II. Assessing the human rights impact of neurotechnology: towards the recognition of ‘neurorights’ (prepared by Milena Costas Trascasas)

A. Introduction

A new generation of neurotechnologies is rapidly developing. Increasingly promoted as a necessary development that needs to be pursued for the good of humanity, such emerging technologies are paving the way to an incredibly lucrative business which may contribute to widen power asymmetries[[1]](#footnote-1). Advancements in research are being fuelled by large quantities of public and private funding allocated on ‘brain’ initiatives.[[2]](#footnote-2) This massive scale of global investment is prompting a new technological race where States, businesses and other stakeholders are staking out positions.[[3]](#footnote-3) Even if many of these technologies are currently in an experimental phase, experts warn that we must be prepared for this to change very quickly.[[4]](#footnote-4)

In coming years, neurotechnology will help to improve cognitive capacities by connecting the brain directly to digital networks. This will require not only the systematic collection of neural data but the decoding of thoughts deriving from the neural activity of the person. The unquestionable medical benefits that such advancements may bring should not, however, obscure the risk that they also pose.[[5]](#footnote-5) Neurotechnology allows a far greater degree of access to and manipulation of neural processes and its unregulated commercialization and use poses an unprecedented threat to the ability of individuals to govern freely their own behaviour. In fact, these technologies have the potential of irreversibly damaging or disrupting the delicate balance of the human “psyche” (ψυχή) already seen by the ancient Greeks as the container of the “human soul”.

B. State of advancement of neurotechnologies

Advancements in this field allow for new and sophisticated ways of human-machine interface.[[6]](#footnote-6) Today, the term ‘neurotechnologies’ refers to any electronic device, method or process conceived to access the human brain’s neuronal activity including the capacity to record, interfere or modify brain activity. These applications allow for a two-way connection (brain-computer interfaces) between the individual’s central nervous system (brain and spinal cord) and an electronic system. The aim is to collect information on the activity of neurons containing a representation of brain activity (neural data)[[7]](#footnote-7) Owing to these advancements, the human brain appears to be a kind of ‘hard disk’ containing documents and memories that can be consulted and saved in an external device. A disk or a computer can thus be used to access, explore, delete or even modify them.

A clear distinction needs to be made between those innovations which are oriented towards public health and developed for medical purposes and those that generally pursue the human augmentation through the ‘memory enhancement’ or the ‘cognitive engineering’.

Some of these innovations are clearly oriented towards the medical field and are already being used for the prevention, diagnosis and treatment of neurological disorders (Parkinson, dementia, stroke, major depressive disorder). In these cases, the applicable technologies are usually invasive and encompass the implantation of electrodes that stimulate or modulate the patient’s brain activity but are generally sufficiently regulated in national legislation.

The more concerning technologies are those that are being developed outside the medical field and offered to the general public for memory enhancement purposes in healthy people. Low cost non-invasive neuromodulation applications designed to optimize brain performance in a variety of cognitive tasks can already be purchased on the Internet. Other applications which will be available very soon are portable accessories, such as wireless headphones and helmets allowing users to carry out daily activities, such as games and entertainment while decoding brain waves and allowing remote control of smartphones. Beyond the ‘neurogaming’, other proposed applications such as the ‘neuromarketing’ and the ‘neurolaw’ are being developed in a complete legal vacuum. There is also a great risk that these technologies may be used for security and military purposes, including non-state actors.

The widespread availability of these technologies would inevitably lead to the creation of large amounts of highly sensitive neurological data, raising the question of who should have access to such information, and for what purpose. Furthermore, in the long-run, the progressive normalization of these devices may contribute to the erosion of certain aspects that are at the core of the very concept of human being such as the individual’s mental privacy, cognitive liberty, and individual autonomy. The threat to the individual’s control over the neurocognitive dimension has also the potential to alter the functioning of our societies.[[8]](#footnote-8)

C. Lack of adequate regulation

The continued and unregulated development of some neurotechnologies poses a number of ethical, legal and societal questions that need to be addressed. These devices are being quickly developed and commercialized in an environment where responsible innovation cannot be granted. Furthermore, in a globalized market, national attempts to regulate neurotechnologies might not be sufficient. So far, only a few States have enacted legislation specifically aimed at protecting mental integrity and indemnity (Chile) or have prompted amendments to include neuro-data in the personal data protection laws (Spain, Colombia, Brazil).[[9]](#footnote-9) It seems, however, that isolated and fragmented national initiatives alone cannot cover all existing and potential challenges. Even in the United States, where a patchwork of laws does exist, the provision of effective protection against misuses remains questionable.[[10]](#footnote-10)

