. The most ambitious is the 2024 General Law on Neurorights and Neurotechnologies, a paradigmatic case of ambitious—but institutionally heavy and presumably premature and over-regulatory—neurorights legislation. Rather than a targeted reform, it operates as an omni-comprehensive package that proliferates concepts, rights, duties, sanctions, penalties, crimes, and enforcement venues across all the legal, social, financial, military, and educational systems, reaching at least 35 statutory amendments in domains as distant as national security, the use of force, physical education, explosives, criminal law, and telecommunications. It also intends to create a new National Commission of Neuroethics and Neurolaw and make certification mandatory for the acquisition, development, importation, and use of neurotechnologies (proposed Art. 16) [49]. The initiative also escalates into criminal law by inserting an entire new title "Crimes

against brain functions and states" with custodial penalties of up to 12 years of imprisonment, which could be doubled under some specific aggravating circumstances [49]. The new crimes are *mental intervention*, *damage to neuroprosthetic devices*, *brain manipulation*, and *illegal memory alteration*, that includes the neurotechnological *implantation* of new memories. This bill exemplifies how some initiatives pursue maximal regulatory coverage without first demonstrating why existing Mexican law would be insufficient for the realistically foreseeable use-cases in the country.

The other five initiatives include a 2023 proposal to amend the constitution in order to protect physical and mental integrity [50]. In the same year, another proposal was made to grant Congress the power to enact laws on general principles related to cybersecurity, neuro-rights, and artificial intelligence and its applications [51]. Additionally, an initiative sought explicit protection for neurological and neurotechnological development with absolute respect for identity, free will, and mental privacy [52]. Along these lines, a 2025 Senate initiative, whose own explanatory memorandum expressly states that it was drafted by ChatGPT and Gemini, sought to extend the powers of Congress to enact laws related to cybersecurity, technology, artificial intelligence applications, neurotechnologies, and neuro-rights [53].

Complementarily, a soft-law code of good practices called the "Charter of the Rights of the Person in the Digital Environment", was developed by the National Transparency System and adopted in Mexico City [54]. Although its title refers generically to digital rights, the Charter devotes an entire chapter (Chapter VII) to "Neurorights," reproducing almost verbatim the NeuroRights Foundation's five-rights catalogue: preservation of personal identity, privacy of neural data, non-interference with freedom of decision, equity in the improvement of brain capacity, and protection against bias and discrimination [54]. Of those six initiatives, only the soft-law charter of Mexico City has been approved, and it is not legally binding.

Colombia

In Colombia, three initiatives have been presented at the national level. Bill No. 156 of 2023, established a general regime for the protection of personal data proposing neurodata as sensitive data [55]. That single provision made it the first Colombian legislative text to propose explicit mentioning of neural data as a distinct regulatory status. The bill was subsequently archived without approval.

Later, Senator Carlos González Villa introduced Bill No. 395/2025 in March 2025, which represented a more direct engagement with the neurorights agenda. It sought to establish governing principles at the intersection of neuroscience, neurotechnology, and human rights, while also addressing questions of responsibility in the protection of neurodata and the safeguarding of human dignity in research contexts [56]. The bill defines neurodata, declares them highly sensitive personal data, and codifies principles of human dignity, identity and mental privacy, ethics and human rights by design, and precaution. This bill was likewise archived and, in July 2025, substantially the same proposal was reintroduced as Bill No. 037/2025 [57], which was in turn archived at the close of the 2026 legislature. Out of three none were approved and all were archived.

Ecuador

Regarding advances in Ecuador, a draft law was introduced seeking comprehensive regulation of neurotechnologies, including their limits and uses. The draft law outlines a catalog introducing new rights and expanding the scope of existing ones. It presents measures ranging from prohibitions on intrusion and manipulation to data protection and consent requirements, and obligations for the state regarding equitable access, citizen participation, and the development of neuroscience [58]. Its explanatory memorandum reproduces the five-rights framework promoted by the NeuroRights Foundation and relies heavily on the Chilean precedent and on secondary press sources, making it one of the clearest examples of the diffusion-by-imitation dynamic discussed below. This initiative has not been approved.

Uruguay

In this country, Bill 4393 of 2024 was introduced, which aimed to classify brain and neuronal activity as sensitive data [59]. Unlike most regional counterparts, the Uruguayan proposal is minimalist: a one-provision amendment that channels the protection of neural activity through the existing data-protection regime rather than through a new catalogue of rights. This initiative has not been approved.

Costa Rica

Costa Rica introduced a bill that expressly aligns itself with the five neurorights promoted by the NeuroRights Foundation, and includes informed consent and quality of information, together with bioethics and the ethical principles of scientific research. It also allows neurological intervention only with the full awareness of the person undergoing the procedure and with respect for life, human dignity, and health [60]. This initiative has not been approved.

Perú

Peru adopted Supreme Decree No. 016-2024-JUS, issued directly by the President and approved by the Council of Ministers rather than by the Congress, implementing regulation of Law No. 29733 which is the Personal Data Protection Law. Conceptually, it considers neural data as sensitive data and details the consent process for the processing of personal data, its validity, the cases in which data is considered sensitive, and its revocation [61].

Discussion of the initiatives

An overview of the narratives and justifications

When analyzing the narrative behind those initiatives, most statement of reasons vaguely include mentions to news, blogs, internet sources, and media pieces, including at least five referencing Elon Musk as the basis for the need of new regulation in countries such as Chile and Mexico. In these bills, Musk appears as a threat symbol. Legislators invoke press coverage of *Neuralink* and its brain-implant announcements as supposed proof that intrusive neurotechnology is imminent and that their countries must regulate preemptively,

even though no such devices are marketed in their jurisdictions and brain-stimulating devices have existed for decades.

