



Horizon 2020

The European Union's
programme for Research
and Innovation

*Open to the
world!*



HORIZON 2020

**International
cooperation –
a cross cutting
priority**

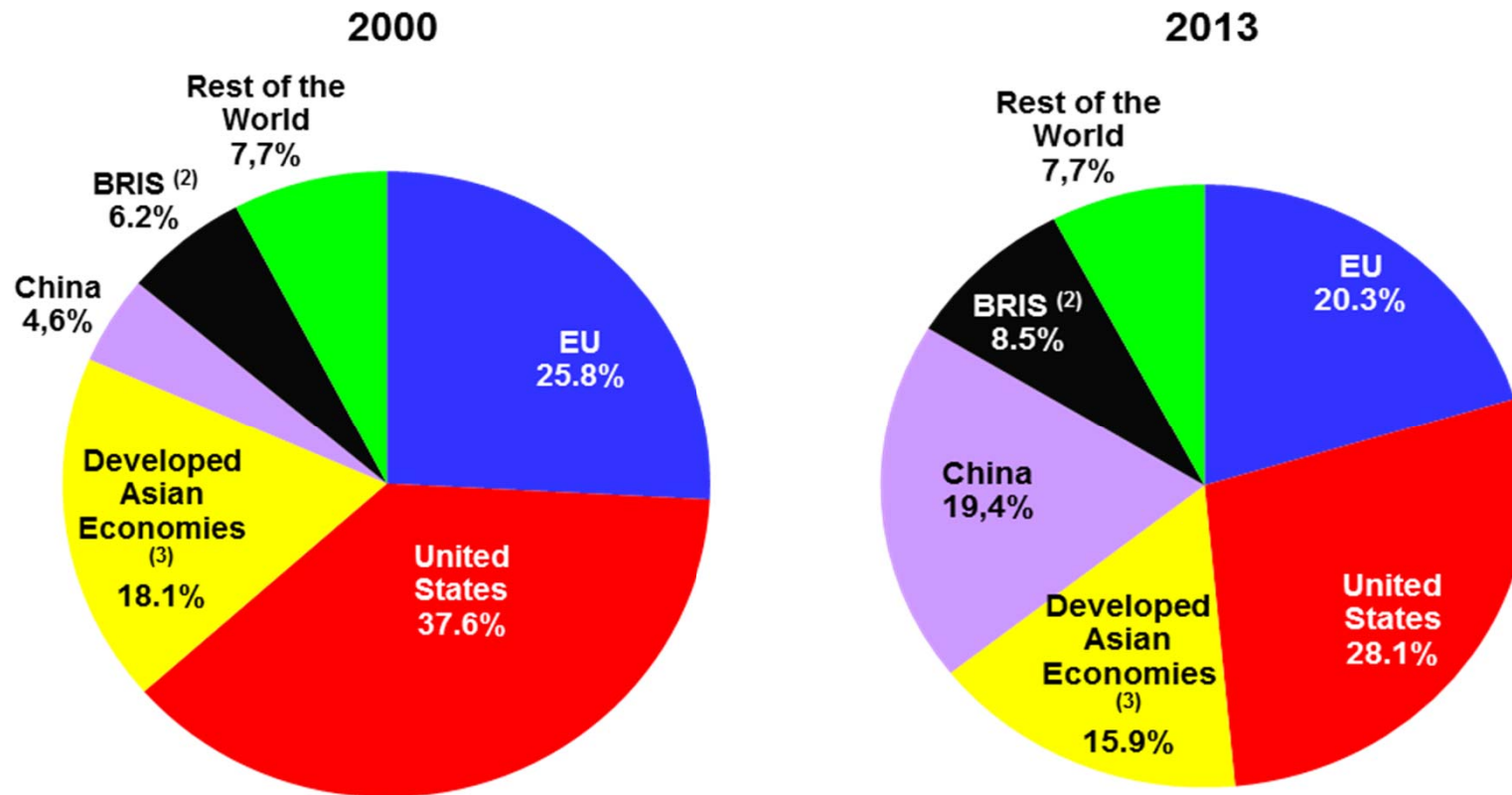
**Horizon 2020
– Open to the
World**

**Results of
first Horizon
2020 Calls**

**Perspectives
for Work
Programme
2016-17**

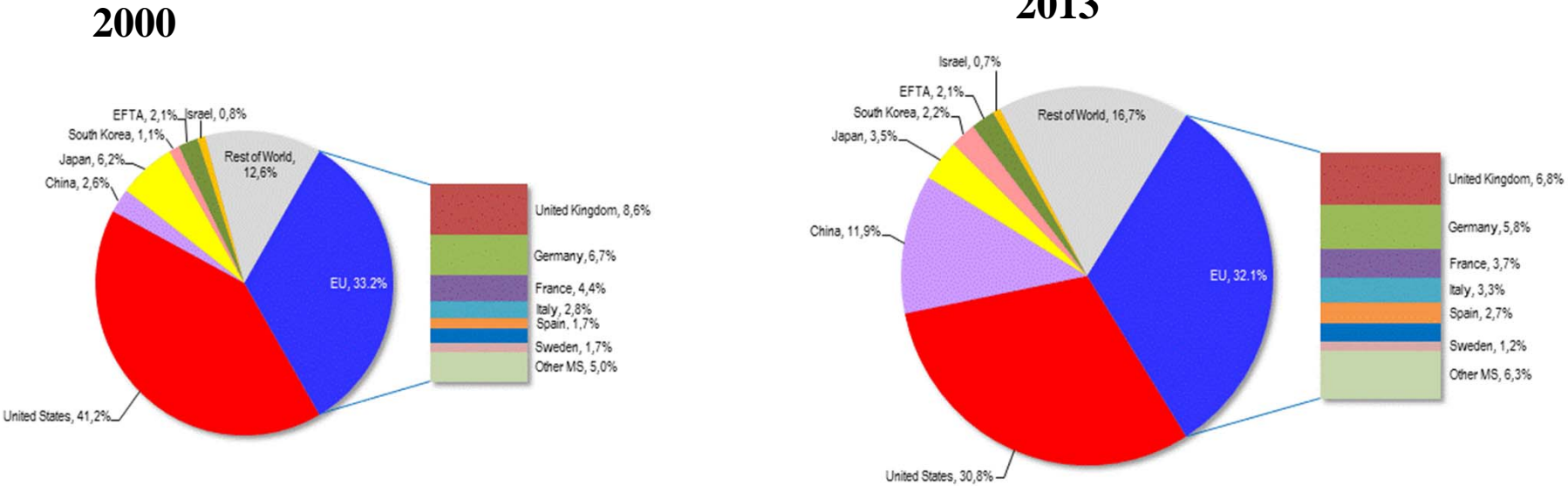
International knowledge flows increasingly important in multipolar global research and innovation landscape