At the international level, different organizations have started to reflect on this topic from different angles. In 2022, the OECD approved a ‘Recommendation of the Council on Responsible Innovation in Neurotechnology’, whereby certain challenges posed by neurotechnologies are anticipated. In 2021, a report of the International Bioethics Committee of the UNESCO dealt more specifically with the ethical and legal aspects.[[11]](#footnote-11) More recently, specialized committees on bioethics and neurotechnologies from the Council of Europe and the Interamerican Commission of Human Rights held discussions on the neurotechnologies from a human rights perspective.[[12]](#footnote-12)

The UN system itself has dealt with this topic in a very preliminary manner. In the 2021 UN General Secretary’s report ‘Our common Agenda’, neuro-technology is mentioned as a frontier human rights issue which makes necessary un update or the clarification of the applicable human rights framework and standards with a view to preventing harms in the digital or technology spaces.[[13]](#footnote-13) A recent report published by the Neurorights Foundation, has called on the UN ‘to play a leading role globally to embrace these exciting innovations while protecting human rights and ensuring the ethical development of neurotechnology’.[[14]](#footnote-14) However, to our knowledge, the Secretary General’s statement has not triggered any specific follow-up action.

The UN is in the best position to launch a public, transparent and inclusive debate among States, civil society and other interested stakeholders on the issue of neurotechnologies, which so far has been only treated at expert level. In this context, the Human Rights Council has a significant role to play and the Advisory Committee may be of great support in this respect. Given its quality as think-tank body, our Committee, is best placed to assess the human rights impact of these technologies and to make recommendations for action to Member States.

D. A new challenge for human rights

From a human rights perspective, it has been argued that existing instruments are ill-equipped to face these new challenges.[[15]](#footnote-15)

Experts suggest that a new set of rights should be recognized with a view to introducing “normative specifications related to the protection of the person’s cerebral and mental domain”, which includes individual mental integrity and identity. Here the question is whether such protection should be introduced as a new human rights norms or rather as standards of application or interpretation of existing rights, while reinforcing the applications of the principles on business and human rights and other specific initiatives in parallel.

This assessment requires a careful and balanced analysis of the new norms that are being proposed as rights. It is true that specific standards may be needed to ensure the protection against interferences and misuses of certain mental aspects such as cognitive freedom, mental privacy, mental integrity and psychological continuity.[[16]](#footnote-16) The equal access to neurotechnology for medical purposes has also been promoted, together with individual’s access to justice and adequate accountability mechanisms. There are, however, other much more disputable interpretations, such as the claim that a right to fair access to “mental augmentation” should be recognized.[[17]](#footnote-17)

E. Objective of the research proposal

The study of the Advisory Committee would provide an overview of the main human rights implications of neurotechnologies, by focussing on the legal, ethical and societal consequences of the different applications that are being developed, particularly outside of the medical domain. An exhaustive analysis of the existing framework will also contribute to the identification of the relevant norms, applicable principles, and standards as well as gaps and challenges.

The report will also include an assessment on the need and opportunity of recognizing an additional set of rights, in particular, the so-called ‘neurorights’. It will explore what kind of normative instrument could be developed while also considering other alternatives, such as the possibility of interpreting in an evolving manner the most relevant rights. To conclude, the report will address the question of how to build a coherent system of governance and accountability.[[18]](#footnote-18)

Such a study would foster States’ understanding of the human rights implications of this complex issue, and would allow the inclusion of this topic within the UN Human Rights Council’s agenda. A public discussion on this topic is timely and urgently needed to identify what kind of actions should be undertaken in the future to avoid these technologies being used against the principles and objectives of both, the Universal Declaration of Human Rights and the UN Charter.

E. Timeline

This research proposal updates and replaces the one submitted to the UN Human Rights Council in February 2022. The Advisory Committee reiterates its request to the Council’s Members and Observer States to work towards the adoption of a thematic resolution providing for a mandate to develop a study on this topic.

Our Committee is ready and has the necessary expertise to continue discussions with a view to submitting a report on the human rights impact of neurotechnologies at the 56th (July 2024) or 57th (September 2024) session of the Human Rights Council.