The mention of Musk thus performs a rhetorical rather than an evidentiary function. As Salles argues, whether neurorights are an appropriate answer depends on how the problem and the solution are framed, since framing shapes both the perception of the technology and the assessment of the proposed remedy [62].

Moreover, eight out of 33 initiatives (24.2%) expressly mention companies such as Meta or Neuralink, in Chile, Brazil, Mexico, Costa Rica, Ecuador, and Argentina. It is also telling that a 2025 initiative of the Mexican Senate expressly records, in a methodological section of its own explanatory memorandum, that the bill was drafted entirely by ChatGPT and Gemini, indicating which application wrote each section and documenting in footnotes the corrections that had to be made by hand [53].

That the justification of a proposed constitutional amendment can be written by generative AI chatbots matters for at least two reasons. First, it reveals how low the deliberative and epistemic investment behind some of these initiatives can be, as the same generative systems that the initiatives claim to fear are used to write the reasons offered to justify governing new technologies. Second, it raises questions about how bills are conceived, since they do not seem to satisfy a basic public policy cycle, and it illustrates a broader pattern in which introducing a bill is a low-cost expressive and symbolic act rather than the outcome of sustained, serious, normative work.

Furthermore, almost half of all the initiatives lack any mention of academic sources, peer-reviewed articles, validated scientific evidence, or engagement with the region's own social and cultural realities. One clear example of the generalized lack of rigorous scientific evidence in policymaking was the Model Law of the Latin American Parliament, where Borbón found that of the more than 90 footnotes:

> […] the vast majority of them are Internet sources, including press releases, media interviews, online encyclopedias, including Wikipedia, recordings of the Chilean Senate, lectures by Professor Rafael Yuste, online blogs, and YouTube videos […] There is not a single high-impact and reliable research paper from the last 5 years on the subject of regulation [63].

On the other hand, with reference to the academic foundations, at least 17 out of 33 initiatives are partly or almost completely based on the framework proposed by Yuste and colleagues and by the NeuroRights Initiative/Foundation, in countries such as Chile, Argentina, Brazil, Mexico, Colombia, Ecuador, Costa Rica and the Latin American Parliament. The NeuroRights Foundation has therefore shaped the regional discussion to a significant degree.

Limited legislative progress

While neurorights have attracted considerable attention in Latin American legislative circles, the actual regulatory output remains remarkably modest. Out of the 33 initiatives mapped in this paper, only 8 have been formally approved, and of those, merely 3 carry legally binding force: the Chilean constitutional amendment, the constitutional amendment of the Brazilian state of Rio Grande do Sul, and Peru's Decree on data protection. The remaining approved instruments are soft-law declarations, principles, and non-binding charters that do not create enforceable obligations. This means that more than 75% of the initiatives mapped herein remain pending, stalled, or have expired and archived without

legislative action; a ratio that hardly supports the triumphalist narratives of a neurorights "revolution" found in media and advocacy materials. The 2026 committee rejection of the Chilean neuroprotection bill, discussed above, is the most eloquent recent confirmation of this gap between legislative activity and regulatory output [34].

For example, Chile, which is frequently invoked as the paradigmatic country of success in neurorights legislation, warrants closer scrutiny. The 2021 constitutional amendment to Article 19, transcribed above, illustrates the point [30]. While symbolically significant, the amendment is, in substantive terms, more of a programmatic abstract declaration than a self-executing norm: it does not define "brain activity" or "information derived from it," and does not specify the scope of the protections.

The companion "Neuroprotection Law" bill [31], meant to flesh out these provisions with concrete mechanisms and sanctions, was never approved. This gap between the constitutional text and the absent implementing legislation renders the Chilean reform largely symbolic. That symbolism, moreover, was arguably not an accident but part of the point. The "symbolic effect" in the amendment communicates a position (that Chile takes the brain seriously) without creating operative rules, new obligations, competent authorities, or sanctions.

This is what might explain that the constitutional reform could be approved unanimously and celebrated internationally, while the implementing legal bill, which would have had to allocate real burdens and enforcement powers, was postponed for years and ultimately rejected, article by article, by the committee in charge of its second constitutional stage.

The record of the 2026 committee stage helps to explain that outcome. Before the Chamber of Deputies, the Minister of Science of Chile explicitly warned legislators that approving the neuroprotection bill as drafted would mean that Chileans needing these technologies "will have to leave Chile" to obtain them, and would deter foreign companies, none of which operate in Chile, from ever bringing their products into the country. The Undersecretary of Technology also warned of a "chilling effect," cautioning that the risk is that companies "will not come to Chile" with their products. The Minister further acknowledged that the Public Health Institute (ISP) lacks the means to perform the oversight functions the bill would assign to it, conceding that the sanitary authority does "not have the technical capacity or the budget today to do this" [32].

The expert testimony was equally severe as invited specialists described the bill as an instance of rights inflation and as an unnecessary project with poorly specified criminal sanctions, premised on risks that, at the current state of the art, are largely overstated. One invited neuroscientist conceded that the risks are not present "on the basis of direct manipulations of the nervous system" today, and that the realistic concerns lie instead in algorithms and surveillance, which existing data-protection and consumer law already reach, pointing out that the bill seemed to be "mere rhetoric" and symbolism [33].

One member of the committee, noting that the bill had previously passed the Senate unanimously, asked the experts bluntly "who could a bill like this favor; a law firm, an NGO, a foundation?", adding that after the first five expert presentations he could, in his words, "rescue nothing good [from the proposed bill]" [33]. The answer was telling. One invited neuroscientist replied that the beneficiaries would be, first, whoever wishes to "claim the victory of having been the first country in the world to legislate" on the matter and, second, "the agenda of Professor Yuste, who uses the Chilean example" whenever the neurorights are mentioned [33]. Still, the convergence between the government's and the experts'

diagnoses, followed by the article-by-article rejection of the text [34], is difficult to reconcile with the presentation of Chile as a model to be replicated.

