HEALTH Research in HORIZON 2020
Nicole Firnberg
FFG, HEALTH Expert
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WHAT IS HORIZON 2020?

• Commission proposal for a 80 billion Euro research and innovation funding programme (2014-2020)

• A core part of Europe 2020, Innovation Union & European Research Area:
  • Responding to the economic crisis
  • Addressing people’s concerns
  • Strengthening the EU’s global position
WHAT’S NEW

• **A single programme** bringing together three separate programmes/initiatives (FP7, CIP, EIT)

• **Coupling research to innovation** – from research to retail, all forms of innovation

• Focus on **societal challenges** facing EU society, e.g. health, clean energy and transport

• **Simplified access**, for all companies, universities, institutes in all EU countries and beyond.
Priority 1
Excellent science

- ERC
- FET
- Marie Skłodowska-Curie
- Research infrastructures
### Proposed funding (million €, 2014-2020) - EC Nov. 2011

<table>
<thead>
<tr>
<th>Program</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>European Research Council</strong></td>
<td>13,268</td>
</tr>
<tr>
<td>Frontier research by the best individual teams</td>
<td></td>
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<tr>
<td><strong>Future and Emerging Technologies</strong></td>
<td>3,100</td>
</tr>
<tr>
<td>Collaborative research to open new fields of Innovation</td>
<td></td>
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<tr>
<td><strong>Marie Curie actions</strong></td>
<td>5,752</td>
</tr>
<tr>
<td>Opportunities for training and career development</td>
<td></td>
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<tr>
<td><strong>Research infrastructures</strong></td>
<td>2,478</td>
</tr>
<tr>
<td>(<em>including e-infrastructure</em>)</td>
<td></td>
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<tr>
<td>Ensuring access to world-class facilities</td>
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WHY?

- World class science is the foundation of tomorrow’s technologies, jobs and wellbeing
- Europe needs to develop, attract and retain research talent
- Researchers need access to the best infrastructures
Priority 2
Industrial leadership

- KETs
- Risk finance
- Innovation in SMEs
### Leadership in enabling and industrial technologies
(ICT, nanotechnologies, materials, biotechnology, manufacturing, space)

| Leadership in enabling and industrial technologies | 13 781 |

### Access to risk finance
Leveraging private finance and venture capital for research and innovation

| Access to risk finance | 3 538 |

### Innovation in SMEs*
Fostering all forms of innovation in all types of SMEs

| Innovation in SMEs* | 619 |

*complemented by expected 15% of the budget of societal challenges + KETs

Proposed funding (million euro, 2014-20) - EC Nov. 2011
WHY?

- Strategic investments in key technologies (e.g. advanced manufacturing, microelectronics) **underpin innovation across existing and emerging sectors**
- Europe needs to **attract more private investment** in research and innovation
- Europe needs **more innovative SMEs** to create growth and jobs
Priority 3
Societal challenges

• Health
• Bioeconomy
• Energy
• Transport
• Climate action
• Integrative, innovative societies
• Secure societies
## Societal Challenges

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Funded Amount</th>
</tr>
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<tbody>
<tr>
<td>Health, demographic change and wellbeing</td>
<td>8 033</td>
</tr>
<tr>
<td>Food security, sustainable agriculture, marine and maritime research &amp; the bioeconomy</td>
<td>4 152</td>
</tr>
<tr>
<td>Secure, clean and efficient energy</td>
<td>5 782</td>
</tr>
<tr>
<td>Smart, green and integrated transport</td>
<td>6 802</td>
</tr>
<tr>
<td>Climate action, resource efficiency and raw materials</td>
<td>3 160</td>
</tr>
<tr>
<td>Inclusive, innovative and reflective societies*</td>
<td>3 819</td>
</tr>
<tr>
<td>Secure societies</td>
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</tbody>
</table>
WHY?