R&D Investment



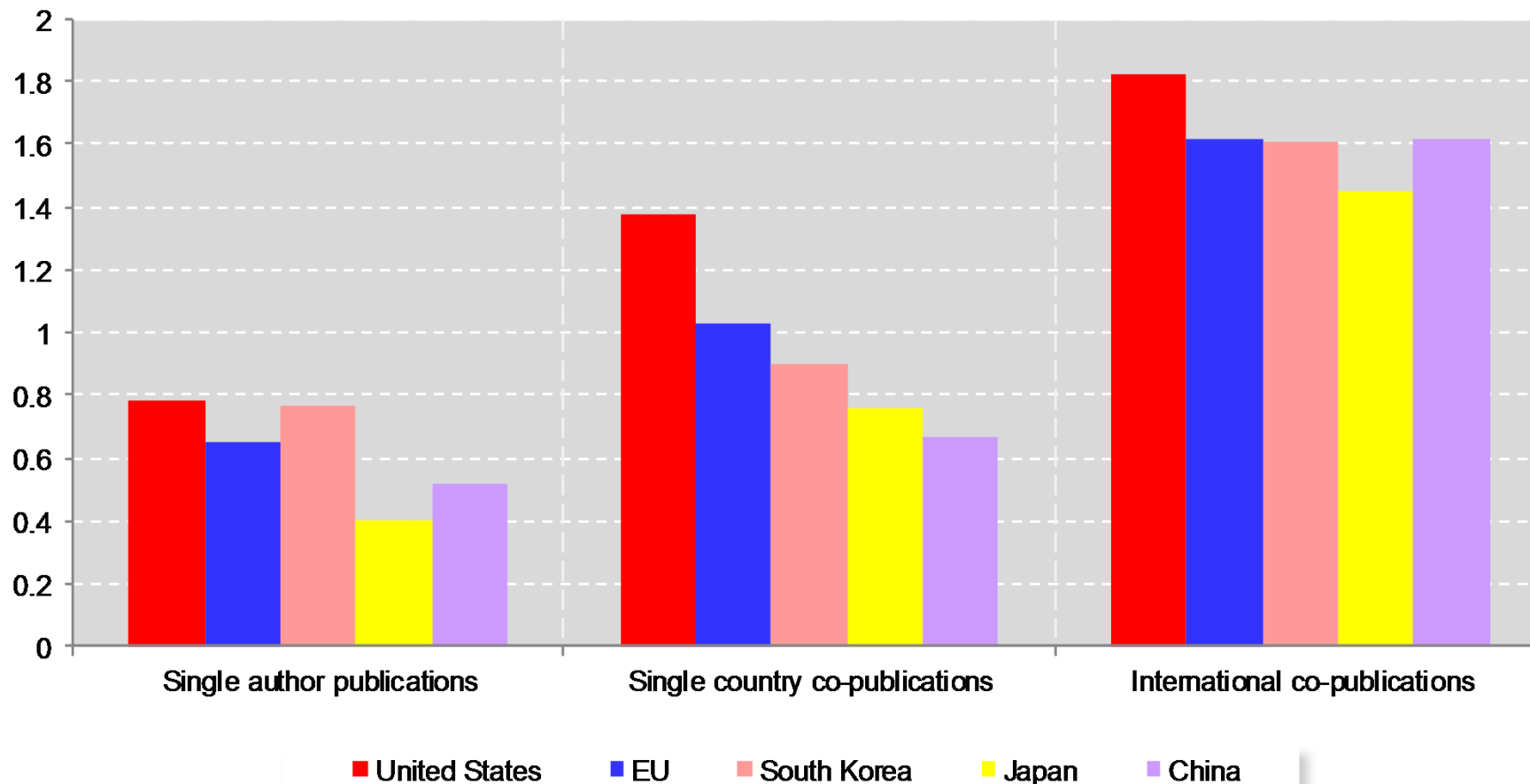
Rise of new scientific and technological powerhouses

World share of highly cited publications



International Cooperation Increases Impact

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

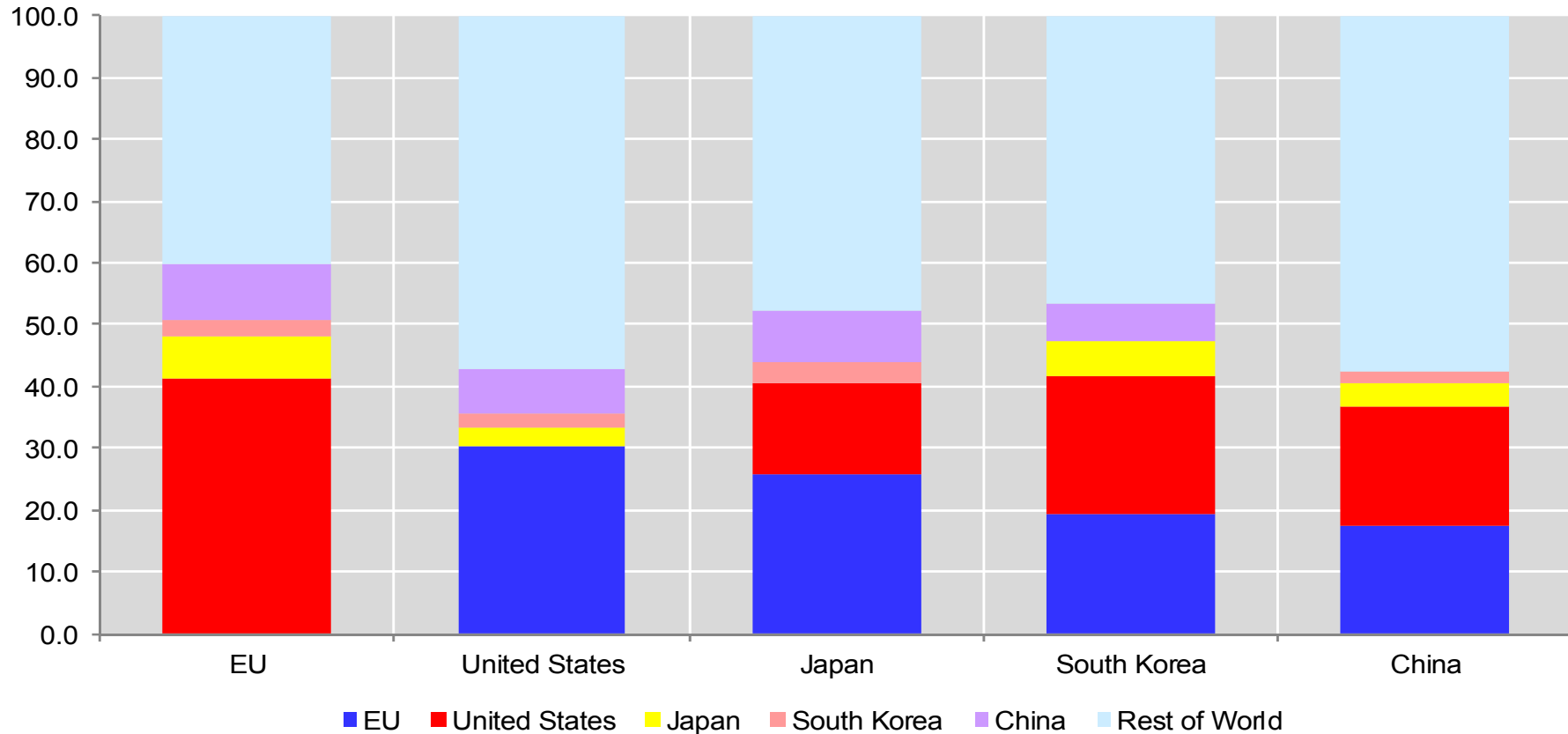


Source: DG Research and Innovation - Unit for the Analysis and Monitoring of National Research Policies

Data: Science-Metrix (Canada), based on Scopus database

The EU is the leading research partner

Scientific publication with foreign co-authors, 2010-2014



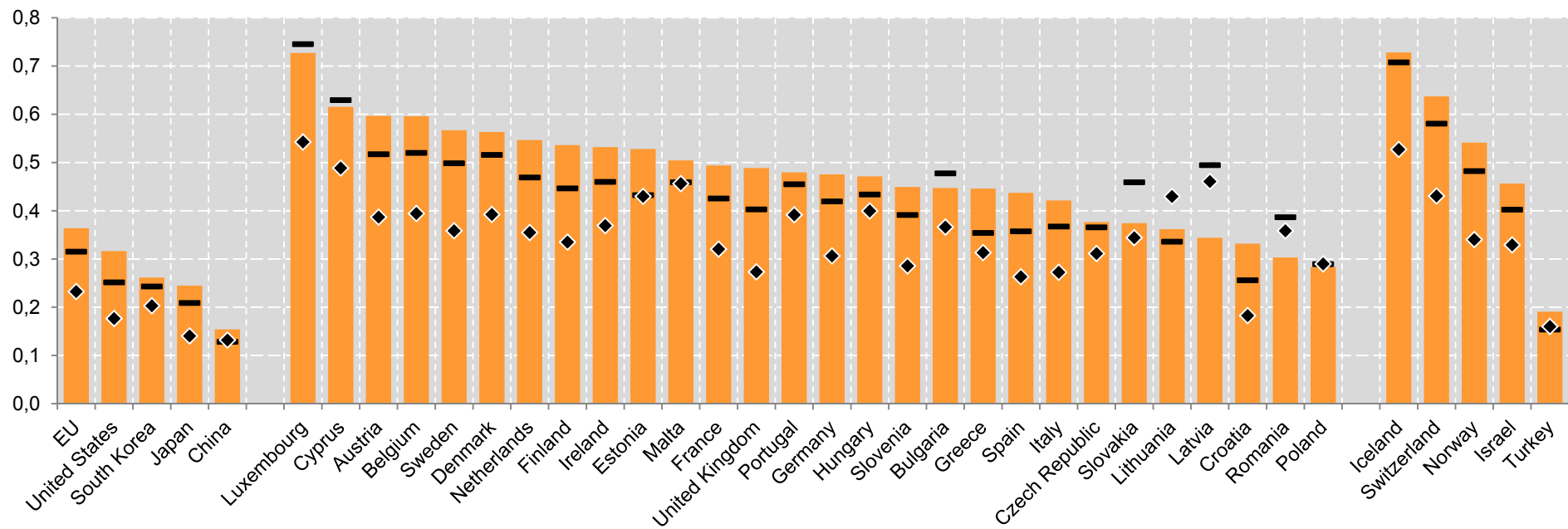
Source: DG Research and Innovation - Unit for the Analysis and Monitoring of National Research Policies

Data: SciVal (based on Scopus)

Note: Elements of estimation were involved in the compilation of the data.

