

UNESCO Ethics of Neurotechnology

Stakeholder Consultation Contribution · 2024

PRIMARY-SOURCE ARCHIVE

Ria Bahadur

Academic (Medical) Stakeholder · United States

Invited through the U.S. Department of State

This document preserves Bahadur's written contribution to the 2024 U.S. stakeholder consultation informing a draft UNESCO Recommendation on the Ethics of Neurotechnology.

At eighteen, she contributed from an academic and medical stakeholder perspective, drawing on earlier work in neuroscience, neurotechnology, clinical neurology, and neuroethics.

The following pages reproduce the consultation submission as prepared at the time. It is presented as a dated primary-source record of participation in the draft-stage policy process.

CONSULTATIONS ON THE PREPARATION OF A DRAFT TEXT OF A UNESCO RECOMMENDATION ON THE ETHICS OF NEUROTECHNOLOGY
SUGGESTED REPORTING TEMPLATE

PLEASE FILL IN THIS TEMPLATE FOR EACH CONSULTATION (ONE TEMPLATE PER CONSULTATION).

GENERAL INFORMATION

Host country/ institution:	United States of America
Date of consultation:	10 July, 2024
Working language:	English
Numbers of participants:	1
Geographical coverage: <i>(Please list all countries from which at least one participant took part in the consultation)</i>	United States of America

INFORMATION CONCERNING PROFILE OF PARTICIPANTS

Gender of Participants <i>(please indicate the number of participants from each category in the box)</i>	Female: 1		
	Male:		
	Other:		

Age of Participants: <i>(please indicate the number of participants from each category in the box)</i>	18 to 24: 1		45 to 54:	
	25 to 34:		55 to 64:	
	35 to 44		Over 65	

box)				
Stakeholder groups represented <i>(please indicate the number of participants from each category in the box)</i>	Permanent Delegation to UNESCO		Other, please specify with examples: Stanford University (Undergraduate Fellow)	
	National Commission to UNESCO			
	Governmental body			
	UN entity			
	International and regional Organization (other than UN)			
	Civil Society			
	Entrepreneur/Industry/Private Sector			
	Academia/University	1		
	Non Governmental Organization (NGO)			
	Indigenous group			
	Patient group			
	Media			

Area of work/research	Healthcare		Other, please specify with examples:	
	Neurology, neurotechnology and related areas	1	NOTE: This is the same participant with a neurotechnology, ethics, and human rights background.	
	Psychology (clinical, cognitive, others)			
	Engineering, Tech, AI			
	Economics, Marketing			
	Ethics, Philosophy	1		
	Law, Human Rights	1		
	Gender			

	Youth		
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CONSOLIDATED CONTRIBUTION TO THE DRAFT TEXT

For each question, please provide a summary capturing the general discussion and conclusion.

A. Definition and scope

1. The Draft Recommendation defines neurotechnology as: “devices and procedures used to understand and/or influence, access, monitor, assess, emulate or modulate, the structure and function of the nervous systems of human beings and other animals” (para 2.).

Do you agree with this definition: **Yes/No**

Why? **This definition is comprehensive and accurately encompasses the broad range of devices and procedures that influence, monitor, or manipulate the nervous system in a holistic and interdisciplinary manner.**

2. Is there an important aspect of neurotechnology that the scope (see II.2) does not capture? **Yes/No**

Please explain. **Although the scope is inclusive of both medical and non-medical applications, as well as the convergence with AI technology, this does not emphasize neurotechnology's dual influence on the brain-mind apparatus, which is unique to neurotechnology as opposed to general biotechnology.**

3. Do you think the scope is too broad? **Yes/No**

If yes, please indicate what should be removed.

4. Is the convergence between Neurotechnology and AI well captured? **Yes/No**

If no, please suggest concrete wording.

5. Do you think the way intersection of AI and neurotechnology is presented in the document encompasses well the speed and depth of developments in this field? **Yes/No**

If no, please explain.

I disagree with the presentation of AI as a secondary component to neurotechnological means or an add-on to neurotechnology as opposed to a parallel development stream from which neurotechnology borrows. In a sense, AI

and neurotechnology are dealing with “born” or “created” cognitive and processing abilities; as such, their development streams follow an increasing negative feedback loop of ethics, law, and innovation in which careful ethical guidelines must be balanced with the imminent human, cultural, and scientific need for innovation. As a result, while I feel the speed is well represented, the depth of these developments must include information about the parallelism between AI and neurotechnology.

