



Brain disorders



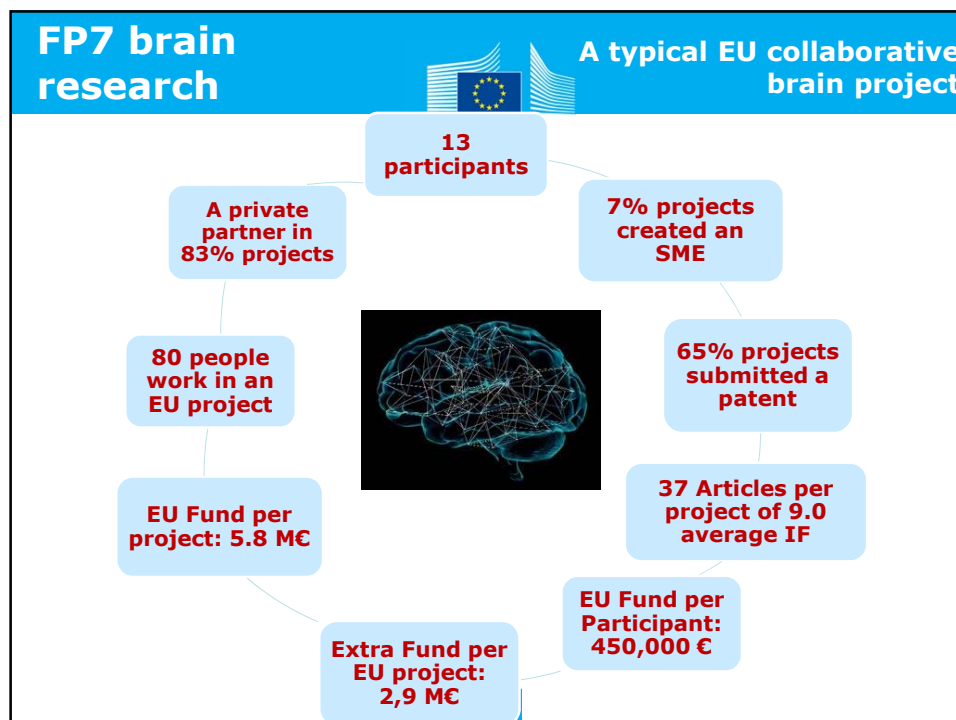
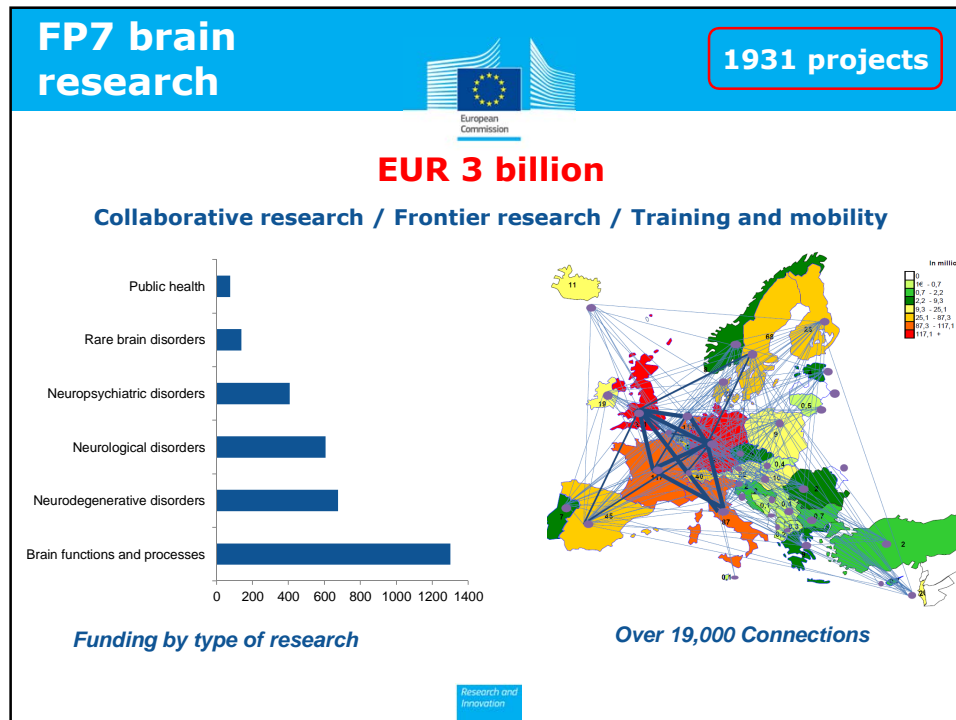
A global challenge at all age groups