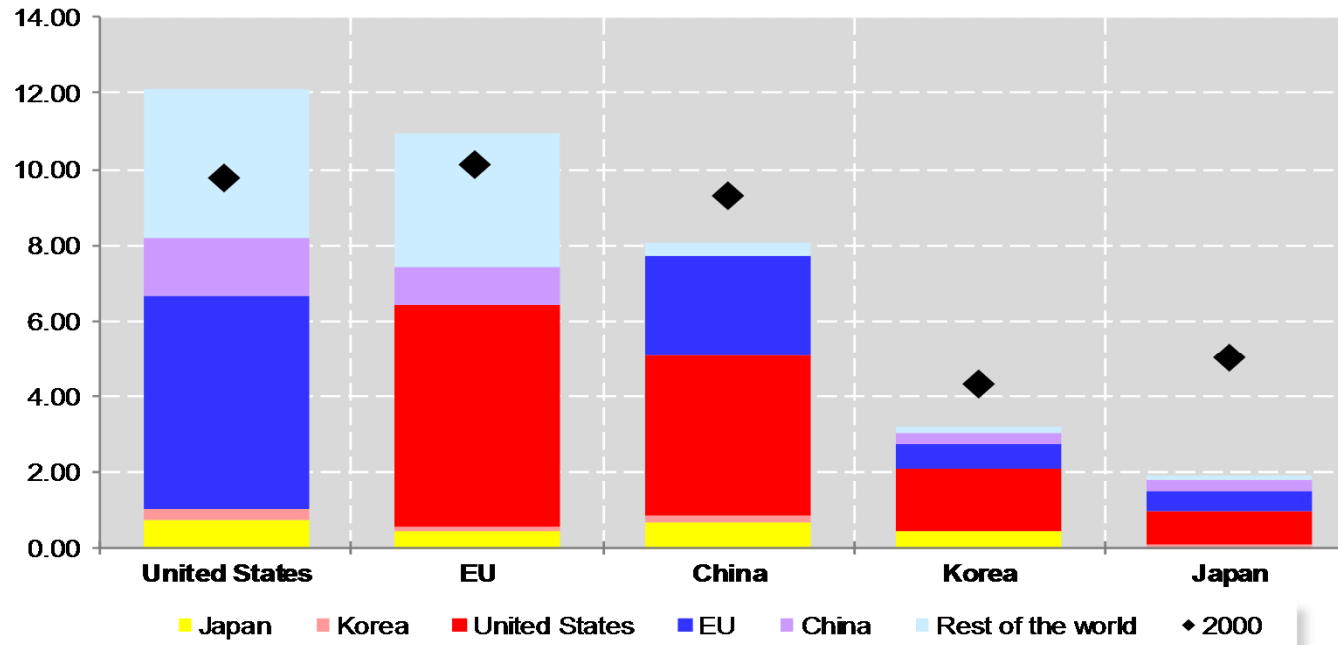
Europe is also increasingly opening up to scientific collaboration with third countries

International co-publications per total number of publications, 2000, 2007 and 2013



International co-patents are increasing

Share of patents with foreign co-inventor(s) in total patent applications (WIPO PCT), 2000, 2012



Source: DG Research and Innovation - Unit for the Analysis and Monitoring of National Research Policies
Data: OECD



Global challenges call for global responses

- Engaging in international cooperation is essential
 - To access talent, knowledge and resources wherever it is located
 - To tackle global societal challenges in the most effective way
 - To participate in global value chains and markets
- Some figures
 - Nearly 50% of the world's human resources for research and innovation live outside the EU, US and Japan
 - More than 70% of knowledge is created outside the EU
 - It is estimated that in the next 10-15 years, 90% of the world's growth will come from outside the EU

Strengthen the Union's R&I excellence and attractiveness
and its economic and industrial competitiveness

International Cooperation Strategy

Enhancing and focusing EU
international cooperation in research
and innovation

Tackle global societal challenges

Support the Union's
external policies

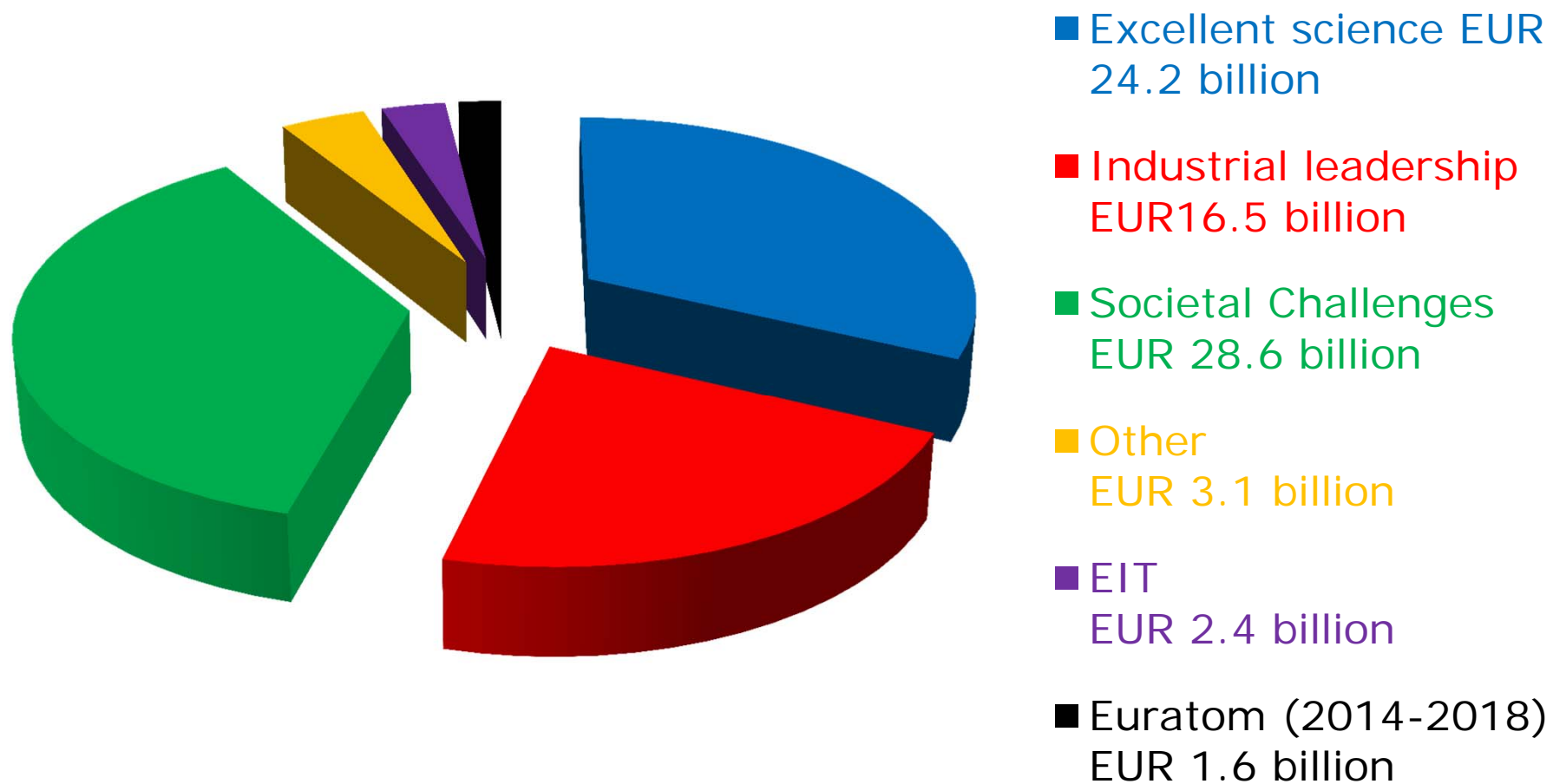
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Horizon 2020 Budget: €77 billion, 2014-2020