1. Human Augmentation – The Dawn of a New Paradigm, A strategic implications project, UK Ministry of Defence, May 2021. [↑](#footnote-ref-1)
2. Current developments are being driven by a number of large global neuroscience initiatives, including the United States-based Brain Research through Advancing Innovative Neurotechnologies (BRAIN) initiative, the EU’s Human Brain Project (HBP), and other coordinated research projects being implemented around the world, including in China, Japan, the Republic of Korea, Australia and Canada. [↑](#footnote-ref-2)
3. Between 2010 and 2014 the number of patents doubled from 800 to 1,600 annually. Most of them are however awarded to private inventors outside of medical device companies. [↑](#footnote-ref-3)
4. Although neurotechnologies now allow brain data to be recorded with great precision, researchers are still working to fully understand these signals. See: Geneva (GESDA) Memory enhancement and cognitive engineering, Scientific Anticipatory Brief, 2020. [↑](#footnote-ref-4)
5. A/76/380, para. 6. The Special Rapporteur on freedom of religion or belief has expressed its concern that digital technology, neuroscience and cognitive psychology developments posed, with the potential to “enable access to the very content of our thoughts and affect how we think, feel and behave”. [↑](#footnote-ref-5)
6. A number of key research areas show progress; from neuroscience, through computing power to AI, imaging, materials technology, sensors and manufacturing. [↑](#footnote-ref-6)
7. See: OECD 2019 Recommendation of the Council on Responsible Innovation in Neurotechnology. [↑](#footnote-ref-7)
8. This can also contribute to reinforcing totalitarian dynamics or authoritarian processes through, for example, intrusive surveillance, unconsented assessment and the manipulation of brain states and/or behaviour. At the same time, it is argued that neurotechnologies may introduce new grounds for discrimination as consequence of the gap that would be created between a sort of ‘cognitive elite’ and those who cannot afford those technologies. [↑](#footnote-ref-8)
9. Chile has enshrined a right to neuroprotection in its Constitution and would be developing legislation for neuroprotection as well. [↑](#footnote-ref-9)
10. K. S. Rommelfanger, A. Pustilnik and A Salles, ‘Mind the Gap: Lessons Learned from Neurorights’, *Science & Diplomacy*, 02/28/2022; [↑](#footnote-ref-10)
11. Report of the international bioethics committee of UNESCO (IBC) on the ethical issues of neurotechnology, Paris, 15 December 2021. [↑](#footnote-ref-11)
12. On 21 June 2022, the Interamerican Commission hold a public audience on “Human Rights and Nerrotechnologies (https://www.oas.org/es/cidh/sesiones/?S=184). See also: Declaration of the Interamerican Juridical Committee on Neuroscience, Neurotechnologies and Human Rights: New Legal Challenges for the Americas, CJI/DEC. 01 (XCIX-O/21) On 9 November 2021, the Council of Europe and the OECD co-organized a round table under the title: Neurotechnologies and Human Rights Framework: Do We Need New Rights? (<https://www.coe.int/en/web/bioethics/round-table-on-the-human-rights-issues-raised-by-the-applications-of-neurotechnologies>) See also: M. Ienca, ‘Common Human Rights challenges raised by different applications of neurotechnologies in the biomedical field’. Council of Europe, October 2021. [↑](#footnote-ref-12)
13. Our Common Agenda - Report of the Secretary-General, September 2021, par. 35. [↑](#footnote-ref-13)
14. See: J.Genser, S. Herrmann and R. Yuste, ‘International Human Rights Protection Gaps in the Age of Neurotechnology’, Neurorights Foundation, May 2022, p. 50. [↑](#footnote-ref-14)
15. See Avi Asher-Schapiro, “‘This is not science fiction’, say scientists pushing for ‘neuro-rights’”, Reuters, 4 December 2020. [↑](#footnote-ref-15)
16. See in particular Marcello Ienca and Roberto Andorono, “Towards New Human Rights in the Age of Neuroscience and Neurotechnology”, *Life Sciences, Society and Policy*, vol. 13, No. 5 (2017). [↑](#footnote-ref-16)
17. See : D. Borbón and L. Borbón, ‘A critical perspective on Neurorights: Comments regarding Ethics and Law’, *Frontiers in Human Neuroscience*, October 2021, Vol. 15, p. 2. [↑](#footnote-ref-17)
18. M. Ienca, R. Andorno, R. Chavarriaga and others, ‘Towards a Governance Framework for Brain Data’, *Neuroethics*, 3 June 2022. [↑](#footnote-ref-18)