



The EU Framework Programme for Research and Innovation

HORIZON 2020

Horizon 2020: your instrument to boost brain research

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*Research and
Innovation*

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)



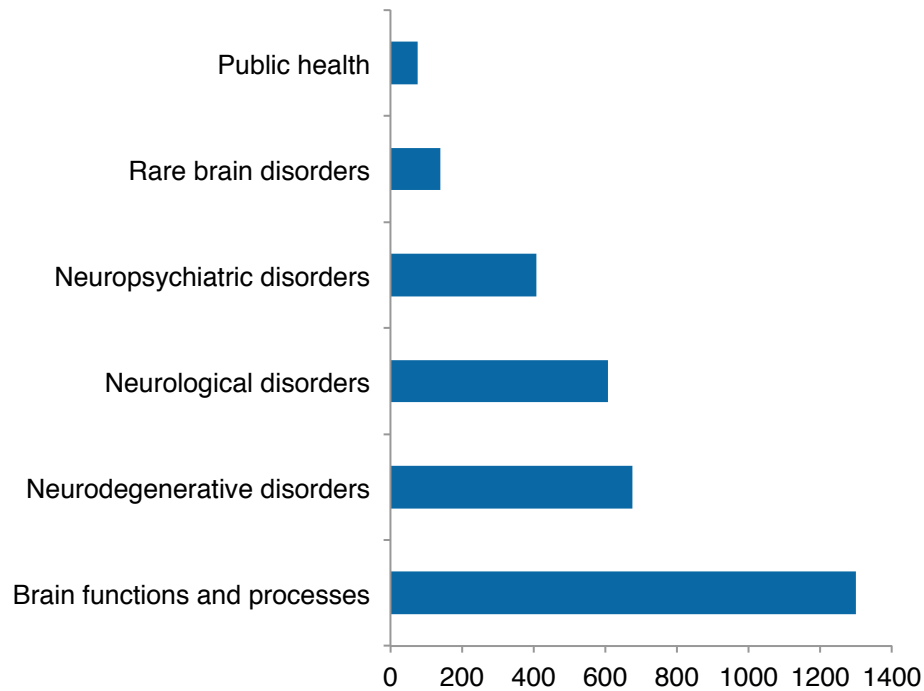
FP7 brain research (2007-2013)



