Outline

1. **EU & Horizon2020**

2. **EU-Korea S&T Cooperation Framework**

3. **Work Programme 2018-2020**

4. **Vehicles for Cooperation**

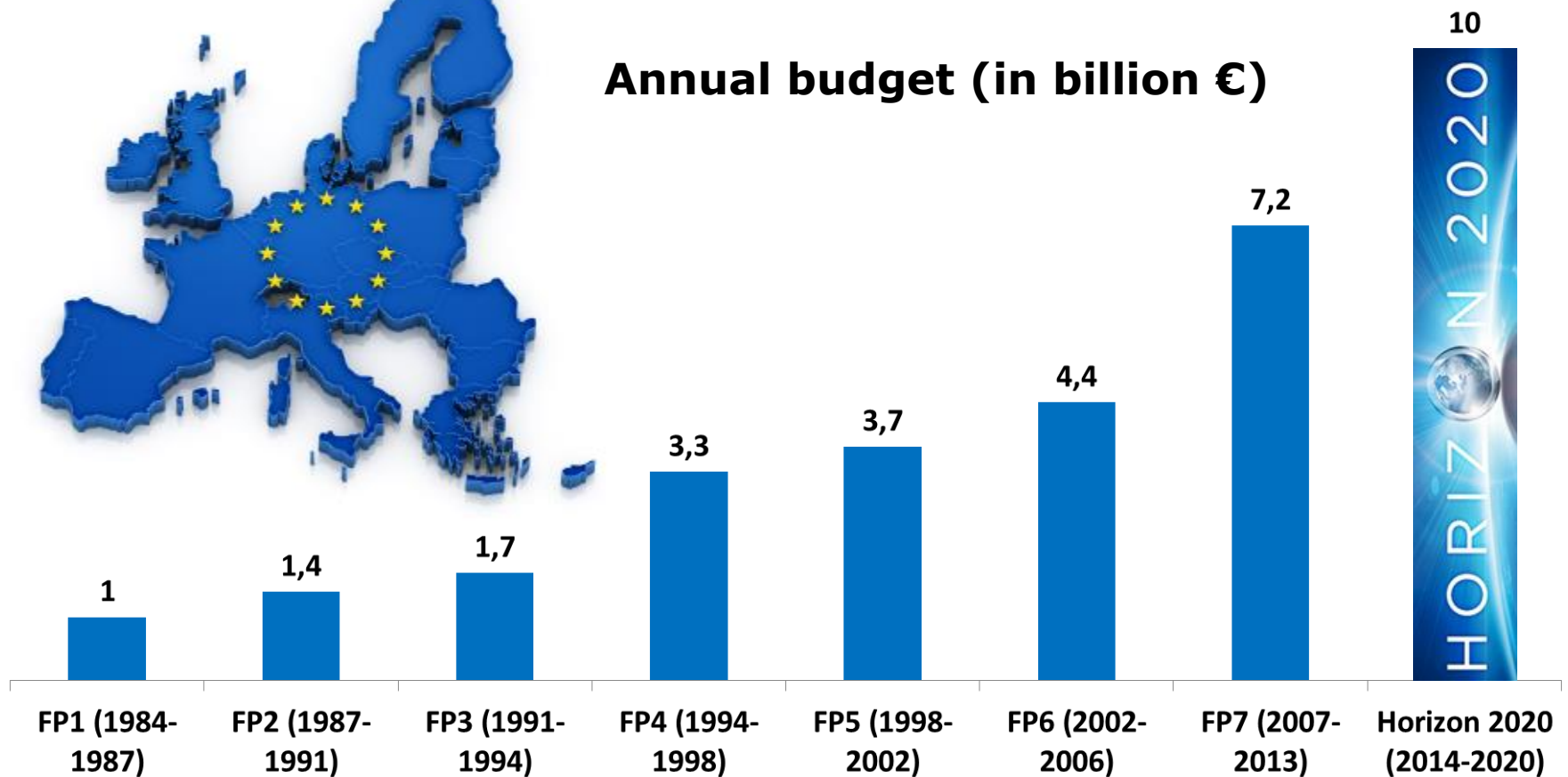5. **Horizon Europe 2021-2027**

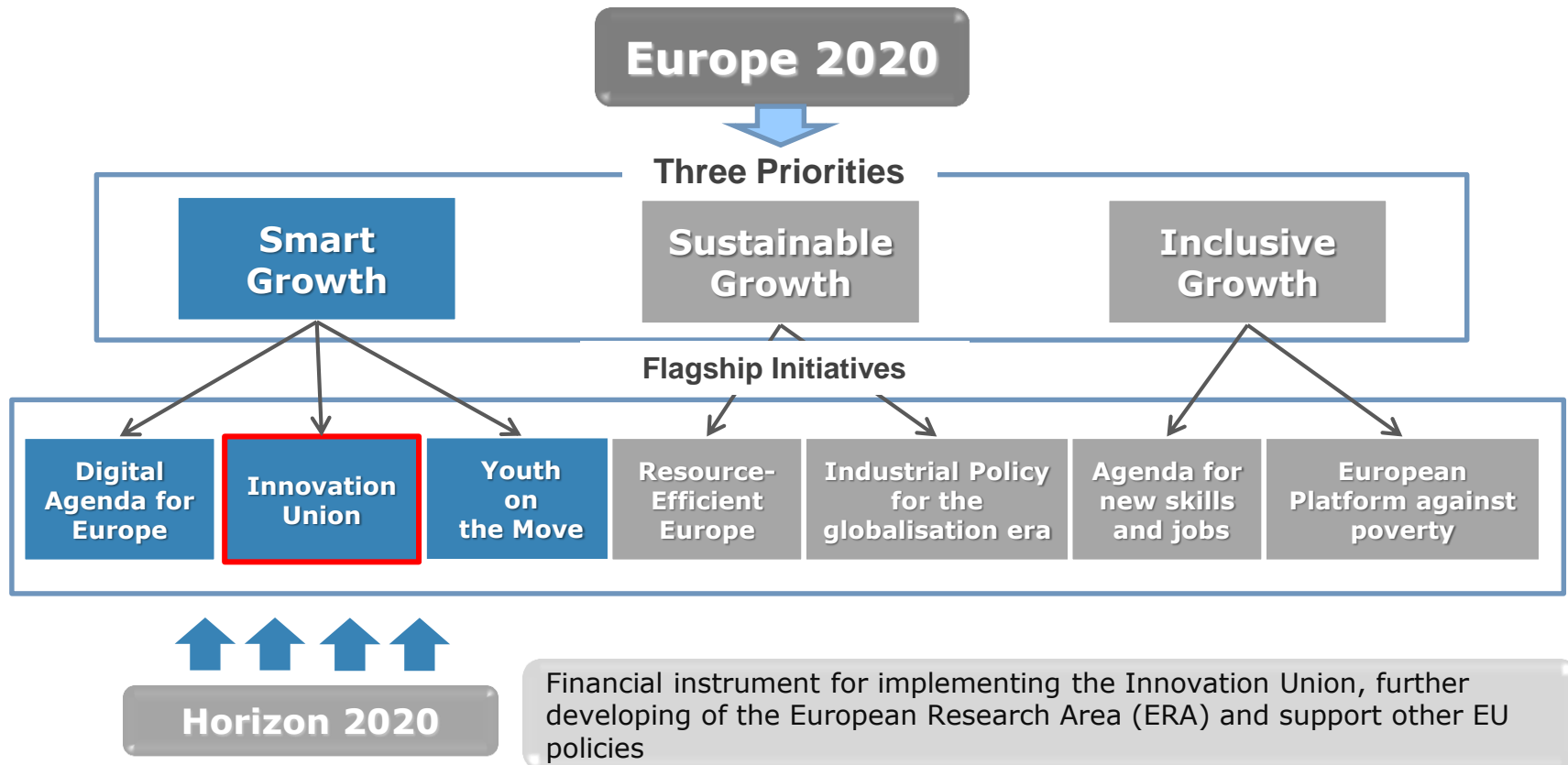# 1. EU & Horizon2020

European
Commission

European Union

- **Member States**: 28 countries
- **Type**: Politico-economic union
- **Population**: 500 million (7.3% of the world population)
- **Common Currency**: Euro (19 countries)
- **Operation system**: supranational institutions and intergovernmental-negotiated decisions by the member states
- **Leaders**: President of the European Commission, Mr Jean-Claude Juncker

  President of the European Council, Mr Donald Tusk

  President of the European Parliament, Mr Antonio Tajani
- **Legislature**: Council and the EU Parliament
- **GDP/Per capita**(2017): $17.1 trillion /$36,700
- **Diplomatic Mission** throughout the world: United Nations, the WTO, the G8, and the G-20

