HORIZON 2020

The EU Framework Programme for Research and Innovation

2014-2020

Christine I. Caly-Sanchéz
Miami Florida Jean Monnet Center of Excellence, BILAT USA 4.0

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Content of the presentation

Overview of Horizon 2020

U.S. Focus

Practical Information
What is Horizon 2020?

- Respond to economic crisis to invest in future jobs & growth
- Address people’s concerns - livelihood, safety, environment
- Strengthening the EU’s global position in research, innovation and technology

The EU’s programme for research & innovation 2014-20

€80 billion over 7 years

http://ec.europa.eu/research/horizon2020
H2020 Strategy & Approach

Aligned with EU policy priorities
Innovation & Industry focus
Partnership with Member States
Cross-cutting issues
Two-year work programmes
Open to the world

✓ General
✓ Specific targeting of topics for partner countries
Three Priorities

Excellent science
€ 24 billion

Industrial leadership
€ 17 billion

Societal challenges
€ 30 billion
## Priority 1. Excellent Science

€24 billion, 2014-2020

<table>
<thead>
<tr>
<th>Program</th>
<th>Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>European Research Council (ERC)</strong></td>
<td>13.10</td>
</tr>
<tr>
<td><strong>Future and Emerging Technologies</strong></td>
<td>2.59</td>
</tr>
<tr>
<td><strong>Marie Skłodowska-Curie actions (MSCA)</strong></td>
<td>6.16</td>
</tr>
<tr>
<td><strong>Research Infrastructures including e-infrastructures</strong></td>
<td>2.39</td>
</tr>
</tbody>
</table>
Starting Grants
starters (2-7 years after PhD)
up to € 2.0m for 5 years
€ 485m 2016
Deadline: 17 Nov 2015

Consolidator Grants
consolidators (7-12 years after PhD)
up to € 2.75m for 5 years
€ 605m 2016
Deadline: 1 Jul 2016

Advanced Grants
significant research achievements in the last 10 years
up to € 3.5m for 5 years
€ 540m 2016
Deadline: 1 Sept 2016

Proof-of-Concept
bridging gap between research - earliest stage of marketable innovation
up to €150,000 for ERC grant holders for 18 months
€ 20m 2014
Deadline: 16 Feb/26 May/4 Oct 2016
Marie Skłodowska-Curie actions (MSCA)

- **Innovative Training Networks (ITN)**
  
  2016/ 2017: € 370 / 430 mio. deadlines 12 Jan/ 10 Jan
  
  - Doctoral and initial training of researchers proposed by international networks of organisations from public and private sectors

- **Individual Fellowships (IF)**
  
  2016/ 2017: € 218.5 / 248 mio. deadlines 14 Sep / 14 Sep
  
  - Individual fellowships for most promising experienced researchers to develop their skills through international or inter-sector mobility

- **R&I Staff Exchange (RISE)**
  
  2016/ 2017: € 80 / 80 mio. deadlines 28 Apr / 05 Apr
  
  - International and inter-sector cooperation through the exchange of research and innovation staff
### Priority 2. Industrial Leadership

<table>
<thead>
<tr>
<th>Leadership in enabling and industrial technologies (LEITs)</th>
<th>€17 billion, 2014-2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>ICT, nanotechnologies, materials, biotechnology, manufacturing, space</td>
<td>13.04</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Access to risk finance</th>
<th>2.84</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leveraging private finance and venture capital for research and innovation</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Innovation in SMEs</th>
<th>0.62</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fostering all forms of innovation in all types of SMEs</td>
<td>+ 20% Societal Challenges + LEITs budget</td>
</tr>
</tbody>
</table>
## Priority 3. Societal Challenges

€29.7 billion, 2014-2020

<table>
<thead>
<tr>
<th>Topic</th>
<th>Funding (€ billion)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health, demographic change and wellbeing</td>
<td>7.26</td>
</tr>
<tr>
<td>Food security, sustainable agriculture, marine and maritime research &amp; the bioeconomy</td>
<td>3.71</td>
</tr>
<tr>
<td>Secure, clean and efficient energy</td>
<td>5.69</td>
</tr>
<tr>
<td>Smart, green and integrated transport</td>
<td>6.15</td>
</tr>
<tr>
<td>Climate action, resource efficiency and raw materials</td>
<td>2.96</td>
</tr>
<tr>
<td>Inclusive and reflective societies</td>
<td>1.26</td>
</tr>
<tr>
<td>Secure societies</td>
<td>1.61</td>
</tr>
</tbody>
</table>
Type of Actions under *Industrial Leadership and Societal Challenges* priorities & *FET*

- **Main Type** - **Collaborative**
  - Large multipartner, transnational, interdisciplinary projects