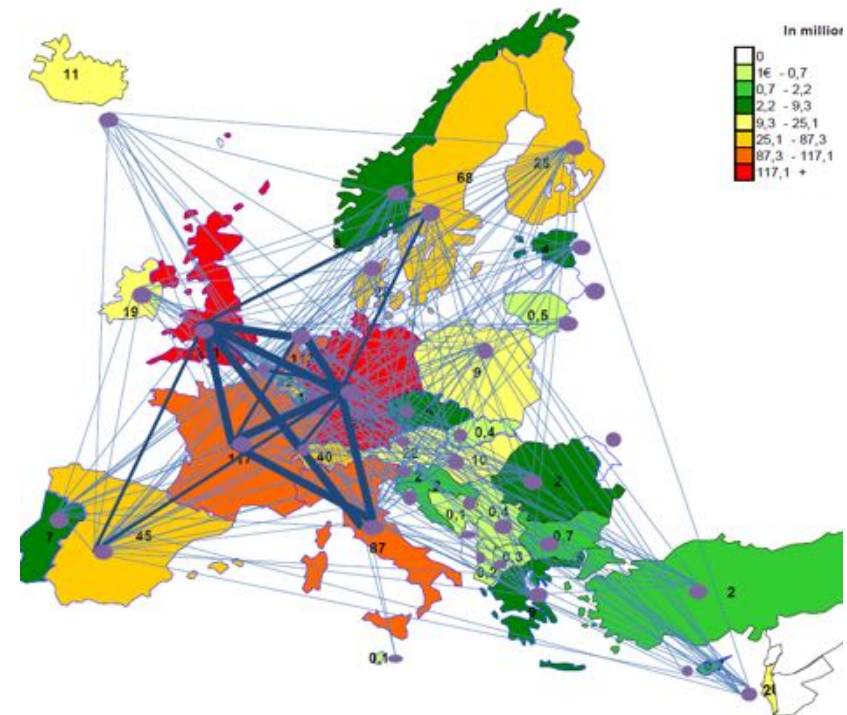
1931 projects

EUR 3 billion

Collaborative research / Frontier research / Training and mobility



Funding by type of research

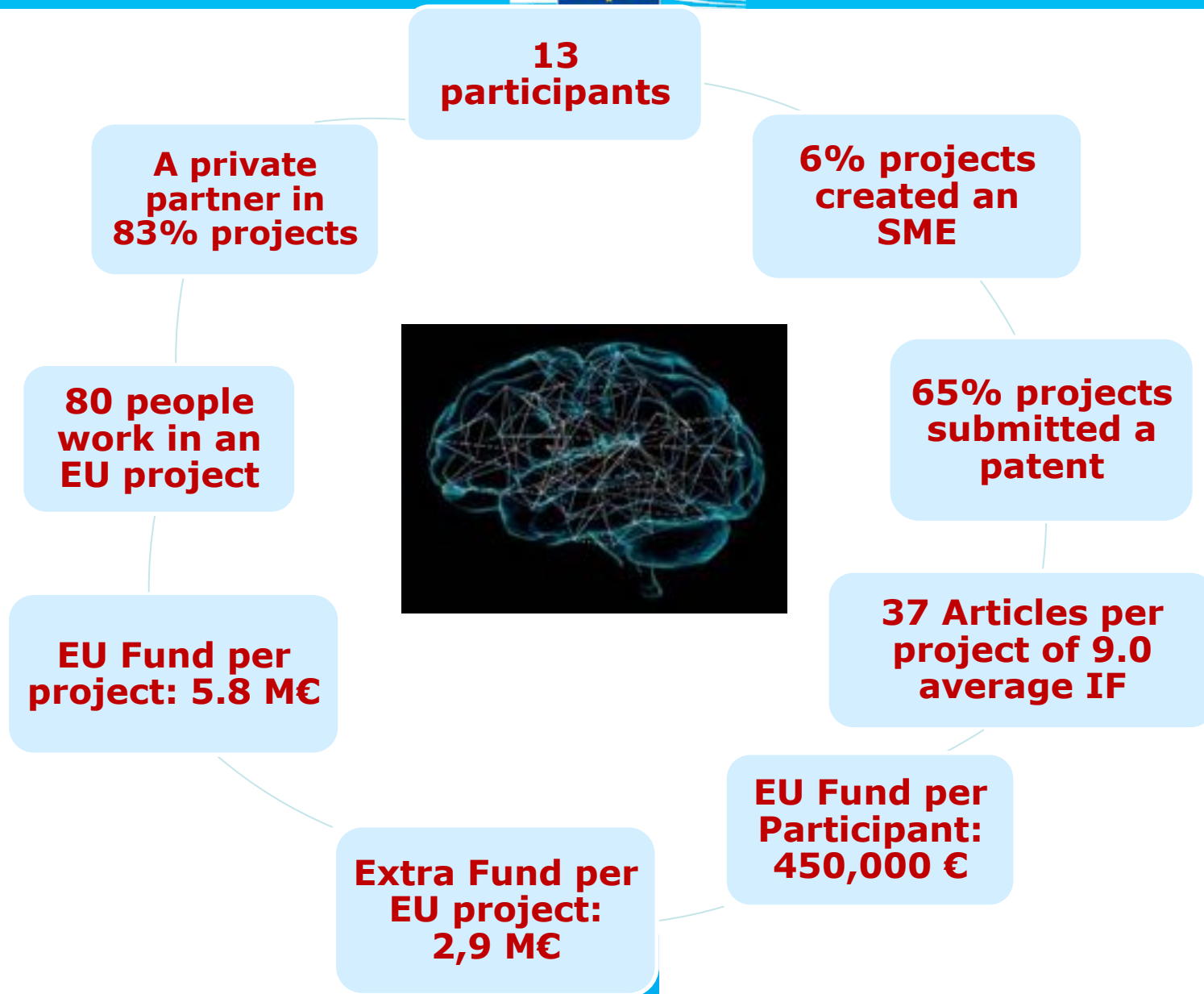


Over 19,000 Connections

FP7 brain research



A typical EU collaborative brain project



EU brain research

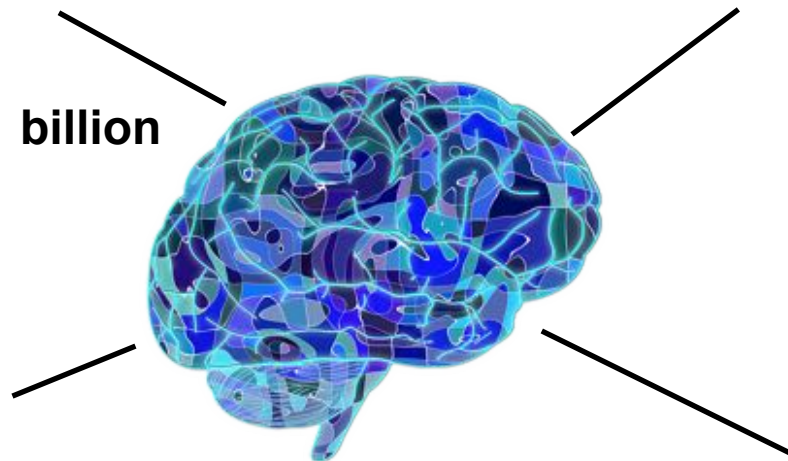
Addressing the continuum from knowledge to care delivery



HORIZON 2020



- **FP7: €3.1 billion**
- **H2020 to date: €1.1 billion**



- **Coordinating national research activities**
- **Strategic research agenda**
- **Transnational calls**



- **Speeding up the development of innovative medicines**
- **Open collaboration in public-private consortia**



Human Brain Project

- **Harness modern ICT to understand the brain**
- **€ 1 billion**



- **Joining forces to address common global goals**
- **Implementation research, comparative effectiveness research**





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 € 400 million*

Accelerating the delivery of therapies



Developing the next generation of vaccines, medicines and treatments

Aligned with WHO priorities



The world's largest public private partnership in health research
IMI – € 2 billion
IMI 2 - € 3.3 billion



- **Neurodegenerative & psychiatric diseases in IMI2's Strategic Research Agenda (2014-2020)**
- **IMI Alzheimer's disease Joint Platform (March 2015): overall EC contribution € 58.2 million; facilitate collaboration to help deliver results faster**



- **75 million EC contribution to first brain-relevant IMI2 topics**

Research and Innovation

EFPIA = European Federation of Pharmaceutical Industry Association

Coordination of national research



Joint Programming initiative on Neurodegenerative Disease Research



- 30 countries; EU Member States-led initiative to increase **coordinated investment between participating countries**
- A **Strategic Research Agenda** spanning biomedical, healthcare and social science research
- A **public database** mapping relevant national and European research and infrastructures
- **Informing national research agendas/plans**
- **Currently some EUR 110 million invested in 7 transnational calls (incl. co-fund of 10 million from EC)**

Network of European funding for Neuroscience research: NEURON II



- 18 countries; focus on **disease-related neuroscience, neurology, psychiatry**
- A **Strategic Research Agenda** addressing disease mechanisms, progression, prevention and treatment
- **> EUR 70 million invested in 7 transnational calls**

International cooperation