Even more, the celebrated *Girardi v. Emotiv Inc.* case [64] further illustrates this point. Although frequently presented as the first judicial landmark case of application of neurorights—see [65]—a closer reading of the judgment supports a more modest interpretation.

The operative reasoning behind the *Girardi v. Emotiv* case rests mainly on pre-existing law: the absence of the sanitary registration and the customs certification required for the commercialization of the Insight device (see considerations 3rd and 10th); the informed-consent requirement for scientific research on human beings under Article 11 of Law No. 20,120 of 2006, which the Court used to reject Emotiv's defense that anonymized data became freely usable statistical information (see consideration 7th); and the long-standing constitutional guarantees of physical and psychic integrity and of privacy under Article 19 Nos. 1 and 4, which the Court declared violated (see consideration 9th) [64]. Consistently, the remedy granted was administrative and data-protection in nature: the appeal was upheld "for the sole purpose" that the Public Health Institute and the customs authority evaluate the device under their existing powers, together with the deletion of the plaintiff's stored data.

The final outcome was even more telling, as documented by the Chilean Congressional Library, the evaluation of the product, mandated by the Court, subsequently performed by the Public Health Institute concluded, in a March 2024 technical report, that the Insight device "is not within the competence of this Institute", as the device pursues no medical purpose and is not a pharmaceutical product [66].

In other words, the amended constitutional clause was just quoted as an *obiter dictum*, something said in passing, that reinforces conclusions independently reached under prior law; no novel neurorights doctrine was actually needed, articulated, or applied (at least not in-depth), and the pre-existing legal apparatus proved sufficient to address the claim. Moreover, the case can hardly be understood as a genuine, naturally occurred, violation of a citizen's rights; but rather the case bears hallmarks of strategic litigation, as the plaintiff, former Senator Guido Girardi, was himself the principal promoter of the constitutional amendment and the neurorights agenda in Chile, and the suit was supported by the Neurorights Foundation's advocacy network, including the Fundación Kamanau [4]. This does not diminish the ruling's validity, since strategic litigation is a legitimate way to obtain a judicial pronouncement, but it qualifies the narrative that the case exemplifies a real-life technological challenge answered by neurorights reforms.

The absence of scholarly and regulatory consensus

Another structural weakness is the lack of consensus, in the region and in the international debate, at both the conceptual and the regulatory level. There is no agreed-upon definition of what neurorights are, who they protect, or how they relate to the existing human rights corpus. The four rights proposed by Ienca and Andorno [1] do not coincide, in number or in content, with the five neurorights later promoted by the NeuroRights Initiative [8]. The NeuroRights Foundation itself now acknowledges that neurorights are not new human rights but sit at the intersection of existing ones [3], a significant shift away from the five-rights programme on which much of the legislative momentum in the region was built. That shift is not confined to the Foundation. Ienca himself later advocated for a broader definition of

neurorights as ethical, legal, social, or natural principles of the brain and mental domain [25], and more recently Ienca and Bertoni have cautioned that, before proposing new neurorights, it would be better to prioritize the clear and rigorous interpretation and application of existing ones [67]. Andorno and Lavazza, for their part, stress that the mere formal recognition of new rights, such as mental privacy, would not be effective if it is not joined with specific legal reforms in civil, criminal, and labor law [68]. In fact, even in the original paper by Ienca and Andorno, the new rights idea was also joined by the suggestion that a re-conceptualization of existing ones could, in some cases, be sufficient [1].

This conceptual inconsistency is mirrored in the legislative diversity documented herein, as the constitutional amendments, ordinary legislation, data protection reforms, procedural innovations such as the Argentine *habeas cogitationem*, soft-law principles, and model laws—all pursued without meaningful coordination or a shared understanding of what the concepts entails. Chile is a case in point, since the central concepts of its constitutional amendment were left undefined, which attracted early academic warnings that a notion such as free will requires definition before it can operate as a legal standard [69]. The result is a fragmented patchwork that creates significant challenges for regional coherence and cross-border enforcement.

These disagreements carry concrete regulatory consequences. A clear example is the divergence over the so-called right to equal access to cognitive augmentation. The Parlatino Model Law [27] enshrines a fundamental right to access cognitive neuroenhancement technologies, while the Inter-American Juridical Committee of the OAS [29] expressly recommends restriction to enhancement and limiting neurotechnological access to clinical and therapeutic contexts. This contradiction reflects fundamentally different normative visions within the same region. As some have argued, promoting equal access to mental augmentation as a fundamental right carries unresolved ethical, legal, and socioeconomic complexities [23].

A comparative perspective

The Latin American fragmentation becomes even more apparent when contrasted with the strategies pursued in other legal systems. In the European Union, no new fundamental rights have been proclaimed for the neural domain, as brain-derived data fall, when they might or do identify a person, under the general categories of the General Data Protection Regulation [70], and the Artificial Intelligence Act also addresses some of the manipulation concerns that animates many Latin American bills by prohibiting AI systems that deploy subliminal or purposefully manipulative techniques, including those based on brain–computer interfaces [71]. This is not to say that the European landscape is free of coordination problems or that it entails a definite and complete protection, but the response there has not taken the form of new rights.

Within the Council of Europe, the report commissioned from Bertoni and Ienca concluded that Convention 108+, properly interpreted, is capable of covering neural data without creating new rights [67]. In the same direction, Bellamy and Bertoni observe that European data-protection authorities already place neurodata within the data-protection domain, and recommend regulating by reference to uses and risks rather than to the technology or the data as such, avoiding definitions that are either too narrow or too broad [72]. At the global level, UNESCO's Recommendation on the Ethics of Neurotechnology, adopted in November 2025, provides the first worldwide normative framework in the field,

and it deliberately frames its safeguards of mental privacy, transparency, consent, protection of children within the existing international human rights system rather than through a catalogue of new rights [73]; the OECD had anticipated the same philosophy in its 2019 Recommendation on Responsible Innovation in Neurotechnology and in the implementation toolkit published in July 2025 [74, 75].