- **Concerns of citizens and society/EU policy objectives (climate, environment, energy, transport etc) cannot be achieved without innovation**

- Breakthrough solutions come from **multidisciplinary collaborations**, including social sciences & humanities

- Promising **solutions** need to be **tested, demonstrated and scaled up**
HORIZON 2020 – STRUCTURE

Science excellence

Aim: Science base
1. European Research Council
2. Future and Emerging Technologies (FET)
3. Marie Curie actions
4. Research infrastructures

Industrial leadership

Aim: Growth
1. Key Enabling Technologies
2. Access to risk finance
3. Innovation in SMEs

Societal Challenges

Aim: Concerns of citizens
1. Health
2. Bio-economy
3. Energy
4. Transport
5. Climate action
6. Integrative, innovative & reflective societies
7. Secure societies

Joint Research Centre
European Institute of Innovation and Technology (EIT)
HEALTH LANDSCAPE

JPIs
- Neurodeg. Diseases
- Healthy Diet for Healthy Life
- More Years Better Lives

ICT & Ageing, e-Health

Societal Challenge 1
“Health, demographic change and well being”

Health research

H2020 KET “Biotechnology”
KMU Instrument

European Innovation Partnership “Active and Healthy Ageing”

ERANETs new

IMI 2.0
EDCTP 2
AAL 2

EIT KIC „Active Ageing“

“Health for Growth Programme” (DG SANCO)
Structural funds

H2020 KET “Biotechnology”
KMU Instrument
European Innovation Partnership “Active and Healthy Ageing”

ERANETs new

IMI 2.0
EDCTP 2
AAL 2

EIT KIC „Active Ageing“

“Health for Growth Programme” (DG SANCO)
Structural funds
Increasing importance of data management

- Integration of large amounts of data + interdisciplinarity, cross-cutting support technologies, linkage of data

- Selection/extraction and dissemination of data – new stakeholders (integration of different programmes,…), national –European levels, end user involvement

- Translation of data (innovation focus, innovation chain), uptake of innovation

- Use of data (social innovation; decision making, surveillance, CER)

- Data monitoring, long term analysis

- Dealing with different data quality: raw, processed, annotated data, metadata, distinction between different abstraction/context levels: data-information-knowledge/”research results”

- Infrastructures for data storage, data sharing, standardization, annotation
Priority 3: 
Societal Challenge „Health, Demographic Change and 
Wellbeing“

Objectives:

• Adjust to the demands on health and care sectors due to the ageing population

• Efforts to prevent, early detect, manage, treat and cure disease, disability, frailty and reduced functionality need to be underpinned more efficiently by the fundamental understanding of their causes, processes and impacts

• Activities should provide support throughout the research and innovation cycle

• Improve decision making in prevention and treatment provision, identify and support the dissemination of best practice in the healthcare sector, support integrated care

• Foster wide uptake of technological, organisational and social innovations empowering persons to remain active, productive and independent.

• Improve understanding of health and disease through close linkage between fundamental, clinical, epidemiological and socio-economic research and sharing of data and the linkage of these data with real-world large scale cohort studies as well as the translation of research findings into the clinic, in particular through the conduct of clinical trials.
1.1. Understanding health, wellbeing and disease

1.1.1. Understanding the determinants of health, improving health promotion and disease prevention based on existing data sources and indicator systems
- long term study of cohorts need to be linked with data derived from "-omics" research, systems biology and other methods
- inter-disciplinary approaches are needed for a better understanding of the environment as a determinant of health

1.1.2. Understanding disease
- new and better prevention measures, diagnosis, treatments need to be based on interdisciplinary, basic and translational research
- fundamental and clinical research have to be better linked to validate research results in clinical applications
- research and medical infrastructures (databases, bio-banks) need closer links (maximise data utility, stimulate effective ways to analyse and combine datasets)

1.1.3. Improving surveillance and preparedness
- new or improved methods for surveillance, diagnosis and preparedness to combat drug resistant infectious disease are needed
1.2. Preventing disease

1.2.1. Developing effective prevention and screening programmes and improving the assessment of disease susceptibility
- depends on the identification of early biomarkers of risk and of disease onset,
- deployment depends on the testing and validation of screening methods and programmes.
- Knowledge should be generated and methods developed for identifying individuals and populations at a clinically relevant increased risk of disease.