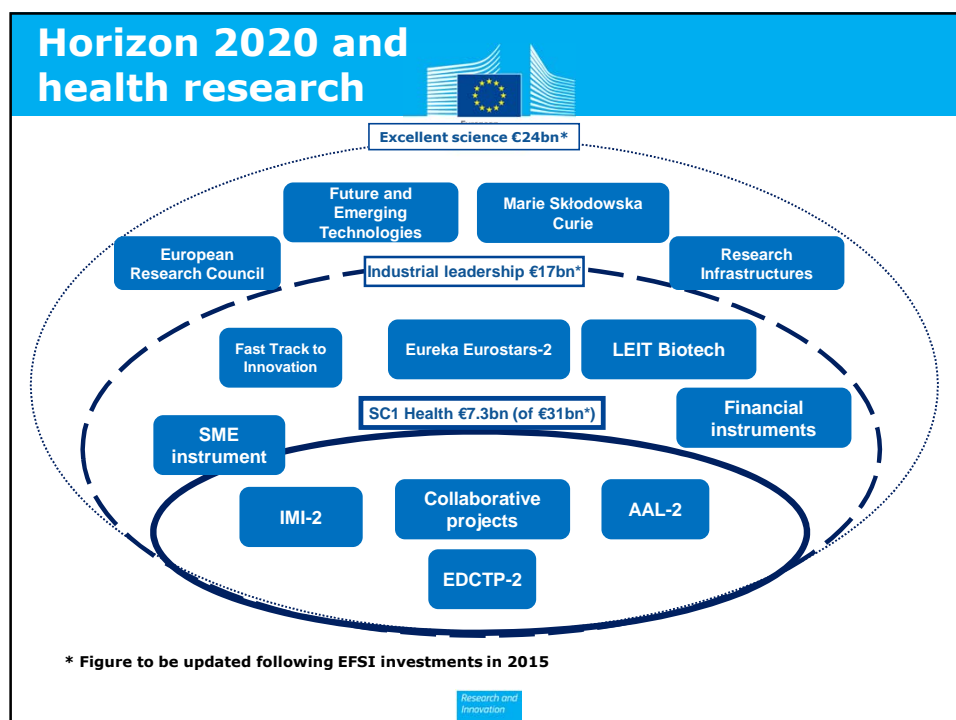
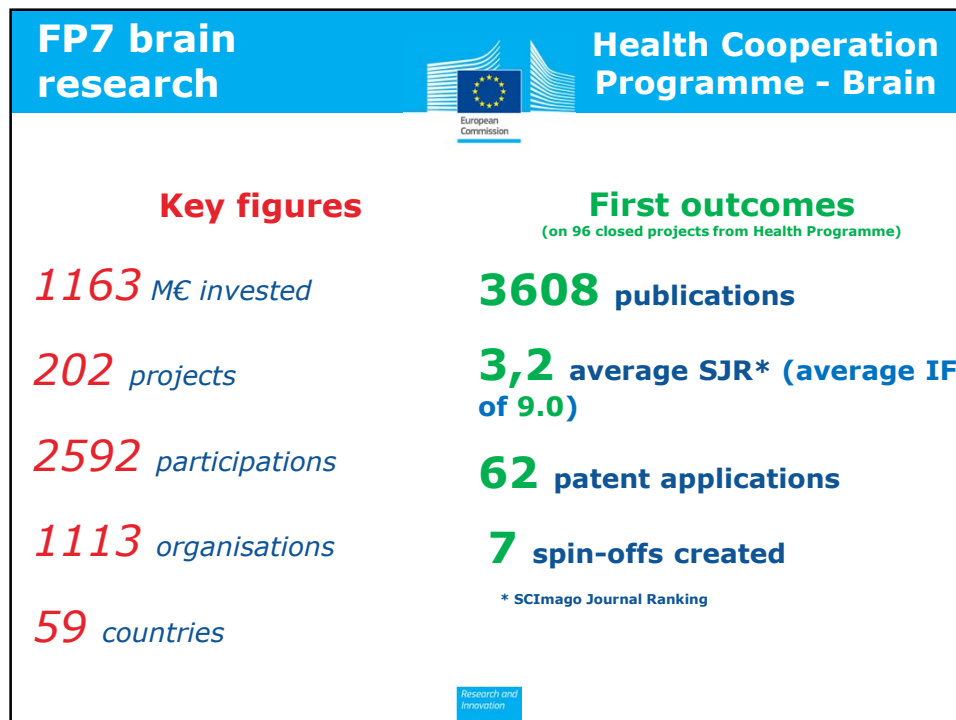
- 1. Depression:** 350 million people, in all communities across the world (Source: WHO Fact sheet nr 369, 2012)
- 2. Dementia:** 47.5 million people worldwide, 2010 global costs of care \$ 604 billion
 - By 2050 the estimate is 135.5 million people worldwide
 - 58% of people living with dementia are in low- and middle-income countries
 (Source: WHO Fact sheet nr 362, 2015)
- 3. Traumatic brain injuries:** most important cause of disability under the age of 45 (source: InTBIR) and to become the third leading cause of global mortality and disability by 2020 (*The changing landscape of traumatic brain injury research*, Lancet Neurol., 2012)
- 4. One child in 160 with an autism spectrum disorder** and subsequent disability, associated costs \$2.3 million per person (Elsabbagh et al., *Autism Res.*, 2012)