Horizon 2020 Regulation

- ❑ "International cooperation shall be promoted and integrated into the programme to strengthen EU competitiveness, effectively tackle common societal challenges, and support EU external policy objectives"
- ❑ "Targeted international cooperation actions shall be implemented based on common interest, priorities, mutual benefit, S&T capabilities, specific needs, market opportunities, and expected impact"
- ❑ "International cooperation activities should be maintained at least at the level of FP7"

Horizon 2020 *Open to the World*



General opening

Horizon 2020 is fully open to participation of entities from across the globe

Targeted opening

Many topics are flagged as being specifically relevant for international cooperation, identifying upfront the targeted area and partner country or region



Horizon 2020 Conditions for Participation

- Minimum conditions
 - Standard collaborative action
 - At least three legal entities each established in a different Member State or an Associated Country
 - ERC, SME instrument, programme co-fund, coordination and support, training and mobility action
 - One legal entity established in a Member State or in an Associated Country
- Additional Conditions
 - In the work programme
- International participation
 - Open for all legal entities established in third countries and for international organisations
 - Restrictions only possible if introduced in the work programme (for reciprocity reasons; for security reasons)



Automatically eligible for EU funding

- EU Member States incl. their overseas departments
- Overseas Countries and Territories linked to the MS
- Countries Associated to Horizon 2020
 - Iceland, Norway, Albania, Bosnia and Herzegovina, Former Yugoslav Republic of Macedonia, Montenegro, Serbia, Turkey, Israel, Moldova, Switzerland (*partial association*), Faroe Islands, Ukraine
- International European interest organisations
- Exhaustive list of countries identified in Annex A to the work programme ('developing countries')



Not automatically eligible for EU funding

- Entities in non-EU/non-Associated/non-'developing countries' may only be granted EU funding when:
 - Provision in the work programme; or
 - Provision under a bilateral S&T agreement; or
 - Commission deems participation essential for carrying out the action (project case-by-case assessment)



Co-funding by international partner countries

- Sentence added for all topics in section on 'List of countries and applicable rules for funding' under 'Topic Conditions & Documents'
"... Note also that a number of non-EU/non-Associated Countries that are not automatically eligible for funding have made specific provisions for making funding available for their participants in Horizon 2020 projects ..."



Country pages on Participant Portal

- Co-funding for all thematic areas
 - Republic of Korea, Mexico, Russia, Taiwan
- Co-funding for selected thematic areas
 - China (most areas expected), Australia (SC1), Japan (power electronics + critical raw materials)
- Co-funding by a region
 - Canada (Quebec)
- Countries where no jointly agreed mechanism for co-funding Horizon 2020 projects currently in place
 - Brazil, India, New Zealand, USA

Also Switzerland makes funding available for their participants in those parts of Horizon 2020 where Switzerland is not associated



NCPs in International Partner Countries

The screenshot shows the 'National Contact Points' website. The page title is 'National Contact Points'. The main navigation bar includes 'HOME', 'FUNDING OPPORTUNITIES', 'HOW TO PARTICIPATE', 'EXPERTS', and 'SUPPORT'. The page content is titled 'National Contact Points' and includes a search section with the following details:

Search for:

- Country: -----Third countries----- (Dropdown menu showing Afghanistan, Algeria, American Samoa)
- Function: All functions (Dropdown menu showing Coordinator, Legal and Financial, SMEs)
- Sort by: Country, Contact name, Most recent, Organisation

Dr Chong-Hak Chae - Korea (Republic of)
Food security, sustainable agriculture, marine and maritime research and the bio-economy; & Biotechnology - Secure, clean and efficient energy -
Organisation name: KIC-Europe/Korea Research of Chemical Technology
Address: 141 Gajeong-Ro, Yuseong-Gu, , Daejeon, Korea (Republic of)
Tel: +32-497-536-185 - Fax:
[Send Mail](#) - Website: <http://www.krict.re.kr>
Update date: 27-Jan-15 - **Record Control Number:** 3011309

Mr. Joon-Hwan Choi - Korea (Republic of)
National NCP coordinator
Organisation name: Embassy of the ROK in Belgium
Address: Chaussee de la Hulpe 173-175, 1170, Brussels, Belgium
Tel: +32-2-661-0048 - Fax: +32-2-675-5221
[Send Mail](#) - Website: <http://bel.mofa.go.kr>
Update date: 15-Oct-14 - **Record Control Number:** 3011301



Targeted opening

- Topics **encouraging** or **requiring** international cooperation
- Topics implemented through **joint or coordinated call** or requiring **twinning** activities
- Topics contributing to implementing **multilateral/bilateral agreement/initiative**
- Topics implemented through **ERA-NET** or targeted by **Joint Programming Initiative** that encourage international cooperation
- Topics providing for **direct funding** of third country partners



Horizontal international cooperation activities

- Activities to **support bilateral, multilateral and bi-regional policy dialogues in R&I** with third countries, regions, international fora and organisations will facilitate policy exchange, mutual learning and priority setting, promote reciprocal access to programmes and monitor the impact of cooperation
- **Networking and twinning** activities will facilitate optimal partnering between R&I actors on both sides and improve competencies and cooperation capacity in less advanced third countries
- Activities will promote **coordination of Union and national cooperation** policies and programmes, as well as joint actions of MS and AC with third countries in order to enhance their overall impact
- The **European R&I 'presence' in third countries** will be consolidated and strengthened, notably by exploring the creation of European virtual 'science and innovation houses', the provision of services to European organisations extending their activities into third countries, and the opening of research centres, established jointly with third countries, to organisations or researchers from other MS and AC



The EU Framework Programme is a vehicle to work together with the best worldwide

Success-rate of proposals grows from 16% to 20% when two or more international partners are included

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Horizon 2020 implementation Statistics – Snapshot (5 October 2015)

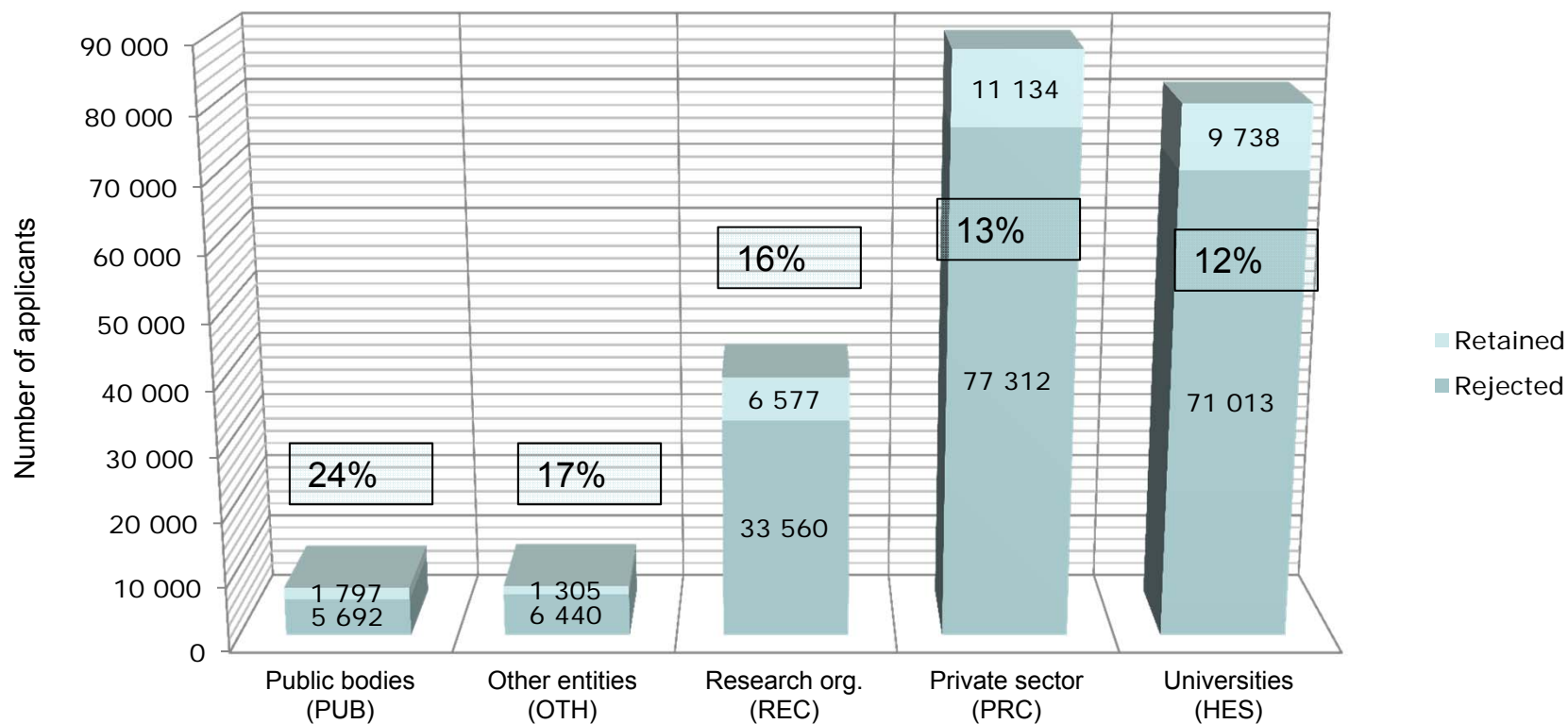
- **Nearly 56,700 (full) eligible proposals** requesting a total of € 123.7 billion of EU contribution
- of which **6,078 retained** for funding
- **Over 11,000 evaluators** contracted
- **5,278 grant agreements** signed with **€9.3 billion EU contribution**
- **8 months time-to-grant met in 91% of cases**, excluding ERC grants, which are not bound by this target