Even in the United States, (where a good share of the consumer-neurotechnology market is actually located) Colorado and California amended their general consumer-privacy statutes in 2024 to classify neural data as sensitive information [76, 77], followed in 2025 by Montana and Connecticut, which brought neural data under their genetic-privacy and consumer-privacy statutes respectively [78, 79].

In general, it seems that the neurotechnological regulations in Latin America are facing problems of prematurity and disconnection in four senses. The first is conceptual immaturity, as there is no consensus, even among proponents, on the number, content, or juridical nature of the rights to be created, or the norms to be enacted, as the divergence between the different governance approaches demonstrates, and even the absence of a clear understanding on what exactly are *neurorights*. The second, which is not prematurity in a strict sense, is an international disconnection: the other existing frameworks, including the Council of Europe report, the UNESCO Recommendation, the US regulations, and the Chilean expert hearings, converge on the conclusion that current human rights, alongside existing or targeted data-protection, consumer, medical-device, and criminal law, properly interpreted and updated, cover the realistically foreseeable use-cases; a divergence that is not objectionable in itself, but that the initiatives never explain nor address. The third is a technological gap, as the region neither massively produces nor consumes the technology it is trying to regulate. And, finally, the lack of institutional capacity to enforce strong regulation, which the Chilean government acknowledged when it conceded that its sanitary authority lacks the technical means and budget for the functions the bill would assign to it [32], and which the Public Health Institute confirmed when it disclaimed competence over the Girardi case.

Then, these findings suggest that what is often presented as a coherent and strong Latin American neurorights movement is, in practice, a fragmented, premature, and insufficiently grounded set of legislative experiments, driven more by advocacy campaigns, political interests, and media narratives than by rigorous interdisciplinary scholarship and careful legislative design. And, in the end, most of the initiatives have not advanced, nor have they become a real legislative priority in parliaments that face many other urgent demands.

Conclusion

The mapping of the 33 Latin American neurorights initiatives reveals a regional legislative landscape that is, at its core, fragmented, conceptually incoherent, and sometimes insufficiently grounded in rigorous interdisciplinary scholarship. Despite the considerable political and media attention that the neurorights agenda has attracted since 2020, the concrete regulatory output remains modest, as only three legally binding instruments have been approved across the entire region, and the vast majority of initiatives have stalled, expired, or been archived. Also, the celebrated cases of legislative progress, most notably Chile's constitutional amendment, are largely symbolic in nature, lacking the implementing legislation necessary to generate real and new enforceable protections—an absence made patent when the Chamber of Deputies' committee rejected the implementing bill, article by

article, in May 2026, for considering it undesirable and badly conceived, with a Deputy saying that he could not even rescue anything good from the initiative [34]. These findings call for a needed reassessment of a narrative that has too often been shaped by advocacy campaigns, speculative ethics, and alarmist claims rather than by careful legal design and evidence-based policymaking.

The absence of consensus on definitions, on the scope of protection, on the relationship between neurorights and existing human rights, and on contested issues such as cognitive enhancement, further undermines the individual initiatives and any prospect of regional coherence. A regional framework built on such unstable foundations risks generating legal contradictions rather than the robust protection its proponents envision, and the experience mapped here shows that even the few initiatives approved carry a very limited legal protection, as they are either soft-law guidelines or constitutional abstract-general provisions.

Considering these issues, rather than hastily adopting new frameworks, policymakers should focus on refining and reinforcing existing human rights with precise legal reforms - where needed- in domains such as privacy, consumer neurotechnology, or criminal law. Existing legal instruments, properly interpreted, updated, and enforced, are in most cases adequate for the foreseeable challenges, and the perceived gaps are better filled through targeted statutory reform and soft-law guidelines than through constitutionalizing ill-defined new concepts.

Finally, a better, evidence-based, and cautious approach should foster international dialogue and align national regulations with established human rights standards, ensuring robust and coherent regional protection. Such an approach would require sustained collaboration among legislators, neuroscientists, bioethicists, legal scholars, and civil society, as well as a genuine engagement with the publics that these technologies would affect, largely absent in the region so far. It would also require moving beyond the advocacy-driven and lobby momentum that has characterized the neurorights debate in Latin America thus far, toward the kind of deliberate, inclusive, and scientifically informed governance that the challenges of neurotechnology genuinely demand. Policymaking starts with a responsible and seriously taken policy cycle with the first question being: what exactly is the particular problem that needs to be fixed in the region? Until a pluralistic, rigorous, and inclusive regional debate happens, the Latin American neurorights initiatives are an example of a fragmented and premature body of proposals that carry a very limited protection.

References

1. Ienca, M., and R. Andorno. 2017. Towards new human rights in the age of neuroscience and neurotechnology. *Life Sciences, Society and Policy* 13(1): 5. https://doi.org/10.1186/s40504-017-0050-1.

2. Yuste, R., S. Goering, B. Agüera y Arcas, G. Bi, J. M. Carmena, A. Carter, J. J. Fins, et al. 2017. Four ethical priorities for neurotechnologies and AI. *Nature* 551(7679): 159–163. https://doi.org/10.1038/551159a.

3. NeuroRights Foundation. 2025. Mission—Impact. https://neurorightsfoundation.org/mission. Accessed 28 September 2025.

4. Borbón, D. 2025. Challenges of the inconsistent neurorights framework in Latin America. *Nature Neuroscience* 28(7): 1363–1364. https://doi.org/10.1038/s41593-025-02001-5.

5. Yuste, R., J. Genser, and S. Herrmann. 2021. It's time for neuro-rights: New human rights for the age of neurotechnology. *Horizons: Journal of International Relations and Sustainable Development* (18): 154–164.

