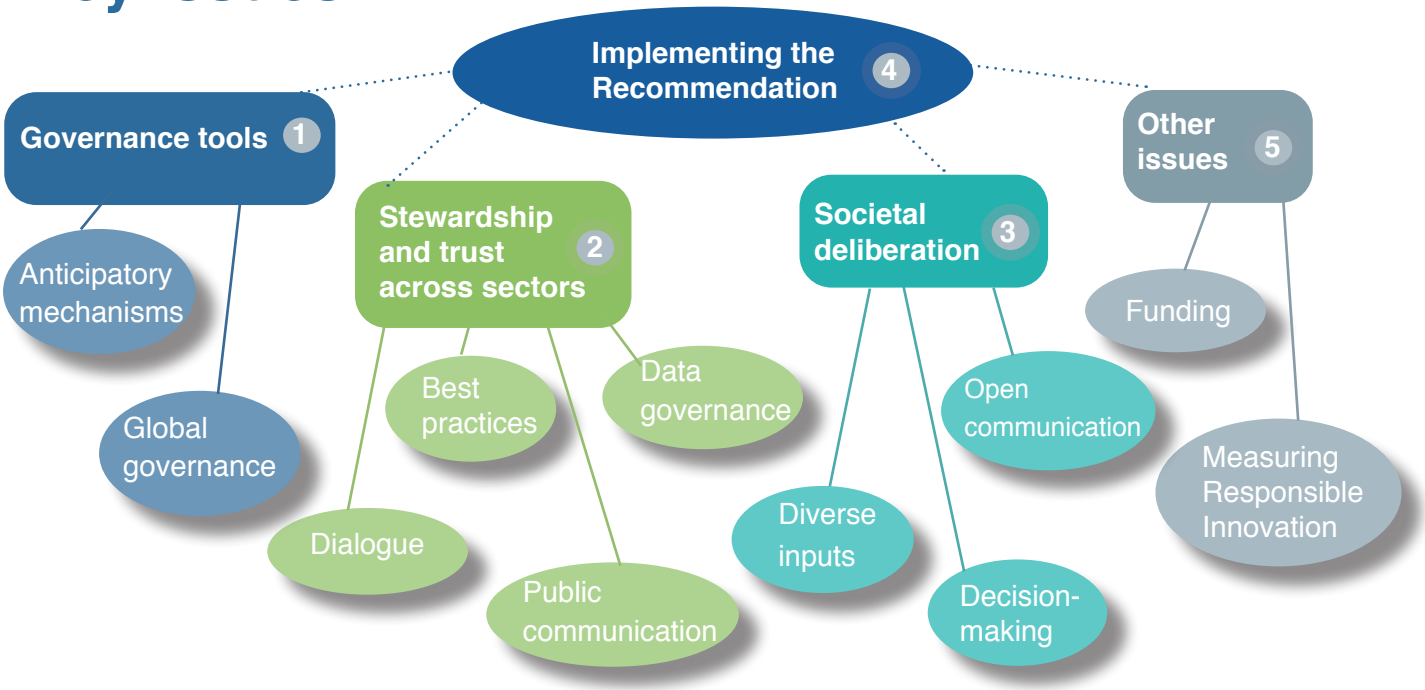
Highlights of the event

The event is part of the Working Party on Bio-, Nano- and Converging Technology's (BNCT) ongoing project on the implementation of the OECD Council Recommendation on Responsible Innovation in Neurotechnology ("the OECD Recommendation"). Held as a fully virtual event due to the COVID-19 restrictions, it was hosted by the Swiss Delegation in Zurich, i.e. the "Zurich Event".

The workshop is part of a series of events to build capacity and support adherents in the implementation of the OECD Recommendation. Over the course of both days, more than 140 participants from 25 countries took part in the workshop.

In nine sessions, 30 speakers from 10 different countries discussed current issues and provided examples of activities to implement the Recommendation. This included lessons learned and best practices from concrete implementation efforts and related initiatives. A particular focus was on the notion of neurotechnology in and for society which is reflected in societal deliberation as well as stewardship and trust that correspond with Principles 5 and 8 respectively in the Recommendation.

Key issues



1. Governance tools

The decision of how and when to govern emerging technologies presents a well-known dilemma: intervening too early can stifle innovation, while intervening too late makes it expensive if not impossible to change courses. Anticipatory mechanisms and international collaboration are important tools to address this so-called "Collingridge dilemma". Concrete mechanisms of anticipatory governance like regulatory sandboxes, scenario planning, regulatory science and early engagement of citizens in deliberation are possible ways to negotiate this dilemma.

Different sources of neurotech governance will be operative across the global landscape of soft law, rules, regulations and other norms. These different sources of norms can present a complex landscape that can be overlapping, inconsistent, or incomplete. Standards can operate at different levels and across different communities, playing a coordinating function. The Principles of the Recommendation could help play this coordinating function, helping to organize a multi-level governance ecosystem of standards. This multi-level and multi-sector system could result in a clear division of governance tasks and contributions to responsible governance.

2. Stewardship and trust across sectors

Responsible innovation will require collaboration and joint stewardship across the public and private sectors at different stages of the innovation process, including data management, technology transfer, product development and regulation. For example, good business conduct and best practice demand engaging an array of stakeholders – including scientists, patients and other technology users, public institutions – to identify regulatory issues at the outset of technology development. The goal is to build an open and transparent governance and regulatory framework which balances public safety and innovation and promotes access to society.

