The European Research Area and the National Perspective: Horizon 2020 and Beyond

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1. European Research Area (ERA)

2. The “National” Context

3. Horizon 2020 and the EU layer „on top“
1. European Research Area (ERA)

2. The “National” Context

3. Horizon 2020 and the EU layer “on top“
The European Research Area (ERA)
What is the ERA?

► Idea of ERA

- more intensive cooperation between researchers working in Europe (synergies)
- increased mobility of researchers
- enhanced network effects
- greater transnational competition

► The ERA should help maintain the productive diversity of national funding organizations.

Max Voegler, "ERA and the National Perspective"
APLU CII/CRPGE Joint Meeting, UBerkeley, 14.7.2014
The European Research Area (ERA)
Levels, Responsibilities and Actors

EU Level

- Political drive for an open market for researchers, integration, and coordination
- Legal and policy framework

Member State level

- Responsible for competitiveness on national systems
- Removal of legal barriers in connection to cross-border exchange and recruitment of researchers

Max Voegler, "ERA and the National Perspective"
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European Research Area (ERA)
What is current focus of ERA Policies?

1. National Research Systems (capacity building, best practices, peer review, good scientific practice)

2. Transnational Cooperation and Competition:
   1. Grand Challenges
   2. Research Infrastructure (ESFRI)

3. Open Labor Market

4. Gender Equality

5. Open Circulation, Access to Knowledge: Digital ERA
Which countries provide the best conditions for research?

- **Money**: do I get more out of the EU programs than I invest in tax euros?

- **Grants**: can I attract the best researchers to come to my institutions?

- **Statistics**: How do I compare with my neighbors? (National Funding, Broadening Participation, Access to Infrastructure, OA and Data Policies, etc.)
Nationality of Principal Investigators (2007-2013)

- DE: 702
- UK: 606
- FR: 497
- IT: 406
- NL: 336
- IL: 256
- ES: 221
- BE: 182
- SE: 124
- CH: 110
- DK: 78
- EL: 76
- AT: 68
- FI: 66
- PT: 5
- HU: 5
- IE: 4
- NO: 4
- PL: 4

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Example: European Research Council (ERC)
Monitoring: How good are your institutions?

By Host Country (2007-2013)

- Advanced Grants
- Starting Grants / Consolidator Grants

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Example: European Research Council (ERC)
Monitoring: How attractive is the ERA?

ERC grantees with non-ERA nationality (2007-2013)

- Advanced Grants
- Starting Grants / Consolidator Grants

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National research organizations (funders and performers)

- provide best conditions for excellent research
- establish and ensure standards for quality driven evaluation at all system levels
- reinforce rules of “Good Scientific Practice”
- provide science-based program portfolios and research infrastructure
Science Europe promotes the collective interests of the Research Funding and Research Performing Organizations of Europe.


- **ERA Funding Policy („European Grant Union“)**: Money Follows Researcher, Money Follows Cooperation Line, Lead Agency
European Grant Union:

- **Money Follows Researcher**: allows researchers to take the remainder of a grant to another country

- **Money Follows Cooperation Line**: allows parts of a grant to fund researchers in another country

- **Lead Agency**: enables researchers to avoid ‘double jeopardy’ in bilateral or multilateral co-operation through evaluation by a single Lead Agency
ERA-Nets are EU-funded networks of partner organizations (research performing or research funding) that aim to improve the coherence and coordination of research programs across Europe.

- Total of 102 Networks
- Thematic (Astronomy, Chemistry), Regional (Cooperation with Russia, China, U.S.) and Cross-cutting (Women in Science, Evaluation)
- NSF participates in several as associated member (ERA-Caps, ERA-SynBio)
- Special ERA-Net for U.S.: BILAT-USA (http://www.euussciencetechnology.eu/)
Joint Programming Initiatives (JPI’s) represent a structured and strategic process whereby Member States agree on common visions and Strategic Research Agendas (SRA) to address major societal challenges.

- Alzheimer and other Neurodegenerative Diseases (JPND)
- Agriculture, Food Security and Climate Change (FACCE)
- A Healthy Diet for a Healthy Life
- Cultural Heritage and Global Change: A New Challenge for Europe
- Urban Europe - Global Urban Challenges, Joint European Solutions
- Connecting Climate Knowledge for Europe (CliK’EU)
- More Years, Better Lives - The Potential and Challenges of Demographic Change
- Antimicrobial Resistance - The Microbial Challenge - An Emerging Threat to Human Health
- Water Challenges for a Changing World
- Healthy and Productive Seas and Oceans
National Context in ERA
Overlapping / complementary funding mechanisms

Example of Brain Research

- JPI: Joint Programming Initiative on Neurodegenerative Diseases (JPND)
- ERA-NET: NEURON, NEURON2
- EU Human Brain Project
- National Level (Germany): EXC 171 („Nanoscale Microscopy“), SPP 1665 („Neuronal Networks“), GSC 228 („Neuroscience, Biophysics, Molecular Biosciences“), SFB 936 („Multi-Site Communication in the Brain“), and more…
- Formal and informal Links to US BRAIN Initiative, NSF/NIH/European Call in Computation Neuroscience, etc.