- **Other Types:**
  - Coordination & Support Actions (no R&D costs covered)
  - SME instrument: 3-phase - feasibility, innovation project, indirect support for commercialisation
  - Cofund
Horizon 2020 the first two years (2014 - 2015)

2014-15 Work Programme € 15 billion

45,236 eligible proposals

12,000 evaluators

5,800 retained for funding

5,306 grant agreements € 9.6 billion from EU (end Oct'15)
U.S. Participation Possibilities

- **ERC grantees**
- **Marie Skłodowska-Curie Actions**
  - As fellows / associated partners / hosts
- **Collaborative projects**
  - Full partner / third party / subcontractor in all areas of H2020
- **Funding**
  - Not available, as a rule, to participants from non-European industrialized countries
- **Exceptions:**
  - Health Research
  - Research Infrastructure Integrating Activities
  - *Ad hoc* exceptions
  - Subcontractors
U.S. Participation in H2020 some data

**ERC grantees:**

- **2014 - 2015:** 59 US nationals
  4 US institutes receive funds
- **2014 - 2015:** 39 US residents at time of application

**Marie Skłodowska-Curie Actions:**

Fellows, Partners & Hosts

- **2014 – 2015:** 366 US participations incl. non-university
  174 IF incoming to Europe from US

**Collaborative projects:**

Full partner / third party / subcontractor in all areas of H2020

- **2014 - 2015:** 63 U.S. organisations have signed G.A.s
  52/74 participations funded [€ 13 million]

- California: 10
- Massachusetts: 9
- New York: 9
- Maryland: 7
- District of Columbia: 5
- Florida: 4
- Minnesota: 4
- Michigan: 3
- New Jersey: 3
- North Carolina: 3
- Pennsylvania: 3
- Washington: 3
- Georgia: 2
- Illinois: 2
- Texas: 2
- Indiana: 1
- Utah: 1
- Vermont: 1
- Virginia: 1
- Wyoming: 1
## Florida-based H2020 Collaborative project participants to date

<table>
<thead>
<tr>
<th>Project</th>
<th>Acronym</th>
<th>ΣEC - €</th>
<th>#Participants</th>
<th>US Participant</th>
<th>EC - €</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep-sea Sponge Grounds Ecosystems of the North Atlantic: an integrated approach towards their preservation and sustainable exploitation</td>
<td>SponGES</td>
<td>10M</td>
<td>18</td>
<td>Florida Atlantic University</td>
<td>0</td>
</tr>
<tr>
<td>Virus discovery and epidemic tracing from high throughput metagenomic sequencing</td>
<td>VIROGENESIS</td>
<td>3M</td>
<td>8</td>
<td>University of Florida</td>
<td>234k</td>
</tr>
<tr>
<td>ICT Policy, Research and Innovation for a Smart Society: towards new avenues in EU-US ICT collaboration</td>
<td>PICASSO</td>
<td>1.2M</td>
<td>10</td>
<td>Florida International University</td>
<td>0</td>
</tr>
<tr>
<td>BILAT USA 4.0</td>
<td>BILAT USA 4.0</td>
<td>2M</td>
<td>16</td>
<td>Florida International University</td>
<td>36K</td>
</tr>
</tbody>
</table>
€ 16 BILLION

63 calls

600 topics
2016-2017 Work Programme

Excellent science
€ 5.8 billion

Industrial leadership
€ 3.4 billion

Societal challenges
€ 4 billion
H2020 Work Programme 2016-17

✓ Published 14 Oct 2015
✓ 30% of topics flagged for international cooperation
> 50 topics specifically relevant to U.S.
✓ Special focus areas: € 1040 million

<table>
<thead>
<tr>
<th>Special focus areas</th>
<th>€</th>
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<tbody>
<tr>
<td>Pilots, factories of the future, sustainable process industries</td>
<td></td>
</tr>
<tr>
<td>Internet of things</td>
<td>104 (2016) 35 (2017)</td>
</tr>
<tr>
<td>Smart and sustainable cities</td>
<td>120 (2016) 111.5 (2017)</td>
</tr>
</tbody>
</table>
Why Participate in Horizon 2020? International Cooperation Increases Impact

Average Relative Citations (ARC) of publications by type of co-operation, 2010

- Single author publications
- Single country co-publications
- International co-publications

Source: DG Research and Innovation - Unit for the Analysis and Monitoring of National Research Policies
Data: Science-Metrix (Canada), based on Scopus database
U.S. scientists who work/study abroad and then return achieve the highest of all U.S.-based scientists and of all categories of internationally-mobile scientists across different nationalities (OECD, 2013)
Why Participate in Horizon 2020?