6. Yuste, R. 2023. Advocating for neurodata privacy and neurotechnology regulation. *Nature Protocols* 18(10): 2869–2875. https://doi.org/10.1038/s41596-023-00873-0.

7. Szoszkiewicz, Ł., and R. Yuste. 2025. Mental privacy: Navigating risks, rights and regulation. *EMBO Reports* 26: 3469–3473. https://doi.org/10.1038/s44319-025-00505-6.

8. NeuroRights Initiative. 2021. The Five Neurorights. Archived version of the NeuroRights Initiative website, Columbia University.

9. Fins, J. J. 2022. The unintended consequences of Chile's neurorights constitutional reform: Moving beyond negative rights to capabilities. *Neuroethics* 15: 26. https://doi.org/10.1007/s12152-022-09504-z.

10. Bublitz, J. C. 2022. Novel neurorights: From nonsense to substance. *Neuroethics* 15: 7. https://doi.org/10.1007/s12152-022-09481-3.

11. Susser, D., and L. Y. Cabrera. 2024. Brain data in context: Are new rights the way to mental and brain privacy? *AJOB Neuroscience* 15(2): 122–133. https://doi.org/10.1080/21507740.2023.2188275.

12. Ruiz, S., P. Ramos-Vergara, R. Concha, F. Altermatt, R. Von-Bernhardi, M. Cuello, J. Godoy, et al. 2021. Efectos negativos en la investigación y el quehacer médico en Chile de la Ley 20.584 y la Ley de Neuroderechos en discusión: la urgente necesidad de aprender de nuestros errores. *Revista Médica de Chile* 149: 439–446. https://doi.org/10.4067/S0034-98872021000300439.

13. Moreu Carbonell, E. 2021. The regulation of neuro-rights. *European Review of Digital Administration & Law (ERDAL)* 2(2): 149–162. https://doi.org/10.53136/979125994752914.

14. López-Silva, P., and R. Madrid. 2021. Sobre la conveniencia de incluir los neuroderechos en la Constitución o en la ley. *Revista Chilena de Derecho y Tecnología* 10(1): 53–76. https://doi.org/10.5354/0719-2584.2021.56317.

15. de Asís, R. 2022. Sobre la propuesta de los neuroderechos. *Derechos y Libertades: Revista de Filosofía del Derecho y Derechos Humanos* (47): 51–70. https://doi.org/10.20318/dyl.2022.6873.

16. Herrera-Ferrá, K., J. M. Muñoz, H. Nicolini, G. Saruwatari Zavala, and V. M. Martínez Bullé Goyri. 2023. Contextual and cultural perspectives on neurorights: Reflections toward an international consensus. *AJOB Neuroscience* 14(4): 360–368. https://doi.org/10.1080/21507740.2022.2048722.

17. Ligthart, S., M. Ienca, G. Meynen, F. Molnár-Gábor, R. Andorno, C. Bublitz, P. Catley, et al. 2023. Minding rights: Mapping ethical and legal foundations of "neurorights." *Cambridge Quarterly of Healthcare Ethics* 32(4): 461–481. https://doi.org/10.1017/S0963180123000245.

18. Rommelfanger, K. S., A. Pustilnik, and A. Salles. 2022. Mind the gap: Lessons learned from neurorights. *Science & Diplomacy* (February 2022). https://doi.org/10.1126/scidip.ade6797.

19. Fyfe, S., E. Lanphier, and A. Peterson. 2022. Neurorights for incarcerated persons: Should we curb inflation? *AJOB Neuroscience* 13(3): 165–168. https://doi.org/10.1080/21507740.2022.2082585.

20. Gilbert, F., and I. Russo. 2024. Mind-reading in AI and neurotechnology: Evaluating claims, hype, and ethical implications for neurorights. *AI and Ethics* 4: 855–872. https://doi.org/10.1007/s43681-024-00514-6.

21. Gilbert, F., and I. Russo. 2024. Neurorights: The land of speculative ethics and alarming claims? *AJOB Neuroscience* 15(2): 113–115. https://doi.org/10.1080/21507740.2024.2328244.

22. Cornejo-Plaza, M. I., and C. Saracini. 2023. On pharmacological neuroenhancement as part of the new neurorights' pioneering legislation in Chile: A perspective. *Frontiers in Psychology* 14: 1177720. https://doi.org/10.3389/fpsyg.2023.1177720.

23. Muñoz, J. M., and D. Borbón. 2023. Equal access to mental augmentation: Should it be a fundamental right? *Brain Stimulation* 16(4): 1094–1096. https://doi.org/10.1016/j.brs.2023.05.003.

24. Borbón, D., and L. Borbón. 2021. A critical perspective on neurorights: Comments regarding ethics and law. *Frontiers in Human Neuroscience* 15: 703121. https://doi.org/10.3389/fnhum.2021.703121.

25. Ienca, M. 2021. On neurorights. *Frontiers in Human Neuroscience* 15: 701258. https://doi.org/10.3389/fnhum.2021.701258.

26. Parlamento Latinoamericano y Caribeño (Parlatino). 2022. Declaración con recomendaciones sobre la necesidad de introducción de los neuroderechos en las legislaciones de los congresos de este Parlatino. https://parlatino.org/wp-content/uploads/2017/09/declaracion-neuroderechos.pdf. Accessed 30 June 2026.

27. Parlamento Latinoamericano y Caribeño (Parlatino). 2023. Ley Modelo de Neuroderechos (Neurorights Model Law). https://parlatino.org/wp-content/uploads/2017/09/leym-neuroderechos-7-3-2023.pdf. Accessed 30 June 2026.