Where is brain research in Horizon 2020?

European
Commission

EVERYWHERE!

InnovFin

EU Finance for Innovators



European
Research
Council



innovative
medicines
initiative



Research and
Innovation



Horizon 2020 "Health, Demographic change and Well-being"

- *Translates science to benefit citizens*
- *Departs from a disease-oriented approach to better depict biological variations*
- *Provides more opportunity for brain research*
- *First Horizon 2020 brain collaborative projects worth more than € 350 million*

Research and
Innovation

Health, demographic change and well-being

7 Focus Areas



Understanding health, well-being & disease

Preventing disease: health promotion, screening, assessment of risk, better diagnosis and prognosis, vaccines

Treating & managing disease

Active ageing & self-management of health

Methods & data

Health care provision and integrated care

Specific implementation aspects



Health, Demographic change and Well-being WP 2016 – 2017



Opportunities for brain research

Examples of topics:

➤ *Understanding Health, Well-being and Disease*

- SC1-PM-02-2017: New concepts in patient stratification
- SC1-PM-04-2016: Networking and optimising the use of population and patient cohorts at EU level



➤ *Preventing Disease*

- SC1-PM-07-2017: Promoting mental health and well-being in the young

➤ *Treating and Managing Diseases*

- SC1-PM-9-2016: New therapies for chronic diseases
- SC1-PM-10-2017: Comparing the effectiveness of existing healthcare interventions in the adult population



➤ *Methods and Data*

- SC1-PM-17-2017: Personalised computer models and in-silico systems for well-being





**innovative
medicines
initiative**



European
Commission



Public-private
partnerships

- **€ 146.7 million (EC contribution) to brain research via IMI: Alzheimer, Autism, Depression, Schizophrenia**
- **IMI Alzheimer's disease Joint Platform (March 2015): overall EC contribution € 58.2 million**



EPAD
European Prevention of
Alzheimer's Dementia Consortium



EMIF




AETIO NIO
MY

- **Neurodegenerative & psychiatric diseases in IMI2's Strategic Research Agenda (2014-2020)**
- **More than EUR 70 million EC contribution to IMI2 topics on brain research, around e.g.:**
 - **dry age-related macular degeneration**
 - **clinical neuropsychiatry and quantitative neurobiology**
 - **Alzheimer, cognitive impairment and dementia**
 - **Neuropathic pain**
 - **Parkinson**




Research and
Innovation

Coordination of national research




European
Commission




JPND
research

- **Joint Programming initiative on Neurodegenerative Disease Research (JPND)**
- **30 countries, Member-States led initiative**
- **Nearly €110 million invested in 7 transnational calls (incl. co-fund of 10 million from EC):**
 - *2015: risk and protective factors, longitudinal cohort approaches, advanced experimental models; 2016: working groups on "Harmonisation and Alignment in **Brain Imaging** Methods for Neurodegeneration"*

**Network of European funding for Neuroscience research:
NEURON II**



- **Neuroscience, neurology, psychiatry (18 countries)**
- **€71.4 million already invested in 7 transnational calls**
 - *2015: Neurodevelopmental Disorders; 2015: Neuroethics*
 - *2016: External Insults to the Nervous System (**TBI, SCI**)*



Research and
Innovation

International cooperation

European Commission

Multi-lateral initiatives



IRDiRC
INTERNATIONAL RARE DISEASES RESEARCH CONSORTIUM
www.irdirc.org/

InTBIR
International Initiative for Traumatic Brain Injury Research
http://ec.europa.eu/research/health/medical-research/brain-research/international-initiative_en.html

