Science and Technology Policy Division (STP)
Working Party on Biotechnology, Nanotechnology and Converging Technologies (BNCT)

BNCT Project "Responsible Innovation for Personalised Health"

BNCT engages with all stakeholders globally in order to advance responsible health innovation, including research and innovation policy, collaboration, intellectual property, commercialisation, and societal implications.

Current and imminent advances in science and technology allow new forms of targeted intervention in the basic processes of human biology – including ageing, reproduction, cellular repair, immunity, and neurological function. There is a strong imperative to translate such discoveries into diagnostics and therapies that address grand health challenges – such as mental and neurodegenerative disorders, cancer, cardiovascular diseases, and infectious diseases – but substantial issues remain in terms of constructing the right economic, ethical and societal context for innovation and access. One set of policy challenges has to do with balancing the imperatives of open innovation, commercialisation, and access.

Emerging technologies and advanced therapies increasingly impact research, innovation, business, and society. There is growing interest in discussing and unpacking the ethical, legal and societal implications as emerging technologies and applications are developed. BNCT supports policy makers, researchers, business and citizens in making informed choices for a positive socio-economic impact of novel technologies.

Recent publications:

- OECD (2017), "Neurotechnology and society: Strengthening responsible innovation in brain science", OECD Science, Technology and Industry Policy Papers, No. 46, OECD Publishing, Paris, http://dx.doi.org/10.1787/f31e10ab-en

- Diana M. Bowman, Hermann Garden, Clare Stroud & David E. Winickoff (2018) The neurotechnology and society interface: responsible innovation in an international context, Journal of Responsible Innovation, 5:1, 1-12, DOI: 10.1080/23299460.2018.1433928

- Garden, H. and D. Winickoff (2018), "Gene editing for advanced therapies: Governance, policy and society", OECD Science, Technology and Industry Working Papers, 2018/12, OECD Publishing, Paris, http://dx.doi.org/10.1787/8d39d84e-en

- Garden, H. and D. Winickoff (2018), "Issues in neurotechnology governance", OECD Science, Technology and Industry Working Papers, 2018/11, OECD Publishing, Paris, http://dx.doi.org/10.1787/c3256cc6-en

Project: "Collaborative Platforms for Converging Technologies – genomics and personalised medicine"

The project goal is to identify best practices and governance mechanisms for the collaborative development and use of converging technologies in personalised medicine. Key questions to be addressed include:

What are the approaches to the sharing and analysis of (genomic) research and clinical data, and biospecimens that span multiple legal jurisdictions? How are recent technological developments around e.g. digitalisation, machine learning and gene editing creating new challenges and opportunities for public private partnerships and IP sharing?

Joint efforts between the public, private, and non-profit sectors have encountered challenges to data sharing, ownership, and value creation. Policies can help to share knowledge, resources, facilitate decision-making processes, and align innovation with societal needs.

The governance practices identified in this project will support policy makers and innovators in leveraging the potential of collaborative innovation in converging technologies.

Project: "Developing Principles for Responsible Innovation in Neurotechnology"

The project aims to support governments to better assess the impacts of novel technologies and to develop policy responses for reaping and sharing their benefits. Principles for addressing pressing ethical, legal, societal, economic and cultural challenges would be beneficial to support responsible advancement of brain science and novel neurotechnology.

Health innovation requires a sound legal, regulatory and institutional framework that public and private stakeholders in academia and markets can rely on. Fundamental values and legal frameworks direct the responsible translation of research into products. Principles form the basis for the development of specific guidance in technology governance.

Neurotechnology is greatly increasing technical capacities to understand, modulate and emulate brain function, opening up new innovative approaches to health and well-being. They promise major benefits in the diagnosis and treatment of mental and neurological disorders. They are also driving related technological fields such as robotics and artificial intelligence that are transforming our economies.

At the same time, the fast pace of neurotechnology development raises ethical and social concerns as these new technologies implicate human identity, autonomy, privacy, and new questions of justice. Steering neurotechnology towards socially desirable ends is a goal shared by many stakeholders, e.g. policy makers, funders, scientists, engineers, clinicians, patients, enterprises, and society more broadly.