1.2.2. Improving diagnosis and prognosis
- improve the understanding of health, disease and disease processes throughout the life cycle
- earlier, more accurate diagnosis and prognosis needed
- more patient-adapted treatment needed

1.2.3. Developing better preventive and therapeutic vaccines
- relies on a better understanding of disease and disease processes and their consequent epidemics, and that clinical trials and associated studies are undertaken.
1.3. Treating and managing disease

1.3.1. Treating disease, including developing regenerative medicine
- support the improvement of cross-cutting support technologies for drugs, vaccines and other therapeutic approaches
- develop comprehensive approaches to treat co-morbidities at all ages and avoid polypharmacy
- facilitate the development of new, more efficient, effective, sustainable and personalised treatments for disease and for the management of disability and frailty

1.3.2. Transferring knowledge to clinical practice and scalable innovation actions
- develop better methodologies to allow trials to focus on relevant population groups
- determine **comparative effectiveness** of interventions and solutions
- enhance the use of databases and electronic health records as data sources for trials and knowledge transfer
1.4. Active ageing and self-management of health

1.4.1. Active ageing, independent and assisted living
- need for multidisciplinary advanced and applied research and innovation (interaction with socioeconomic, behavioural, gerontological, digital and other sciences)
- support research and innovation pilots to assess implementation and wide uptake of solutions
- emphasize involvement of end-users, user communities,…

1.4.2. Individual awareness and empowerment for self-management of health
- enable the management of chronic disease outside institutions for more cost-effective healthcare systems
- improved citizen/healthcare professional interaction, personalised programmes for disease and disability management, as well as support for knowledge infrastructures are needed
- Open innovation platforms such as large scale demonstrators for social and service innovation are needed to develop and test solutions
1.5. Methods and data

1.5.1. Improving health information and better use of health data
- support the integration of infrastructures and information structures and sources as well as the standardisation, interoperability, storage, sharing of and access to data to enable data exploitation
- improve availability of information and data on negative results and adverse effects of treatment

1.5.2. Improving scientific tools and methods to support policy making and regulatory needs
- need for a more effective assessment of the safety, efficacy and quality of health interventions and technologies, (such as e.g. bio banks, combination products, interoperability and e-health, including privacy aspects)

1.5.3. Using in-silico medicine for improving disease management and prediction
- to predict susceptibility to disease and the likely success of medical treatments computer simulation using patient specific data and systems medicine approaches should be deployed
1.6. Health care provision and integrated care

1.6.1. Promoting integrated care
• support the management of chronic disease outside institutions by improving the cooperation between the providers of health and social care
• support research and innovative applications for decision making based on distributed information addressing both physical and mental health
• organise long-term care delivery

1.6.2. Optimising the efficiency and effectiveness of healthcare provision and reducing inequalities by evidence based decision making and dissemination of best practice, and innovative technologies and approaches
• support the development of a systemic approach to health technology assessment and health economics, gathering of evidence and dissemination of best practice and innovative technologies and approaches, including ICT and e-health applications
• support comparative analyses of the reform of public health systems
• Research on the effectiveness of policies aiming to reduce inequalities will be supported
• assess patient safety solutions and quality assurance systems, including the role of patients on safety and quality of care
• currently: budget and rules of participation in trilogue

• summer-autumn: first drafts of Workprogrammes?

• end 2013: decision Horizon 2020

• 1/1/2014: first calls
LINKS

HORIZON 2020

http://ec.europa.eu/research/horizon2020/index_en.cfm

http://rp7.ffg.at/horizon2020

EU HEALTH Programme (DG SANCO) – „Health for Growth“

contact:
Nicole Firnberg
nicole.firnberg@ffg.at