28. Comité Jurídico Interamericano (OEA). 2021. CJI/DEC. 01 (XCIX-O/21), Declaración del Comité Jurídico Interamericano sobre neurociencia, neurotecnologías y derechos

humanos: Nuevos desafíos jurídicos para las Américas. https://www.oas.org/es/sla/cji/docs/CJI-DEC_01_XCIX-O-21.pdf. Accessed 30 June 2026.

29. Comité Jurídico Interamericano (OEA). 2023. Resolución CJI/RES. 281 (CII-O/23), Inter-American Juridical Committee Resolution on Neuroscience, Neurotechnologies, and Human Rights. https://www.oas.org/en/sla/iajc/docs/CJI-RES_281_CII-O-23_corr1_ENG.pdf. Accessed 30 June 2026.

30. República de Chile. 2021. Ley No. 21.383, Modifica la Carta Fundamental, para establecer el desarrollo científico y tecnológico al servicio de las personas. Diario Oficial, 25 October 2021. https://www.bcn.cl/leychile/navegar?idNorma=1166983. Accessed 30 June 2026.

31. Senado de la República de Chile. 2020. Boletín No. 13.828-19, Proyecto de Ley sobre protección de los neuroderechos y la integridad mental, y el desarrollo de la investigación y las neurotecnologías. https://tramitacion.senado.cl/appsenado/templates/tramitacion/index.php?boletin_ini=13828-19. Accessed 30 June 2026.

32. Cámara de Diputadas y Diputados de Chile. 2026. Comisión de Futuro, Ciencias, Tecnología, Conocimiento e Innovación, ordinary session of 13 April 2026 (discussion of Boletín No. 13.828-19; presentation of the Minister of Science, Technology, Knowledge and Innovation). https://www.youtube.com/watch?v=kqzA1IR5kEk. Accessed 30 June 2026.

33. Cámara de Diputadas y Diputados de Chile. 2026. Comisión de Futuro, Ciencias, Tecnología, Conocimiento e Innovación, ordinary session of 20 April 2026 (expert hearings on Boletín No. 13.828-19). https://www.youtube.com/watch?v=sdorRd3wwB8. Accessed 30 June 2026.

34. Cámara de Diputadas y Diputados de Chile. 2026. Comisión de Futuro, Ciencias, Tecnología, Conocimiento e Innovación, ordinary session of 4 May 2026 (particular discussion and vote on Boletín No. 13.828-19). https://www.youtube.com/watch?v=mLwKM86puOo. Accessed 30 June 2026.

35. Cámara de Diputados de la Nación Argentina. 2022. Expediente No. 0339-D-2022, Proyecto de Ley que dispone modificaciones sobre incluir como medios probatorios las técnicas de imagen cerebral y cualquier otro tipo de neurotecnología. https://www4.hcdn.gob.ar/dependencias/dsecretaria/Periodo2022/PDF2022/TP2022/0339-D-2022.pdf. Accessed 30 June 2026.

36. Cámara de Diputados de la Nación Argentina. 2024. Expediente 5517-D-2024, Proyecto de Ley mediante el cual se realizan modificaciones sobre incorporación de los denominados “neuroderechos” para la libertad probatoria. https://www4.hcdn.gob.ar/dependencias/dsecretaria/Periodo2024/PDF2024/TP2024/5517-D-2024.pdf. Accessed 30 June 2026.

37. Cámara de Diputados de la Nación Argentina. 2025. Expediente 2815-D-2025, Proyecto de Ley mediante el cual se dispone el régimen de protección del fuero interno de la libertad

de pensamiento y los neuroderechos afines, habeas cogitationem. https://www4.hcdn.gob.ar/dependencias/dsecretaria/Periodo2025/PDF2025/TP2025/2815-D-2025.pdf. Accessed 30 June 2026.

38. Cámara de Diputados de la Nación Argentina. 2025. Expediente 6880-D-2025, Proyecto de Ley mediante el cual se dispone la protección de la actividad cerebral, privacidad mental y neurodatos (Ley de neuroderechos). https://rest.hcdn.gob.ar/web/tramites-parlamentarios/render/adjunto/69317c7d2278b.pdf. Accessed 30 June 2026.

39. Senado de la Nación Argentina. 2023. Expediente S-2446/2023, Proyecto de Ley mediante el cual se dispone la creación de la comisión bicameral especial para la redacción de propuestas legislativas que tiendan a la protección integral de los neuroderechos. https://www.senado.gob.ar/parlamentario/comisiones/verExp/2446.23/S/PL. Accessed 30 June 2026.

40. Cámara de Diputados de la Nación Argentina. 2026. Expediente 0825-D-2026, Proyecto de Ley de neuroseguridad y ciberseguridad de dispositivos médicos conectados. Trámite Parlamentario N° 019, 26 March 2026. https://rest.hcdn.gob.ar/web/tramites-parlamentarios/render/adjunto/69c53e7ad7792.pdf. Accessed 10 August 2026.

41. Cámara de Diputados de la Nación Argentina. 2026. Expediente 0835-D-2026, Proyecto de Ley de protección integral de datos personales (reforma integral de la Ley N° 25.326). Trámite Parlamentario N° 019, 26 March 2026. https://rest.hcdn.gob.ar/web/tramites-parlamentarios/render/adjunto/69c54e3f4fa96.pdf. Accessed 11 August 2026.

42. Cámara de Representantes de la Provincia de Misiones. 2023. Ley VI – N° 352, Ley de neuroderechos.
https://www.diputadosmisiones.gov.ar/nuevo/archivos/proyectos/P61810.pdf. Accessed 30 June 2026.

43. Senado Federal do Brasil. 2023. PEC 29/2023, Altera a Constituição Federal para incluir, entre os direitos e garantias fundamentais, a proteção à integridade mental e à transparência algorítmica. https://www25.senado.leg.br/web/atividade/materias/-/materia/158095. Accessed 30 June 2026.