6. Neural data is presented as: “Neural data are quantitative data about the structure, activity and function of the nervous system of a living organism. They encompass data relating to a nervous system's activity, including both direct measurements of neuronal structure, activity and/or function (e.g., neuronal firing or summed bioelectric signals from EEG) and indirect functional indicators (i.e., blood flow in fMRI and fNIRS).

At the neurobiological level, neural data are the most direct correlates of mental states, as all cognitive and affective activity is primarily processed in the nervous system. Therefore, the prospect of decoding or modifying neural activity implies the possibility of decoding or modifying cognitive and affective processes” (para 7)

Do you agree with this definition? **Yes/No**

If no, please propose concrete wording.

B. Approach

7. Do you think that the ethical challenges (see III.3, pages 7-8) are adequately identified and described? **Yes/No**

Why? I believe critical ethical challenges such as mental privacy, autonomy, identity, and the potential for coercion and discrimination, from development to funding to deployment, are well-highlighted.

8. This Recommendation adopts a human centered approach. Is it adequately reflected in the draft document? **Yes/No**

Why? The document's emphasis on human dignity, rights to autonomy, and the holistic development and care of individuals closely aligns with current neuroethical literature.

C. Values and principles

9. Would you endorse the values identified in the document (pages 8-12). **Yes/No**

Why? **Dignity, health, wellbeing, diversity, and justice resonate with the ethical foundations of all legitimate scientific fields, as well as the intricacies of neoclassical neuroethics.**

10. Is there any value that is missing? **Yes/No**

If yes please provide with concrete language.

“innovation for further neurotechnological advancement” and “beneficence *towards innovation for further good, and measures against heedless innovation to protect existent good*”.

The values of innovation and the spirit of beneficence *to all ends – developmental and humanistic* – is the balance that must be struck between ethics, law, and innovation that this document misses, despite its well-intentioned design towards leashing innovation with harmful potential.

11. Would you endorse the principles identified in the document (pages 12-14). **Yes/No**

Why? **Beneficence, mental privacy, and fairness are extremely essential to an ethical environment in which neurotechnology can freely advance while limiting its harms.**

12. Is there any principle that is missing? **Yes/No**

If yes, please provide with concrete language.

13. Is the human-rights framework sufficiently addressed? **Yes/no**

Why? (please provide concrete suggestions if something is missing) **The document's immense focus on human rights, particularly the intricacies of neurorights, aligns with cognitive liberty and mental privacy: both paramount to the safety and human rights of emergent neurotechnology.**

D. Areas of policy actions/recommendations

14. Is the presentation of the policy areas well-structured and are the areas adequately described? **Yes/No**

Why? **The policy areas cover a comprehensive range of issues from health to education, ensuring a broad consideration of neurotechnology's impact.**

15. Are the recommendations described in section V in line with the values and principles of section IV?

Yes/No

16. Would you consider that the recommendations in the document properly address the need for equal access to the technological developments both inside the country, as well as between countries. **Yes/No**

Please provide concrete suggestions to improve this.

- **Emphasize international cooperation and resource sharing to support low and middle-income countries in accessing neurotechnology.**
- **Create unbiased review for both public and private sector neurotechnological advancements, rather than individual boards that cherry-pick prioritized technology as opposed to necessity-based technology.**

- **Create a technological open-source worklist of innovation dedicated to community impact as opposed to advancement alone to foster transnational neurotechnological innovation while preventing dual-use via classified information.**

17.Is there anything in this section with which you would fully disagree? Yes/**No**

If yes, what? and why. Please explain.

18.Are there gaps/important aspects or applications of neurotechnology not covered? Yes/**No**

If yes, please specify.

19.Are all relevant actors identified in the draft text? **Yes**/No

Please specify which should be added or removed.

