



Human Brain Project



Society and Ethics Programme of the Human Brain Project

Presentation to

15th meeting of the Presidential
Commission for the Study of Bioethical
Issues

Washington, December 2013

Goal of the Human Brain Project

“The goal of the Human Brain Project is to build a completely new ICT infrastructure for future neuroscience, future medicine and future computing that will catalyse a global collaborative effort to understand the human brain and its diseases and ultimately to emulate its computational capabilities.”

- Ethical issues discussed since start of project, 3 years ago.
- Responsible Research and Innovation integral to proposal
- Approximately 3% of the €70M funding in the first 30 month phase devoted to the Society and Ethics Programme (SEP)
 - Led by Jean-Pierre Changeux (Paris) and Kathinka Evers (Uppsala)



Human Brain Project

Responsible Research and Innovation

- “Responsible Innovation is a process that seeks to promote creativity and opportunities for science and innovation that are socially desirable and undertaken in the public interest.
- Responsible Innovation acknowledges, that innovation can raise questions and dilemmas, is often ambiguous in terms of purposes and motivations and unpredictable in terms of impacts, beneficial or otherwise.
- Responsible Innovation creates spaces and processes to explore these aspects of innovation in an open, inclusive and timely way.
- This is a collective responsibility, where funders, researchers, stakeholders and the public all have an important role to play. It includes, but goes beyond, considerations of risk and regulation, important though these are.”

- <http://www.epsrc.ac.uk/research/framework/Pages/framework.aspx>



The Five Streams of the SEP

- **Foresight Lab**
 - To produce scenarios of potential developments and implications and feed those back to the HBP researchers
- **Conceptual and Philosophical Analysis**
 - Initial focus on simulation
- **Public Dialogue with Stakeholders**
 - Focus groups, stakeholder groups, an EU Citizens Convention
- **Researcher Awareness**
 - Encouraging ethical reflection among the researchers of the HBP
- **Governance and Regulation:**
 - A REC which will advise researchers prior to submission of proposals
 - An independent ELSA committee to work with National Ethics Committees in Europe.



Key Issues: (1) Military and Dual Use

- The HBP is committed to Civil Research Only
 - All partners have undertaken NOT to accept funding from, or use data or knowledge acquired for military applications
- Nonetheless the HBP also has an Open Data policy
- So ‘dual use’ remains an key issue:
 - Memory modulation in relation to PTSD
 - Monitoring, augmenting and enhancing brain capacities
 - Mind reading in counter terrorism
 - Mind control
 - Enhanced robotic warfighters



Key Issues (2): Big Data

- HBP is collating and curating – federating’ clinical data
 - Accessing data from genetic, imaging, medical records on brain disorders from multiple sources (hospitals, clinical trials, pharma companies...) in different European countries
- These have different ethical regimes for consent,
- The data will be made available to researchers across the world as part of the open data policy of the HBP.
- Raises many issues
 - Obligations of informed consent, privacy and confidentiality
 - Versus obligations of stewardship for the public good.



Key Issues (3): Simulation (Emulation)

- To what extent does a brain simulation 'reproduce' a brain function?
- Ethical consequences of developing the capacity to simulate whole brains, or functional components (cognition, affect) in computers.
- (How) can one 'simulate' embodiment of the brain, or social embeddedness of brain development and functioning?



Other key issues include:

- Legal implications of neuroscientific research
 - Emerging abilities to predict behavior
 - Within and outside the courtroom
- Public acceptability of animal experimentation outside medical research.
- As well as many questions about the implications for researching, understanding and intervening into brain diseases and mental disorders.



The Steering Committee of the HBP Social and Ethical Programme hopes for ongoing debate on social and ethical issues with those involved with the US BRAIN Initiative

Jean-Pierre Changeux (dir.)

Institut Pasteur, France

Kathinka Evers (dir.)

Uppsala University, Sweden

Nikolas Rose

King's College London, UK

Abdul Mohammed

Linnaeus University, Växjö, Sweden

Bernd Carsten Stahl

De Montfort University, Leicester, UK

Yadin Dudai

Weizmann Institute of Science, Rehovot, Israel

Arleen Salles

Uppsala University, Sweden / CIF, Buenos Aires, Argentina

Michele Farisco Uppsala University, Sweden

Karl Sallin

Uppsala University, Sweden

Kevin Grimes

Karolinska Institute, Sweden

Christine Mitchell

Harvard Medical School, Boston, USA

Barbara Sahakian

University of Cambridge, UK

Lars Kluver

The Danish Board of Technology Foundation, Denmark

Nanna Engberg The Danish Board of Technology Foundation, Denmark

Richard Walker

École Polytechnique Federale de Lausanne, Switzerland

Benjamin Simmenauer

Institut Pasteur, France



Human Brain Project