44. Assembleia Legislativa do Estado do Rio Grande do Sul. 2023. Emenda Constitucional n.º 85, Constituição do Estado do Rio Grande do Sul. https://www2.senado.leg.br/bdsf/item/id/70451. Accessed 30 June 2026.

45. Câmara dos Deputados do Brasil. 2021. PL 1.229/2021, Modifica a Lei n° 13.709, de 14 de agosto de 2018 (Lei Geral de Proteção de Dados Pessoais), a fim de conceituar dado neural e regulamentar a sua proteção. https://www.camara.leg.br/proposicoesWeb/prop_mostrarintegra?codteor=2014371. Accessed 30 June 2026.

46. Câmara dos Deputados do Brasil. 2022. PL 522/2022, Modifica a Lei n.º 13.709, de 14 de agosto de 2018 (Lei Geral de Proteção de Dados Pessoais), a fim de conceituar dado neural e regulamentar a sua proteção.

https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2317524. Accessed 30 June 2026.

47. Câmara dos Deputados do Brasil. 2023. PL 2.174/2023, Estabelece as normas e princípios para proteção dos direitos fundamentais relacionados ao cérebro e ao sistema nervoso humano.
https://www.camara.leg.br/proposicoesWeb/prop_mostrarintegra?codteor=2288518. Accessed 30 June 2026.

48. Senado Federal do Brasil. 2025. Projeto de Lei n° 4, de 2025, Dispõe sobre a atualização da Lei nº 10.406, de 10 de janeiro de 2002 (Código Civil), e da legislação correlata. https://www25.senado.leg.br/web/atividade/materias/-/materia/166998. Accessed 30 June 2026.

49. Cámara de Senadores de México. 2024. Iniciativa con proyecto de decreto por el que se expide la Ley general de neuroderechos y neurotecnologías y se reforman y adicionan diversas disposiciones en materia de neuroderechos y neurotecnologías. https://infosen.senado.gob.mx/sgsp/gaceta/65/3/2024-07-17-1/assets/documentos/Ini_PVEM_Sen_Alejandra_Lagunes_Neuroderechos_Neurotecnologias.pdf. Accessed 30 June 2026.

50. Cámara de Diputados de México. 2023. Iniciativa con proyecto de decreto por la que se adiciona un noveno párrafo y se recorren los subsecuentes del artículo 4° de la Constitución Política de los Estados Unidos Mexicanos. https://sil.gobernacion.gob.mx/Archivos/Documentos/2023/08/asun_4588906_20230808_1690903141.pdf. Accessed 30 June 2026.

51. Cámara de Senadores de México. 2023. Iniciativa con proyecto de decreto por el que se reforma la fracción XVII, al artículo 73 de la Constitución Política de los Estados Unidos Mexicanos, en materia de inteligencia artificial, ciberseguridad y neuroderechos. https://infosen.senado.gob.mx/sgsp/gaceta/65/3/2023-09-26-1/assets/documentos/Inic_PVEM_diversos_senadores_art_73_CPEUM.pdf. Accessed 30 June 2026.

52. Cámara de Diputados de México. 2024. Iniciativa ante el Congreso de la Unión con proyecto de decreto por el que se adiciona un noveno párrafo y se recorren los subsecuentes al artículo 4 de la Constitución Política de los Estados Unidos Mexicanos, relativo a neuroderechos.
https://www.congresocdmx.gob.mx/media/documentos/84586c337397a8dc689922cba72af1d68627eb91.pdf. Accessed 30 June 2026.

53. Cámara de Senadores de México. 2025. Iniciativa con proyecto de decreto por el que se reforman y adicionan diversas disposiciones de la Constitución Política de los Estados Unidos Mexicanos, en materia de ciberseguridad, inteligencia artificial, cibertecnologías, neurotecnologías y neuroderechos. https://www.gepsie.com.mx/ArchivosProyecto/060225-Ini_PAN_Sen_Agustin_Dorantes_Ciberseguridad.pdf. Accessed 30 June 2026.

54. Sistema Nacional de Transparencia (SNT) de México. 2024. Carta de derechos de la persona en el entorno digital: Código de buenas prácticas. https://snt.transparencia.gob.mx/wp-content/uploads/CONAIP-290124-CartaDDigitales.pdf. Accessed 30 June 2026.

55. Cámara de Representantes de la República de Colombia. 2023. Expediente No. 156/2023, Proyecto de Ley por la cual se dictan disposiciones para el régimen general de protección de datos personales. https://congresovisible.uniandes.edu.co/citaciones/proyecto-de-ley-estatutaria-no-156-de-2023-camara-por-la-cual-se-dictan-disposiciones-para-el-regimen-general-de-proteccion-de-datos-personales/103436/. Accessed 30 June 2026.

56. Senado de la República de Colombia. 2025. Expediente No. 395/2025, Proyecto de Ley por el cual se regulan principios en materia de neurociencias, neurotecnologías, derechos humanos y se dictan otras disposiciones. https://www.comisionprimerasenado.com/documentos-pendientes-de-publicacion/ponencias-y-textos-aprobados/4328-ponencia-primer-debate-pl-395-25-neurociencias/file. Accessed 30 June 2026.

57. Senado de la República de Colombia. 2025. Expediente No. 037/2025, Proyecto de Ley por el cual se regulan los principios en materia de neurociencias, neurotecnologías, derechos humanos y se dictan otras disposiciones. https://algoritmos.uniandes.edu.co/proyecto-de-ley-por-la-cual-se-regulan-principios-en-materia-de-neurociencias-neurotecnologias-derechos-humanos-y-se-dictan-otras-disposiciones-2/. Accessed 30 June 2026.