IHEC
International Human Epigenomes Consortium
<http://ihec-epigenomes.org/>

GACD
GLOBAL ALLIANCE FOR CHRONIC DISEASES
AN ALLIANCE OF HEALTH RESEARCH FUNDERS
www.gacd.org/

International Cancer Genome Consortium
<https://icgc.org/>

Global Genomic Medicine Collaborative
http://www.iom.edu/Activities/Research/GenomicBasedResearch/Innovation-Collaboratives/Global_Genomic_Medicine_Collaborative.aspx

Global Research Collaboration for Infectious Disease Preparedness

Global co-operation
One shared vision
Working to solve
complex health challenges

International initiative TBI

European Commission

2011

InTBIR
International Initiative for Traumatic Brain Injury Research

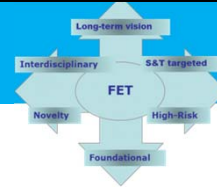
2015

ONE MIND

- **Coordinates clinical research across the full TBI spectrum**
- **Key goals:** better clinical outcomes & lower TBI burden by 2020
- **How?** Through the discovery of causal relationships between treatments and clinically meaningful outcomes
- **First results: agreement on common data elements (CDEs)**
 - development of case report forms for patients characterization
 - facilitates the comparison between studies for ultimately identifying best clinical practices

Research and Innovation

Future & emerging technologies



FET Open

- Supports the early-stages of the science and technology research and innovation around new ideas towards radically new future technologies
- Included in WP 2016-2017

FET Proactive

- Helps new research communities to be developed by encouraging researchers from different disciplines to work together on new technologies and establish a critical mass in specific domains
- **WP2016-2017: e.g. Area 2: Biotech for better life:** *Intra- and inter-cell bio-technologies, Bio-electronic medicines and therapies, Cognitive neuro-technologies*



Future & emerging technologies



The Human Brain Project Flagship

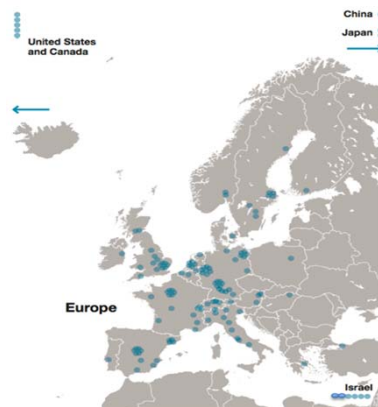


Building an ICT infrastructure for neuroscience, medicine and computing that will catalyse collaborative efforts to better understand the brain and its diseases and emulate its computational capabilities

Human Brain Project

<https://www.humanbrainproject.eu/>

- A very large-scale European collaborative research initiative: More than 400 scientists from 112 institutions from 24 countries
- A 10 years Research Roadmap, 1 BC budget
- Ramp-up phase (FP7): 1st October 2013 to 31st March 2016 – 54 M€ EU funding
- Operational phase (H2020): 01 April 2016 to 2020+: ~50 M€ EU funding / year



Other financial instruments



EU Finance for Innovators

1. **InnovFin Large Projects**

- Loans from €7.5 m to €300 m; delivered directly by EIB

2. **InnovFin MidCap Growth Finance**

- Loans from €7.5 m to €25 m; delivered directly by EIB

3. **InnovFin MidCap Guarantee**

- Guarantees to financial intermediaries (banks, etc.)
- Loans from €7.5 m to €25 m; implemented by EIB

4. **InnovFin SME Guarantee**

- Guarantees / counter-guarantees to financial intermediaries
- Loans from €25,000 to €7.5 m; implemented by EIF

5. **InnovFin Advisory**

- Improve 'bankability' of large projects



EFSI

European Fund for Strategic Investments



- *Will provide €21 billion in initial funding – including a guarantee €16 billion EC and €5 billion from EIB*
- *Strategic infrastructures including digital, transport and energy*
- *Education, research, development and innovation*
- *For entities of all sizes, including smaller businesses and midcap companies*
- *Projects supported by EFSI shall typically have a higher risk profile than projects supported by EIB normal operations.*



Maximising outcome of transnational research



How to strengthen collaboration?



**Projects (results, data)
Programmes/Initiatives
Infrastructures**

Research and
Innovation

**Horizon 2020: taking part is the
best way to ensure *your*
priorities are met!**

Thank you!

Research and
Innovation