• Access to expertise, equipment & facilities
• Economies of scale & scope
• Increased research quality
• Greater impact, efficiency and speed
• Networks & alliances
• Career development
• Business & commercialisation opportunities
• Other ...
  – New research avenues
  – Exchange possibilities
  – Cross-disciplinary/ cross-border fertilization

HORIZON 2020

European Commission
Research Infrastructures

Integrating & Opening RIs of European interest (€ 200 million)

INFRAIA-01-2016-2017 & INFRAIA-02-2017 - two categories of "integrating activities" requiring Networking, Transnational Access, and Joint Research:

1. advanced communities 27 areas listed bio & medical sciences, environmental & earth sciences, maths & ICT, physical sciences and SSH – € 88 million in 2016; € 72 million in 2017 - € 10 million per award; and Deadline 30 Mar 2016 (single stage)

1. starting communities € 40 million in 2017 awards of €5 million 

   Deadlines 30 Mar 2016 & 29 Mar 2017 (two stage)

N.B. Participating U.S. entities can be funded $$$
Practical Information
Participant Portal – your one-stop shop

- Topics
- Documents
- Rules for participation
- Online manual
- E-submission

http://ec.europa.eu/research/participants/portal
How to Apply?

Using the Horizon 2020 website:

1. Find a call for proposals
2. Find partners (where necessary)
   - Use existing contacts with experience of EU funding programs
   - Search the CORDIS database for participants similar projects in FP7: http://cordis.europa.eu/projects/home_en.html
   - Use social media (e.g. LinkedIn forums)?
3. Create an account and register your organization
4. Submit a proposal
Understanding the call topics e.g. ...

**NMBP-26-2016** (What is the topic?)
*Analytical techniques and tools in support of nanomaterial risk assessment*

**Specific Challenge** (What is the problem?)
*Lack of suitable analytical techniques & instruments*

**Scope** (what the focus should be for the solution)
*New/improved techniques to characterise ensembles of shapes, sizes, surface areas chemistry & their fate in complex matrices*
*TRL 5-6; € 5-7 million*

**Expected Impact**
*Cost reduction; confidence in nonosafety studies; applications in QC, tracing, labelling, counterfeiting*

**Type of Action**
*research, innovation, coordination*
Rules of Participation

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
Evaluation criteria

STANDARD AWARD CRITERIA

EXCELLENCE

IMPACT

QUALITY & EFFICIENCY OF THE ACTION

✓ ERC frontier Research actions ➞ only EXCELLENCE
✓ Innovation actions ➞ higher weighting for "IMPACT"

Proposal evaluated by the experts “as it is” and not as “what could be” = no need for negotiation
For further information

- **Participant Portal**
  

- **Helpdesk**
  
  http://ec.europa.eu/research/enquiries

- **Expert evaluators needed!**
  

- **Learn more about Horizon 2020**
  
  http://ec.europa.eu/horizon2020

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Examples of H2020 Projects with non-EU-Funded U.S. participants

21 partners from 17 countries €4.6m
U.S. Nuclear Regulatory Commission € 100k / € 0 from EU

NANORESTART [2015-18] Nanomaterials for the restoration of works of art
26 partners from 12 countries €9.2m
Art Institute of Chicago € 115k / € 0 from EU

*BRIDGES [2015-20] Breast cancer risk after diagnostic gene sequencing
17 partners from 10 countries €6.46m
U.Utah & Mayo Clinic € 51.25k each/ € 0 from EU

8 partners from 7 countries €5.37m
Rutgers € 113.25k / € 0 from EU

*B-CAST [2015-20] Breast cancer stratification
12 partners from 9 countries €6.12m
Harvard € 62.5k / € 0 from EU

AtlantOS [2015-20] Integrated Atlantic Ocean observing system
62 partners from 18 countries €20.6m
WHOI € 0 from EU (also NOAA)
HORIZON 2020
Examples of H2020 Projects with EU-Funded U.S. participants

**EU-ToxRisk [2016-21]** Toxicity testing and risk assessment for 21st Century
39 partners from 13 countries €30.1m
JHU € 515.76k / € 515.76 from EU

**FRESHAIR[2015-18]** Free respiratory evaluation & smoke-exposure reduction by ...
14 partners from 9 countries €3m
U.Washington € 271.625k / € 271.625k from EU

**BIOCAPAN [2015-19]** Bioactive implantable capsule for pancreatic islets immunosuppression free therapy
9 partners from 6 countries €8m
Wake Forest U. Health Sciences € 764.9k / € 764.9k from EU

**IF-EBOLa[2014-16]** Control of the Ebol outbreak by both innovative ultrasensitive ..
8 partners from 6 countries €2m
Metabiota Inc € 237k / € 237k from EU ; Orion Integrated Biosciences Inc € 135k / € 135k from EU

**EUNCL [2015-19]**European Nanomedicine Characterization Laboratory
9 partners from 8 countries €5.6 m
Leidos Biomedical Research Inc. (NCI) € 348.7k / € 348.7k from EU