

## What is the OECD?

The Organization for Economic Cooperation and Development (OECD) is an intergovernmental organization founded in 1961. With its 38 member countries, all of which express a commitment to democracy and economic partnership, the OECD provides a platform to share knowledge and best practices in areas of economic development. The OECD's Council on Responsible Innovation in Neurotechnology published nine principles in 2019 for promoting the responsible development of emerging neurotechnologies. These principles informed the success metrics for the impact assessment tools developed in this project.

Neurotechnology is any device which interfaces with the brain to read or stimulate neural activity. Neurotechnology can offer a wide range of health applications, such as reducing tremor in Parkinson's disease. The unprecedented effects of this new technology calls for international cooperation towards responsible development.

## What is Impact Assessment?

Impact assessment tools are methods of conceptualizing the consequences of an existing or proposed policy, product, or plan. IATs are used by companies, policymakers, and private individuals. There is a lack of systematic responsibility frameworks that could help embed responsible innovation for emergent technologies. Consequently, private sector companies are seeking guidance and consultation on developing their own toolkits for impact assessment.<sup>2</sup>

• **AI Risk Management framework:** developed by US National Institute of Standards and Technology to manage the risks of AI and promote responsible innovation



• **Data Protection Impact Assessment:** developed by the UK Government Information Commissioner's Office (ICO) to carry out risk assessment for projects that involve data processing



• **Human Rights Impact Assessment:** developed by the Danish Institute for Human Rights, the HRIA toolbox is designed to guide those who are involved in human right impact assessment for business projects and activities



## Developing a Novel Tool

### Data Collection

#### Socio-technical mapping

- ❑ Comparing neurotechnology use-cases with stakeholder expectations
- ❑ Charting the trajectory of neurotechnological capabilities and identifying key impacted demographics

#### Surveys and interviews

- ❑ Leveraging self-assessment surveys and questionnaires to scope organizational risk-response
- ❑ Third-party investigations, interviews, and surveys



### Analysis

#### Likert-scale review

- ❑ Using self- or expert-panel review to quantify preparedness across key dimensions
- ❑ Informing impact dimensions with OECD's Responsible Innovation principles

#### Novel metrics and index-formation

- ❑ Creating and adjusting metrics based on RI priorities (ie. QALY)
- ❑ Weighting Likert-scale performance relative to OECD goals
- ❑ Cost-benefit analysis



### Recommendations

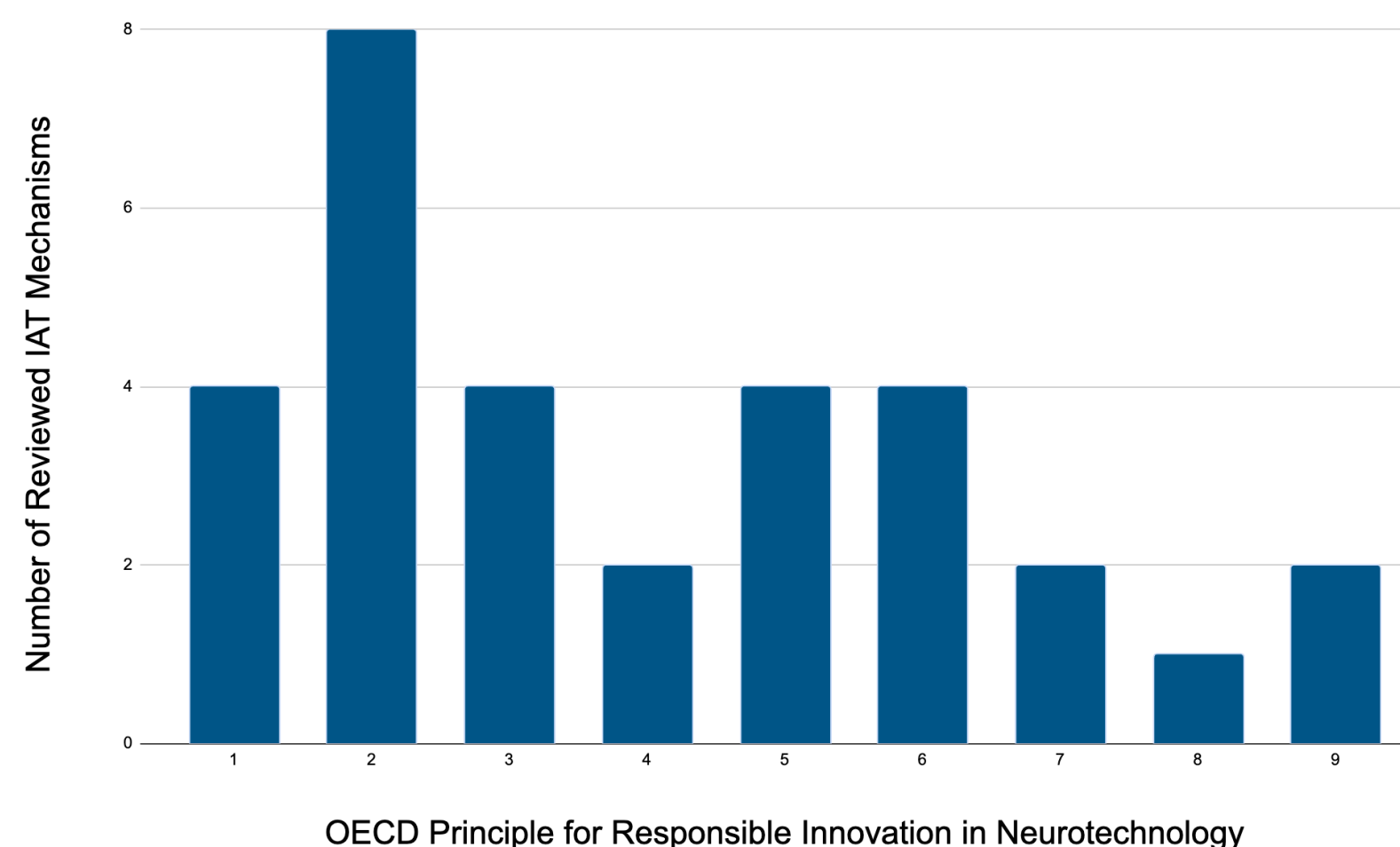
#### Risk-mitigation frameworks

- ❑ Mitigating specific risks with industry-informed action playbooks
- ❑ Creating self-populated charts for thorough organizational action plans

#### Interactive compliance dashboards

- ❑ Visually monitoring compliance with public or private with RI principles
- ❑ Color-coding systems for identifying areas of poor or exemplary compliance

Distribution of Reviewed IAT Mechanisms Applicable to OECD RI Principles



### OECD's Responsible Innovation in Neurotechnology Principles<sup>1</sup> focus on:

1. Promoting responsible innovation
2. Prioritizing safety assessment
3. Promoting inclusivity
4. Fostering scientific collaboration
5. Enabling societal deliberation
6. Enabling capacity of oversight and advisory bodies
7. Safeguarding personal brain data and other information
8. Promoting cultures of stewardship and trust across the public and private sector
9. Anticipating and monitoring potential unintended use and/or misuse

## References

1. OECD. "Recommendation of the Council on Responsible Innovation in Neurotechnology." OECD Legal Instruments, October 12, 2019. <https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0457>
2. Pfothenauer, S.M., Frahm, N., Winickoff, D. *et al.* Mobilizing the private sector for responsible innovation in neurotechnology. *Nature Biotechnology* **39**, 661–664 (2021). <https://doi.org/10.1038/s41587-021-00947-y>

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