Success rates – first analysis

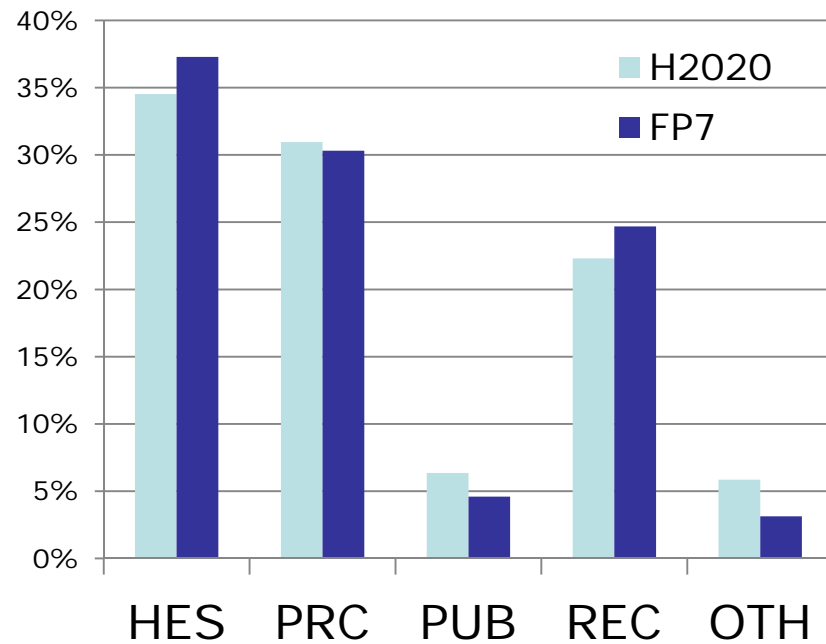
- Overall **success rate** for eligible proposals: **12%** (20% in FP7 overall)
- For all Member States, success rates decrease compared to FP7
- Indicates **great attractiveness**
- **Monitoring** and **first measures**

Number of applicants and success rate per type of organisation

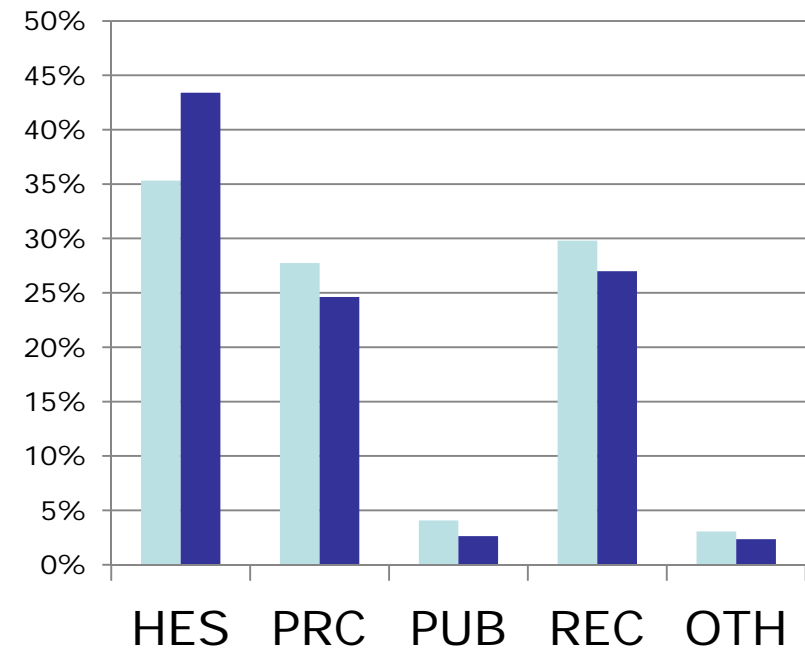


Types of organisations in grant agreements

In share of participations



In share of EU financial contribution





Participants in Grant Agreements

- **Around 38%** of successful applicants are **newcomers** (i.e. have not participated in FP7)
- **Universities** remain in first place
- Increase of **industry and SME** participation
- **20% budget target for SMEs achieved** - 5% due to SME-Instrument
- Increase in share of EU financial contribution of **research organisations**

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Horizon 2020 Work Programme 2016-17