Research and
Innovation

European Commission

Research and innovation is a growing priority for the EU

Annual budget (in billion €)

Framework Programme	Annual budget (billion €)
FP1 (1984-1987)	1
FP2 (1987-1991)	1,4
FP3 (1991-1994)	1,7
FP4 (1994-1998)	3,3
FP5 (1998-2002)	3,7
FP6 (2002-2006)	4,4
FP7 (2007-2013)	7,2
Horizon 2020 (2014-2020)	10

Research and Innovation

Europe 2020

```
                        ┌─────────────────────┐
                        │     Europe 2020     │
                        └─────────────────────┘
                                  ▼
                           Three Priorities
```

Smart Growth	Sustainable Growth	Inclusive Growth

Flagship Initiatives

Digital Agenda for Europe	Innovation Union	Youth on the Move	Resource-Efficient Europe	Industrial Policy for the globalisation era	Agenda for new skills and jobs	European Platform against poverty

Horizon 2020

Financial instrument for implementing the Innovation Union, further developing of the European Research Area (ERA) and support other EU policies

See http://ec.europa.eu/europe2020/index_en.htm

Research and Innovation

European
Commission

policy priorities set by European Commissioner Moedas

Open Innovation, Open Science and Open to the World

Open Science	Open Innovation	Open to the World
✓ Open Access ✓ Open Data and European Open Science Cloud ✓ Research Integrity ✓ Inclusiveness & Citizen Science	✓ European Innovation Council ✓ Venture capital funds of funds ✓ Pro innovation Regulatory Environment ✓ Boosting Private Investment ✓ Maximizing Impact of EU funding	✓ Leading & working with multilateral initiatives & international organisations ✓ Better framework conditions for research and innovation cooperation ✓ Science diplomacy and synergies with the EU's external policies

Research and
Innovation

Priorities of current EU Commission

Jobs, Growth and Investment

Digital Single Market

Energy Union and Climate

Internal Market
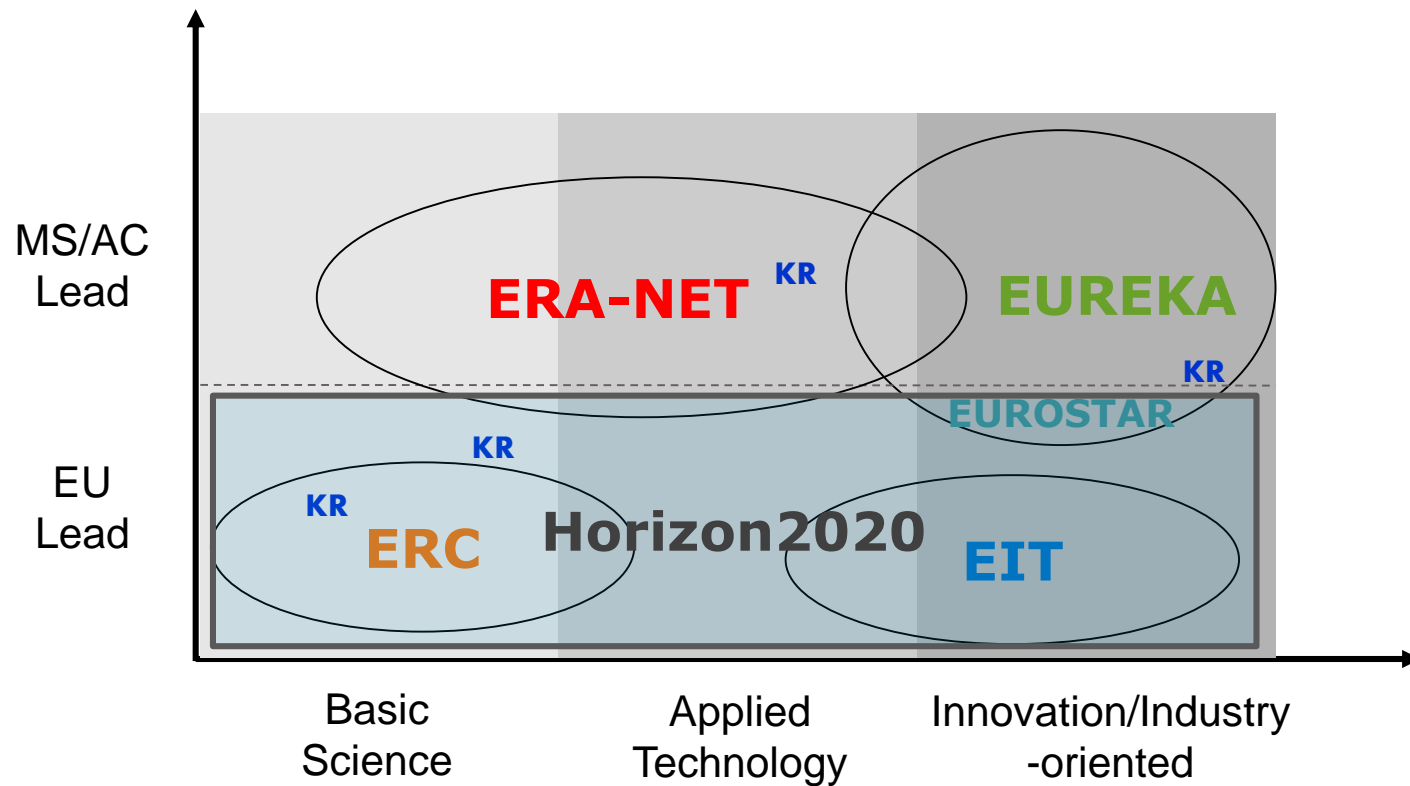
Economic and Monetary Union