Multi-lateral initiatives



www.irdirc.org/



http://ec.europa.eu/research/health/medical-research/brain-research/international-initiative_en.html



<http://ihec-epigenomes.org/>



www.gacd.org/

**Global Research
Collaboration for
Infectious Disease
Preparedness**



**International
Cancer Genome
Consortium**

<https://icgc.org/>



**Global Genomic
Medicine Collaborative**

Innovation

http://www.iom.edu/Activities/Research/GenomicBasedResearch/Innovation-Collaboratives/Global_Genomic_Medicine_Collaborative.aspx

International initiative TBI



- **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

Global Alliance for Chronic Diseases

- **Implement evidence-based knowledge of best healthcare interventions targeted to the different populations, geographical settings and socioeconomic contexts**
- **Generate global non-communicable diseases research communities to fill the gap between providing the evidence base for policy and the actual implementation of the policy in real settings**
- **Reach bigger populations through scaling up of successful health interventions at national or regional level**
- **Next GACD call envisaged around prevention and management of mental disorders, including dementia**

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 B€ 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

Research and Innovation



What is the EU offering ?



- **A network of collaborative projects** throughout Europe and beyond, addressing the continuum of brain research
- An efficient **public-private partnership** to accelerate the delivery of innovative therapies
- An established framework for efficient **research coordination** between EU countries
- A strong experience in **international/global cooperation**, via a flexible model
- An ambitious **ICT infrastructure** for brain research

Conclusions



- **Lot of potential for collaboration, knowledge and data sharing across disciplines and sectors, including public-public and public-private partnerships, building on existing projects and schemes**
- **Accelerating innovative research, from basic to clinical and public health research , for the benefit of patients: prevention, risk reduction, early diagnosis, treatment, care**
- **Strong support to the careers of young neuroscientists and brain researchers**
- **Strong support to international efforts, including the development of research plans and policies**



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Horizon 2020 provides many opportunities to boost brain research!

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