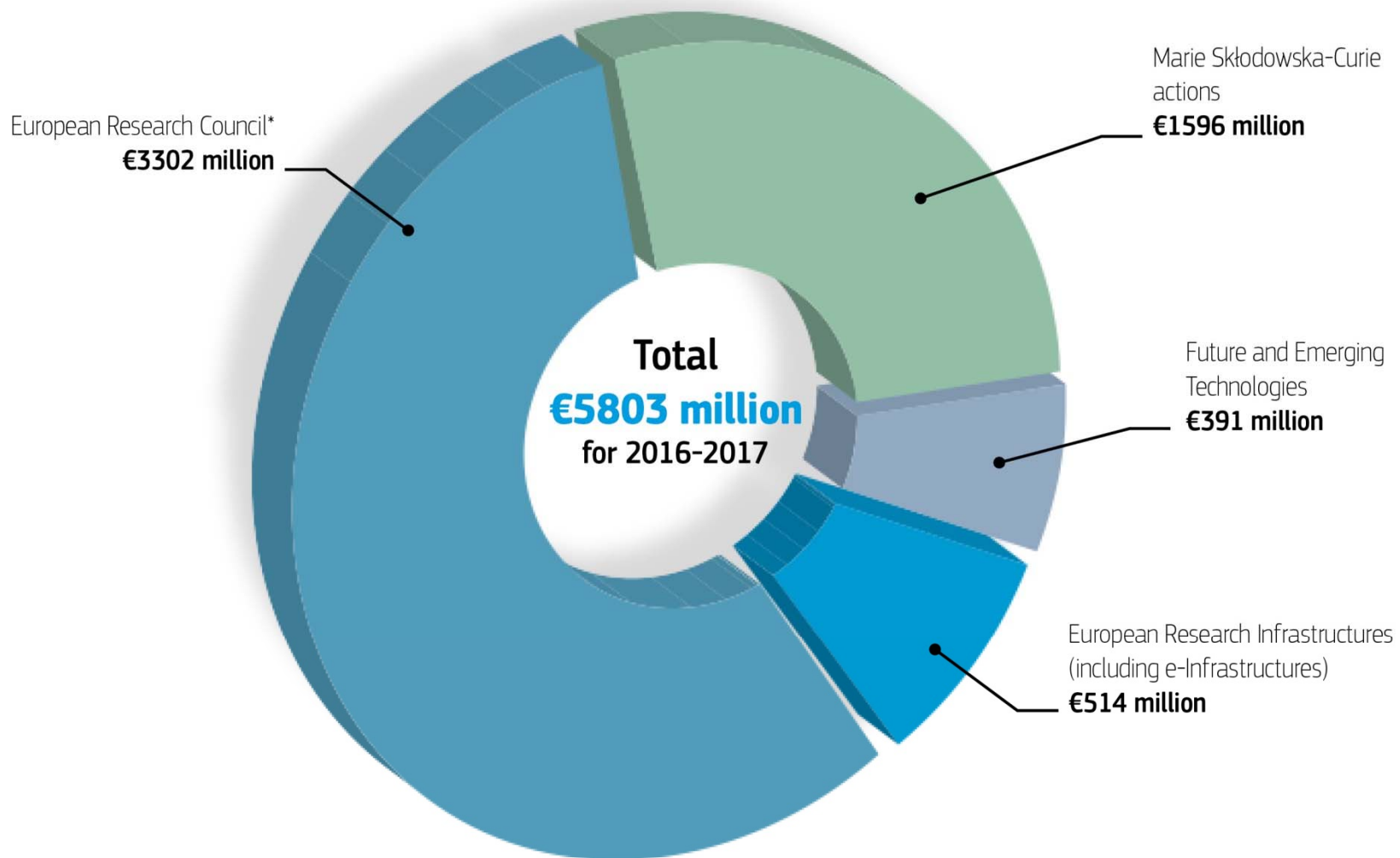
€ 16 BILLION

63 calls

600 topics

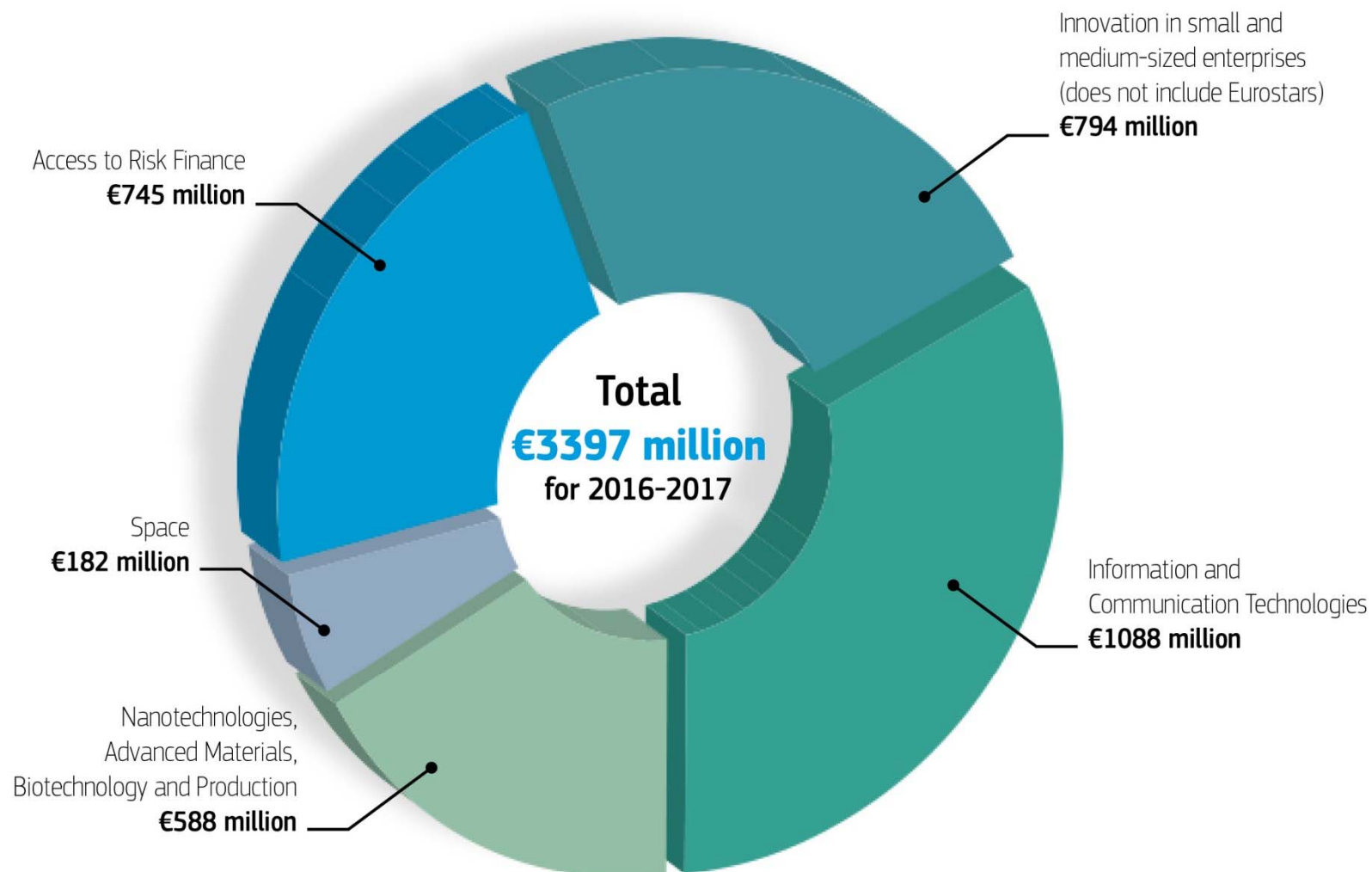


Funding for Excellent Science calls










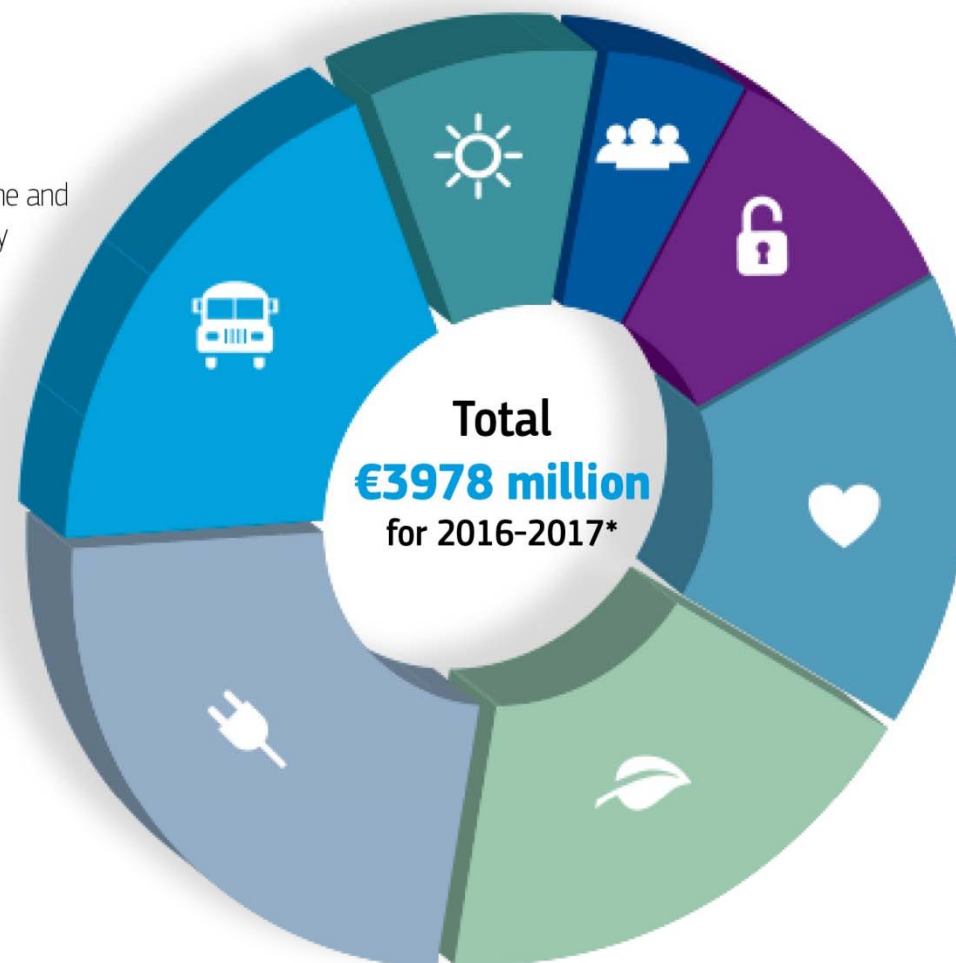
* separate work programme for 2017

Funding for Industrial Leadership calls and Financial Instruments



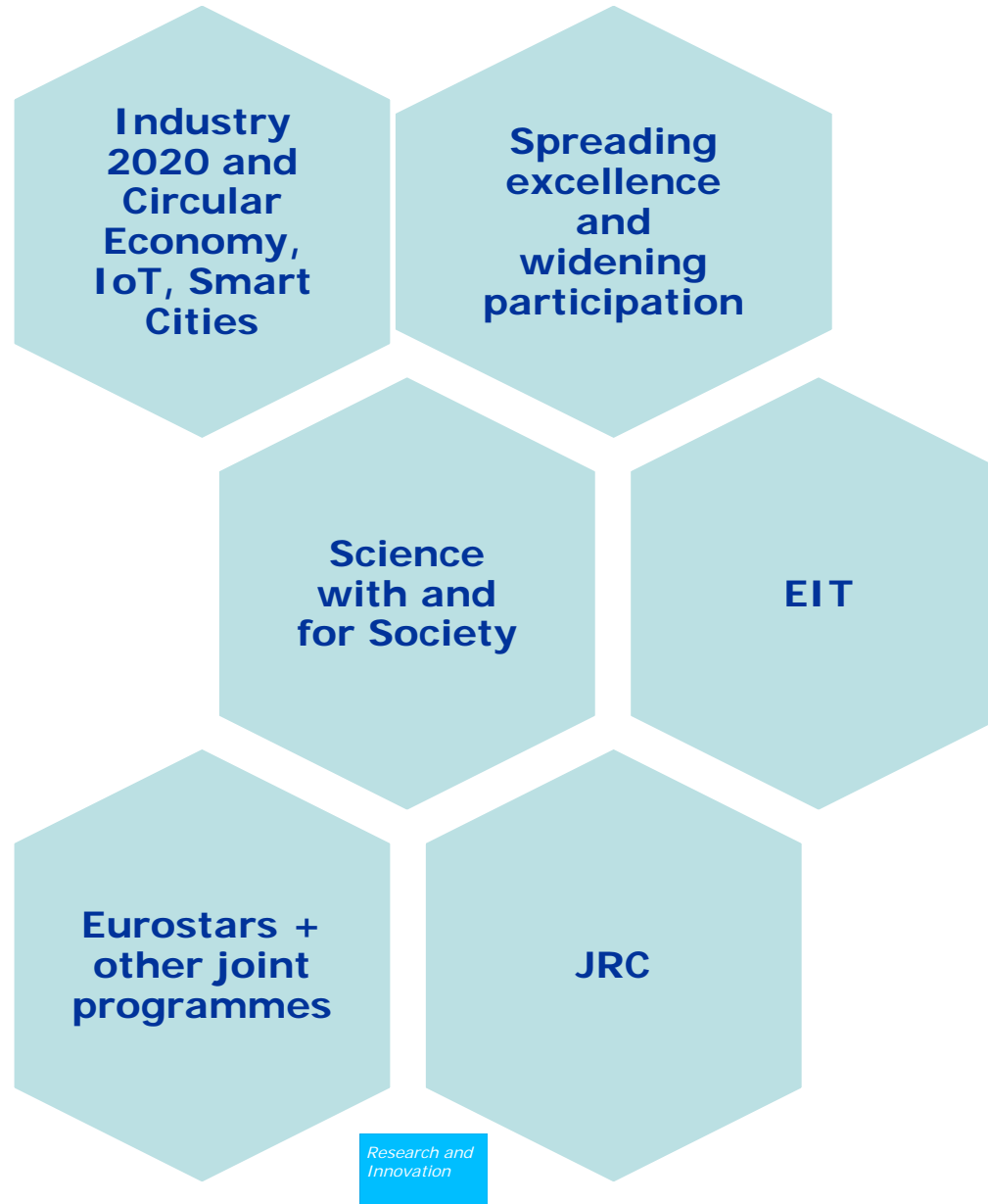
Funding for Societal Challenges calls

-  1. Health, demographic change and wellbeing
€658 million
-  2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy
€716 million
-  3. Secure, clean and efficient energy
€917 million
-  4. Smart, green and integrated transport
€756 million
-  5. Climate action, environment, resource efficiency and raw materials
€326 million
-  6. Europe in a changing world - inclusive, innovative and reflective societies
€212 million