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Europe --- Germany
Percentage of Total Budget Allocated for Research

959.988 Billion EUR Total Budget
Multiannual Financial Framework 2014 - 2020

8% (79.4 Billion EUR)
Research

38.9% (373.2 Billion EUR)
Agricultural Policy & Development of Rural Regions

19.2% (182.29 Billion EUR)
Other

33.9% (325.1 Billion EUR)
Growth & Collaboration

295.4 Billion EUR Total Expenditures in 2014

5% (13.9 Billion EUR)
Research

8% (24.4 Billion EUR)
Transportation & Construction

41% (120.7 Billion EUR)
Labor & Social Affairs

10% (30.4 Billion EUR)
Federal Debt

11% (32.8 Billion EUR)
Defense

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1. European Research Area (ERA) – framework, why it’s important
2. The National Context in ERA
3. Horizon 2020 and the EU layer „on top“
Horizon 2020
Annual Budget

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HORIZON 2020 BUDGET (in current prices)

- **Industrial Leadership**: EUR 17.0 billion
- **Excellent Science**: EUR 24.4 billion
- **Euratom (2014-2018)**: EUR 1.6 billion
- **Societal Challenges**: EUR 29.7 billion
- **European Institute of Innovation and Technology**: EUR 2.7 billion
- **Other**: EUR 3.2 billion
Horizon 2020
Pillar I: Excellent Science

- **European Research Council (ERC):** funding to enable talented and creative individual researchers and their teams to pursue promising avenues at the frontier of science
- **Future and Emerging Technologies (FET):** support for collaborative research across disciplines on new, high-risk ideas to accelerate the development of promising emerging areas of science & technology
- **Marie Skłodowska-Curie Actions (MSCA):** provide excellent and innovative research training as well as attractive career opportunities through cross-border and cross-sector mobility of researchers
- **Research infrastructure (including e-infrastructures):** develop European research infrastructure for 2020 and beyond

<table>
<thead>
<tr>
<th>Program</th>
<th>Funding (€ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>European Research Council (ERC)</td>
<td>13.09</td>
</tr>
<tr>
<td>Frontier research by the best individual teams</td>
<td></td>
</tr>
<tr>
<td>Future and Emerging Technologies</td>
<td>2.70</td>
</tr>
<tr>
<td>Collaborative research to open new fields of innovation</td>
<td></td>
</tr>
<tr>
<td>Marie Skłodowska-Curie actions (MSCA)</td>
<td>6.16</td>
</tr>
<tr>
<td>Opportunities for training and career development</td>
<td></td>
</tr>
<tr>
<td>Research infrastructures (including e-infrastructure)</td>
<td>2.49</td>
</tr>
<tr>
<td>Ensuring access to world-class facilities</td>
<td></td>
</tr>
</tbody>
</table>

Work Programme 2014 funding: ~ €3 billion
Horizon 2020
Pillar II: Industrial Leadership

- **Leadership in enabling and industrial technologies**: support for research, development and demonstration and, where appropriate, for standardisation and certification, on information and communications technology (ICT), nanotechnology, advanced materials, biotechnology, advanced manufacturing and processing and space.

- **Access to risk finance**: overcome deficits in the availability of debt and equity finance for R&D and innovation-driven companies and projects at all stages of development.

- **Innovation in SMEs**: provide SME-tailored support to stimulate all forms of innovation in SMEs.

| **Leadership in enabling and industrial technologies (LEITs)** (ICT, nanotechnologies, materials, biotechnology, manufacturing, space) | 13.56 |
| **Access to risk finance** | 2.84 |
| Leveraging private finance and venture capital for research and innovation | 2.84 |
| **Innovation in SMEs** | 0.62* |
| Fostering all forms of innovation in all types of SMEs | 0.62* |

Work Programme 2014 funding: ~ € 1.8 billion
Horizon 2020
Pillar III: Societal Challenges

- Challenge-based approach bringing together resources and knowledge across different fields, technologies and disciplines, including social sciences and the humanities

- Activities from research to market with a new focus on innovation-related activities, such as piloting, demonstration, test-beds, and support for public procurement and market uptake

- Crosscutting issues are also taken into account (gender, sustainability, societal acceptance, international co-operation, etc.)

| Health, demographic change and wellbeing | 7.47 |
| Food security, sustainable agriculture, marine and maritime research & the bioeconomy | 3.85 |
| Secure, clean and efficient energy * | 5.93 |
| Smart, green and integrated transport | 6.34 |
| Climate action, resource efficiency and raw materials | 3.08 |
| Inclusive and reflective societies | 1.31 |
| Secure societies | 1.69 |

Work Programme 2014 funding: ~ € 2.8 billion
Minimum Conditions:

For standard (collaborative) research projects:

- 3 participants from different Member States or associated countries

  In addition, participants from any other country in the world can also be included

For actions aimed at individuals, like European Research Council or Marie Skłodowska-Curie:

- 1 researcher
- 1 host institution
- 1 project
Individually

- In the “Excellent Science” pillar
  - European Research Council grantees
  - Marie Skłodowska-Curie Action fellows

As collaborative project participants

- Full partner or third party (or subcontractor)
- MSC Partners, Hosts of MSC fellows

Program-level cooperation

- With government depts. and agencies
  - Joint calls (joint evaluation and selection) – foreseen in rules
  - Coordinated/synchronized calls – ad hoc
  - International Consortia (shared research agenda, ex ante /ex post coordination, …)
Horizon 2020
EU S&T Cooperation priorities with the U.S.

Goals:

- Increase overall scale, scope & strategic character of EU-U.S. cooperation under H2020
- Four priority areas:
  - Marine and Arctic (Blue Growth)
  - Health (cooperation with NIH, BRAIN, etc.)
  - Advanced Materials
  - Transportation
Useful Links

On ERA
ERA Website: http://ec.europa.eu/research/era/index_en.htm
Monitoring: http://erawatch.jrc.ec.europa.eu/
ScienceEurope: http://www.scienceeurope.org/

On DFG
DFG: http://www.dfg.de
Funding Atlas: http://www.dfg.de/foerderatlas
Funded Projects: http://www.dfg.de/gepris
German Research Institutions: http://research-explorer.de

On H2020
Thank you for your attention!