58. Asamblea Nacional de la República del Ecuador. 2023. Expediente AN-OVJC-2023-0027-M, Proyecto de Ley orgánica de neuroprotección y aplicación ética de las neurotecnologías. https://www.asambleanacional.gob.ec/es/multimedios-legislativos/88147-proyecto-de-ley-organica-de. Accessed 30 June 2026.

59. Cámara de Representantes de Uruguay. 2024. Expediente 4393, Proyecto de Ley mediante el cual la actividad cerebral y neuronal de las personas se adiciona a la categoría de dato sensible de la Ley No. 18.331. https://documentos.diputados.gub.uy/docs/L49/Repartid/R1152.pdf. Accessed 30 June 2026.

60. Asamblea Legislativa de la República de Costa Rica. 2024. Expediente N° 24.419, Proyecto de Ley de protección de neuroderechos. https://delfino.cr/asamblea/proyecto/24419. Accessed 30 June 2026.

61. Ministerio de Justicia y Derechos Humanos de Perú. 2024. Decreto Supremo N° 016-2024-JUS, Reglamento de la Ley n.º 29733, Ley de protección de datos personales. https://clinregs.niaid.nih.gov/sites/default/files/documents/peru/Decree016-2024_GoogleTranslate.pdf. Accessed 30 June 2026.

62. Salles, A. 2023. Some reflections on the neurorights debate. In *The risks and challenges of neurotechnologies for human rights*, dir. G. Ramos, ed. M. Sosa Navarro, S. Dura-Bernal, and C. M. Gulotta. Paris: UNESCO, University of Milano-Bicocca, and SUNY Downstate. https://doi.org/10.54678/POGS7778

63. Borbón, D. 2025. What a NeuroRights legislation should not look like: The case of the Latin American Parliament. *Frontiers in Neuroscience* 18: 1514338. https://doi.org/10.3389/fnins.2024.1514338.

64. Corte Suprema de Chile. 2023. *Girardi Lavín v. Emotiv Inc.*, Rol No. 105.065-2023, judgment of 9 August 2023 (Tercera Sala, apelación protección).

65. Cornejo-Plaza, M. I., R. Cippitani, and V. Pasquino. 2024. Chilean Supreme Court ruling on the protection of brain activity: Neurorights, personal data protection, and neurodata. *Frontiers in Psychology* 15: 1330439. https://doi.org/10.3389/fpsyg.2024.1330439.

66. Roberts, R. 2025. Regulación de derechos neuronales: Legislación de los estados de California y Colorado, Estados Unidos de Norteamérica, y declaraciones nacionales e internacionales sobre la protección de datos cerebrales. Asesoría Técnica Parlamentaria, Biblioteca del Congreso Nacional de Chile, July 2025. https://obtienearchivo.bcn.cl/obtienearchivo?id=repositorio/10221/37401/2/informe_comparado_neuroderechos_Julio_2025_BCN.pdf. Accessed 8 July 2026.

67. Bertoni, E., and M. Ienca. 2024. *The privacy and data protection implication of the use of neurotechnology and neural data from the perspective of Convention 108+* (T-PD(2024)1). Strasbourg: Council of Europe, Consultative Committee of Convention 108 (T-PD). https://rm.coe.int/expert-report-neuroscience/1680afd3c8. Accessed 11 August 2026.

68. Andorno, R., and A. Lavazza. 2023. How to deal with mind-reading technologies. *Frontiers in Psychology* 14: 1290478. https://doi.org/10.3389/fpsyg.2023.1290478.

69. Muñoz, J. M. 2019. Chile—Right to free will needs definition. *Nature* 574(7780): 634. https://doi.org/10.1038/d41586-019-03295-9.

70. European Union. 2016. Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data (General Data Protection Regulation). *Official Journal of the European Union* L 119: 1–88.

71. European Union. 2024. Regulation (EU) 2024/1689 of the European Parliament and of the Council of 13 June 2024 laying down harmonised rules on artificial intelligence (Artificial Intelligence Act). *Official Journal of the European Union* L, 12 July 2024.

72. Bellamy, B., and E. Bertoni. 2024. Neurodata: The new epicenter of data protection. *Tech Policy Press*, 17 September 2024. https://www.techpolicy.press/neurodata-the-new-epicenter-of-data-protection/. Accessed 10 August 2026.

73. UNESCO. 2025. Recommendation on the Ethics of Neurotechnology. Adopted by the General Conference at its 43rd session, Samarkand, 11 November 2025. https://www.unesco.org/en/legal-affairs/recommendation-ethics-neurotechnology. Accessed 30 June 2026.

74. OECD. 2019. Recommendation of the Council on Responsible Innovation in Neurotechnology (OECD/LEGAL/0457). Paris: OECD.

75. OECD. 2025. Neurotechnology Toolkit: To support policymakers in implementing the OECD Recommendation on Responsible Innovation in Neurotechnology. Paris: OECD, July 2025. https://www.oecd.org/content/dam/oecd/en/topics/policy-sub-issues/emerging-technologies/neurotech-toolkit.pdf. Accessed 30 June 2026.

76. State of Colorado. 2024. House Bill 24-1058, Concerning protections for the privacy of biological data (amending the Colorado Privacy Act to include neural data as sensitive data). Colorado General Assembly, signed 17 April 2024.

77. State of California. 2024. Senate Bill 1223, Consumer privacy: Neural data (amending the California Consumer Privacy Act to include neural data as sensitive personal information). California Legislature, approved 28 September 2024.

78. State of Montana. 2025. Senate Bill 163, Generally revise privacy laws related to biometric, genetic, and neural data (amending the Montana Genetic Information Privacy Act to cover neurotechnology data). Montana Legislature, enacted May 2025, effective 1 October 2025.

79. State of Connecticut. 2025. Senate Bill 1295, Public Act No. 25-113 (amending the Connecticut Data Privacy Act to include neural data as sensitive data). Connecticut General Assembly, signed 24 June 2025, effective 1 July 2026.