Youth Groups

K-12 Public Schools

K-12 Private Schools

20. Are the identified policies and recommendations adequate to promote diversity and non-discrimination? **Yes/No**

Why? **They are. However, this should also be reflected in both the diversity and non-discrimination of neurotechnological innovation and neurotechnological deployment, not just in access and equity for the latter counterpart.**

21. Are the proposed policies and recommendations adequate to address the gender perspective? **Yes/No**

Why? Please provide concrete suggestions. **Yes; however, an article should be added for menopause neuroendocrine research. Though women-affecting, it is a wider neurotechnological and neuroscientific issue requiring further**

researchers, and yet hindered by its “for-women” nature. As a result, this too should be addressed as a living example of an over-gendered issue providing a limiting factor in research manpower.

22. Do you think that the way the technologies are developing would have a differentiated impact depending on gender? **Yes/No**

If yes, is this adequately addressed in the recommendations proposed in this document?

Yes/No This is indeed adequately addressed. That said, I would still pay heed to the differentiated impact being termed as extremely separate from differentiated use/need/development means.

23. Do the proposed policies and recommendations on neurotechnology contribute to the protection of vulnerable populations? **Yes/No** Why?

They do, however, they only include the protection of vulnerable populations in technological distribution and deployment, and less in the vulnerable populations part of development, testing, and advising. As a result, the suggestions proposed above in international policy and domestic policy also apply to this question; we must do more

to foster transnational collaboration among stakeholders, developers, and clients as opposed to a few certain communities (with greater wealth) alone.

24. Do the proposed policies and recommendations address neurodiversity adequately? **Yes/No**

Why? Please propose concrete text.

25. Are the responsibilities of all relevant actors, including the private sector, properly reflected in the document? **Yes/No**

Why?

26. Are the proposed recommendations ensuring accountability of the different actors throughout the lifecycle of the technology? **Yes/No**

Why? While these propose the positive accountability to enable neurotechnology, particularly on a governing body's part, they do not propose the negative accountability component, in which a host technology with multiple neurotechnological spinoffs have the power to disengage the development of a host technology altogether for funding, prioritization, or harsh guidelines termed as ethics. This cycle must also be shown to demonstrate the current failings of the ethical system before the positive measures listed can be proposed, for the change in paradigm to be clearer.

27. Is there any contradiction or tension between the legal framework of your country and the recommendations proposed in the draft text? Yes/**No**

If yes, please provide with specific examples.

28. Do you think the legal framework of your country is effectively addressing the challenges posed to human rights raised by neurotechnology Yes/**No**.

If no, please provide with a concrete suggestion on how to improve existing laws or create new rights.

We must enhance data protection laws to specifically address neural and cognitive biometric data, ensuring they cover consent, data minimization, and purpose limitation. We must also change the MAD (Medically Assisted Death) act to include more scientific (and less religious) terminology, as well as improve the definition of braindead compared to vegetative. Lastly, we must create new rights for regenerative medicine on ESCs (Embryonic Stem Cells) as opposed to the monopolized use of iPSCs for brain organogenesis; without ESCs, though forced to rely on iPSCs, we lose the rapidity of accessing data provided by developing organs (as we've been able to extract with brain, kidney, and lung organogenesis).

29. Does the Recommendation address adequately the need for international cooperation to address the technical gap? **Yes/No**

Why?

30. Are future developments of the technology sufficiently taken into consideration? **Yes/No**

Why?

31. Are there any proposed recommendations that you would consider too restrictive? Yes/ **No**

If yes, which one? Please propose concrete rewording.

32. Are there any proposed recommendations that you would consider too permissive? Yes/ **No**.

If yes, which one? please propose concrete rewording.

E. Implementation

33. Would you have any specific suggestions on how these recommendations could be implemented and have impact on the ground? Please specify.

We must establish international collaborative frameworks for R&D, as well as further forums on both ethics and research security with the power to screen and analyze public and private (and public-private) neurotechnological innovation. We must also create public awareness campaigns to educate about neurotechnology and its ethical implications in schools worldwide, and implement robust monitoring and evaluation mechanisms to ensure compliance with ethical standards.

Any other comments?

The draft is comprehensive and aligns very well with the principles and ethical considerations discussed by leading neuroethicists, such as Dr. Martha J. Farah. However, the test of this draft will be continued interdisciplinary and international collaboration for the free advancement of neurotechnology without either heedless innovation with harmful abilities or an oversafe environment restricting the fundamental need for neurotechnological breakthroughs.