-  7. Secure societies – protecting freedom and security of Europe and its citizens
€393 million



* Additional €1040 million will be dedicated to Cross-Cutting Calls: Internet of things, Industry 2020 in the Circular Economy, Smart and Sustainable Cities

In addition





Joint Programmes with Member States (Art. 185)

fully integrating national programmes at three levels

- Scientific
- Financial between Member States and Union
- Management: **single implementation structure**

Currently:

- ✓ Active and Assisted Living Joint Programme
- ✓ European & Developing Countries Clinical Trials Partnership
- ✓ European Programme for Metrology Research and Innovation
- ✓ Eurostars for R&D performing SMEs
- ✓ Joint Baltic Sea Research & Development Programme (BONUS)



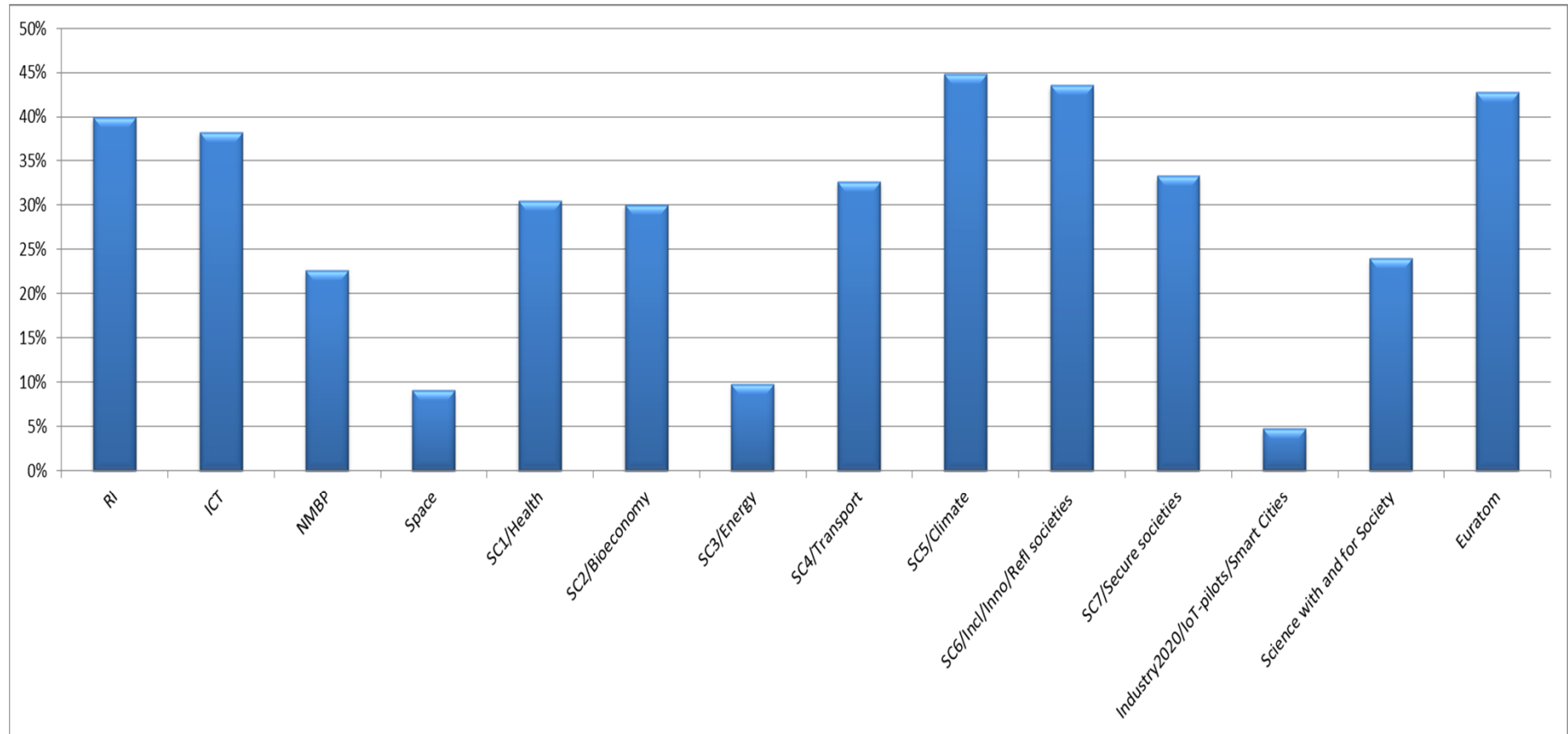
Joint Technology Initiative (Art. 185)