The field of neurotechnology requires robust data governance, as it not only relies on but also uses and processes highly sensitive data. Speakers identified several issues, gaps and challenges. These challenges encompass data collection; rights to access data; responsible data use as well as addressing algorithm bias. Private sector actors on the cutting edge of technology development should engage different publics. Companies need to communicate transparently to consumers, users and other publics about the neurotechnologies they develop. This includes communication with publics early on in the development of neurotechnology to raise awareness on risks and benefits as well as set realistic expectations of future products and services.

Enabling dialogue between stakeholders across sectors and disciplines is essential to establish trust. The translation of terminology to each audience group is important, as is the use of innovative outreach formats via media channels and annual events.

3. Societal deliberation

To promote open communication across expert communities, patient views need to be taken into account. Effective science communication requires (1) presentation of accurate information, (2) diversity of opinion represented (3) willingness to exchange perspectives among all participants, and (4) adequate time for the process to unfold.

Ensuring diverse inputs into decision making processes is crucial yet faces roadblocks. The relative power and prestige of participants helps dictate the kinds and levels of impact on decision-making. Categories by education, experience, race, gender or socio-economic status can determine the levels of participation. Moreover, hierarchies hinder decision makers from listening to the voices of traditionally disempowered groups.

Public deliberation and engagement should be taken into account within policy and the decision-making process. Key points from the meeting: (1) offer citizens balanced information about the topic, (2) focus on consequences of the technology on society, and (3) analyse the results of public deliberation together with stakeholders and society representatives. However, achieving a meaningful integration evidence from stakeholders in decision making currently lacks policy tools.

Key takeaways

- Neurotechnology governance presents a key dilemma that can be addressed in part through anticipatory mechanisms.
- Standards and the OECD Recommendation could play a key coordinating function across a complex and challenging landscape of global governance.
- Promoting stewardship and trust across sectors (Principle 8, OECD Recommendation) requires joint responsibility, public communication, dialogue and data governance.
- Promoting societal deliberation and engagement (Principle 5, OECD Recommendation) requires open communication, diverse inputs and evidence of real impact.
- Roadmaps, standards and indicators for the evaluation and assessment of the Recommendation could help drive its implementation by firms, governments and others.
- Geographical divides in neuroscientific research, investment capital and innovation more generally could be addressed through socially responsible investing.

OECD Recommendation on
Responsible Innovation in Neurotechnology

https://oe.cd/NeurotechnologyRecommendation

The Recommendation embodies nine principles, which focus on:

1. Promote responsible innovation in neurotechnology to address health challenges.
2. Prioritise assessing safety in the development and use of neurotechnology.
3. Promote the inclusivity of neurotechnology for health.
4. Foster scientific collaboration in neurotechnology innovation across countries, sectors, and disciplines.
5. Enable societal deliberation on neurotechnology.
6. Enable the capacity of oversight and advisory bodies to address novel issues in neurotechnology.
7. Safeguard personal brain data and other information gained through neurotechnology.
8. Promote cultures of stewardship and trust in neurotechnology across the public and private sector.
9. Anticipate and monitor the potential unintended use and/or misuse of neurotechnology.

4. Justice, due process and human rights

A final roundtable concluded the workshop which discussed the following considerations for implementing the Recommendation:

- **Need for simplified company guidelines** to explain how to implement Responsible Innovation in business practice
- **Accounting for cultural differences** when promoting inclusiveness and translating technological issues to a diverse society
- **For global equitable acess to neurotechnologies**, divides have to be overcome
- **Human rights are crucial in the development** and regulation of neurotechnology

5. Other issues

A framework for assessment and evaluation could enable monitoring the progress and implementation of the OECD Recommendation, as well as other Responsible Innovation activities. It would require the development and selection of indicators. An indicator system (both quantitative and qualitative) could help align Responsible Innovation principles with key business drivers and processes, stimulate continuous improvement of neurotechnology companies' RI performances, and allow consideration of RI aspects in a companies' sustainability reporting. A viable option could be the development of a long-term strategy (roadmap) for neurotechnology companies with guidelines on how to implement RI, using the OECD Recommendation as a pilot.

Incorporating Responsible Innovation in business practices requires raising the level of understanding on how to develop standards. Speakers proposed workshops and hands-on exercises to address the current lack of awareness among neurotechnology companies, as well as the use of roadmaps and frameworks of the IEEE Standards Association and Guidance on social responsibility (i.e. EN ISO 26000).

Research and access to early-stage investment capital for neurotechnology companies is rather centralized in North America resulting in inequitable global availability of new products and services. A proposed solution could consist in including mental health in sustainability investment criteria which consist of environmental, social and governance (ESG) considerations today.

The OECD

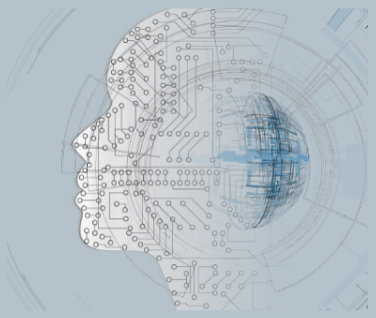
The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation.

The Organisation compares policy experiences, seeks answers to common problems, identifies good practices, and works to coordinate domestic and international policies.

The BNCT

The OECD's Working Party on Biotechnology, Nanotechnology and Converging Technologies (BNCT) led the development of and is leading work on supporting Adherents in the implementation of this Recommendation.

The BNCT is served by the OECD Secretariat's Directorate for Science, Technology and Innovation (STI). The work of the BNCT focuses on policy issues in emerging technology fields related to Bio, Nano and Converging Technologies. Particular themes include: the



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