- Commitments (including financial) of Union and industry partners over seven year period
- Strategic research and innovation agenda & funding through open calls
- Implemented through **Joint Undertakings**

Currently:

- ✓ Clean aircraft - Clean Sky 2 (CS)
- ✓ Fuel Cells and Hydrogen 2 (FCH)
- ✓ Innovative Medicines 2 (IMI)
- ✓ Electronic components and systems (ECSEL)
- ✓ Bio-based Industries (BBI)
- ✓ Shift2Rail (S2R)

More than 27% of all topics in WP 2016-17 flagged as specifically relevant for international cooperation



Example: Health

Notably for global multi-lateral initiatives



<http://intbir.nih.gov/>



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



www.gacd.org/

GloPID-R

Global Research
Collaboration for Infectious
Disease Preparedness

<http://www.glopid-r.org/>



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

Example: Bioeconomy

Ex: Blue Growth

The Arctic Dimension



- An integrated Arctic observation system
- Impact of Arctic changes on the weather and climate of the Northern Hemisphere
- Climate impacts on Arctic permafrost and its socio-economic impact, with a focus on coastal areas

Valorising the Mediterranean Sea basin



- Towards an integrated Mediterranean Sea Observing System
- Support to the BLUEMED Initiative: Coordination of marine and maritime research and innovation activities in the Mediterranean

Example: Bioeconomy

Ex: sustainable food security

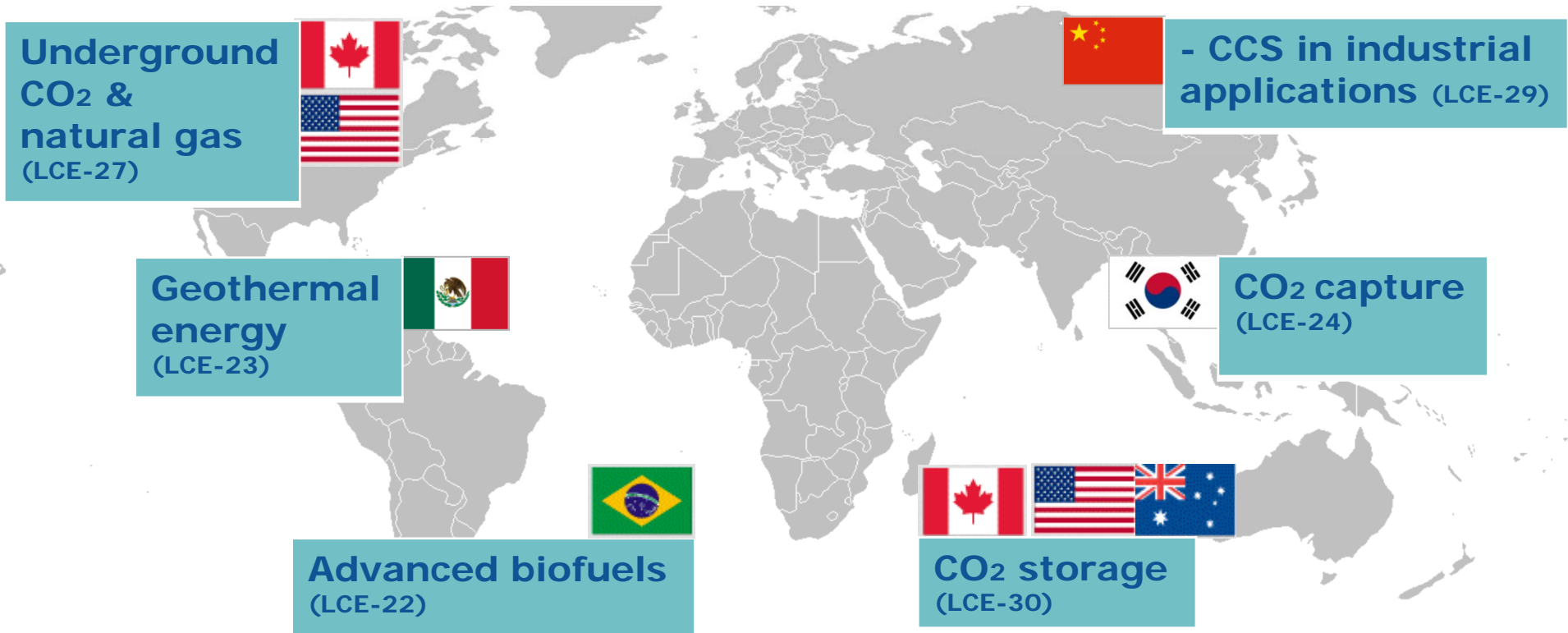
EU-Africa Partnership

- ERANET Cofund
- Innovation for promoting food and nutrition security and sustainable agriculture in Africa
- Earth observation services for the monitoring of agricultural production in Africa

EU-China Flagship

- Water retention in soils
- Breeding of protein crops
- Urban agriculture
- Livestock production and antimicrobial drug use
- Authentication and traceability

Example: Energy



Example: Transport

Some potential areas

US: road transport automation, green vehicles, safety, infrastructure, and climate change mitigation and adaptation

China, Brazil and others: green vehicles and safety

Africa:
transport safety

Multilateral: exchanges on transport R&I strategies and investment priorities (OECD/ITF/JTRC)

Mediterranean:
transport infrastructure

Example: ICT

EU-Japan Joint Call: 5G/IoT/Cloud/Big Data/Testbeds

EU-Brazil Joint Call: Cloud/IoT

EU-South Korea Joint Call: 5G/IoT/Cloud

CHINA:
Collaboration on
Future Internet,
e.g. IoT and 5G

MEXICO:
Collaboration on
ICT e.g. FIWARE

International partnership
building in low and middle
income countries. Target:
sub-Saharan Africa and
ASEAN countries

Example: Inclusive, innovative, reflective societies

Ex: Engaging together globally

Radicalisation and migration; integration and science diplomacy

Use of scientific knowledge on the EU's neighbouring countries

Focusing on Asia-Pacific, Central Asia, and China

Reinforcing the presence of European R&I actors in selected countries

+ Service Facility in support of EU strategy for international cooperation in R&I

Example: Reinforcing the presence of European R&I actors in selected countries

Centres/Networks of European research and innovation

- Connect and support European researchers and entrepreneurs
- Activities: Networking services; Advice and support; Advocacy towards partner country; Providing work space, infrastructure and secondment opportunities; Design and piloting of public/private funding mechanisms; Promotion, awareness raising and training
- Aim to finance, in the medium term, part of the activities through service contracts with private and public clients
- Open on equal terms to all EU MS/AC and their organisations
- Proposals addressing all or part of Brazil, China and the USA are strongly encouraged without excluding other countries with similar characteristics
- Max 1 project per country/region. Deadline for submissions: 14/04 2016
- Coordination and Support Action

Example: Service Facility

Service Facility in support of EU strategy for international cooperation in R&I

- Public Procurement. Framework Service Contract. Specific Contracts.
- Support the policy development, priority setting, follow-up and implementation
- Services: awareness raising and training; support to National Contact Points and other multipliers; organisation of meetings and events; analysis and monitoring
- Requests for services will be based on needs expressed by the Commission, MS/AC, and other stakeholders
- Services will support the EU strategy for international cooperation in research and innovation, have a genuine EU dimension including in terms of critical mass, provide added value to the target audience, and deliver results in an economical, effective and professional way
- Several specific contracts starting from the second quarter of 2016

International cooperation in WP 2016-17



Number and combined budget of **specifically targeted international cooperation topics** increased by more than 20%



Number of **joint, coordinated or twinning calls** with international partner countries increased by 20%



Higher number of topics contributing to **global multilateral initiatives**

(compared with WP 2014-15)



For further information

- **Participant Portal**

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

- **Helpdesk**

<http://ec.europa.eu/research/enquiries>

- **Expert evaluators needed!**

<http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html>

- **Learn more about Horizon 2020**

<http://ec.europa.eu/horizon2020>