EU-US Free Trade

Justice and Fundamental Rights

Migration

EU as a Global Actor

Democratic Change

Research and Innovation

European
Commission

Major Programmes led by EU or MS/AC

MS/AC
Lead

EU
Lead

ERA-NET **KR**

EUREKA

KR

EUROSTAR

KR

KR

ERC **Horizon2020** **EIT**

Basic
Science

Applied
Technology

Innovation/Industry
-oriented

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*Research and
Innovation*

European
Commission

What is Horizon 2020?

✓ The biggest Research- and Innovation-funding programme ever:
  nearly **€ 77 billion** / **7 years** (2014-20)

  • The only part of the EU budget to increase (30% more than 2007-13)

✓ The most **open programme** in the World!

  • International cooperation at its core

✓ **'From lab to market'**

  • Basic and applied research, technology development and integration, testing
    and validation, demonstration and piloting
  • Innovation-driven Public-Private Partnerships
  • SME measures: collaborative projects, new SME instrument, Eurostars etc.
  • Access to finance: debt and equity instruments

✓ **'Challenge-based'** ≠ 'discipline-based'

✓ **Simple**: faster, less red tape

Research and
Innovation

Three Main Priorities

€24 billion

- European Research Council (€13,095mil)
- Future and Emerging Technologies (€2,696mil)
- Marie Skłodowska-Curie actions (€6,162mil)
- Research infrastructures (€2,488mil)

- Leadership in enabling and industrial technologies (€13,577mil)
- Access to risk finance (€2,842mil)
- Innovation in SMEs (€616mil + complemented by 20% of budget of 'Societal challenges' and 'Access to risk finance' with strong SME focus
- European Institute of Innovation and Technology (EIT)
- Joint Research Centre (JRC)

€17 billion

Excellent Science

Industrial Leadership

Societal Challenges

€29 billion

- Health, demographic change and wellbeing (€7,472mil)
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy (€3,851mil)
- Secure, clean and efficient energy (€5,931mil)
- Smart, green and integrated transport (€6,339mil)
- Climate action, environment, resource efficiency and raw material (€3,081mil)
- Inclusive, innovative and reflective societies (€1,310mil)
- Secure societies (€1,695mil)
- Science with and for society (€462mil)
- Spreading excellence and widening participation (€816mil)

Research and Innovation

European Commission

But Not Only About Money!

- ✓ **Value of EU programmes much more than cash value!**

- ✓ **Deep relationships, collaboration – goes on even after the grant period!**

- ✓ **Working with the best brains – in the EU and internationally**

- ✓ **EU-based international companies (including Korean) have understood!**

- ✓ **Key role for industry – Public Private Partnerships**

Research and Innovation

European
Commission

Keeping it Simple!

✓ **Simplified Structure and Funding Rules**

- Architecture: Integration of FP7, CIP, EIT in one single programme
- Fewer legal acts: before 12 legal acts, now one!
- Coherent set of rules applicable to all actions
- Common toolkit of funding schemes

✓ **Simplified Control and Risk Strategies**

- Extension of the guarantee fund to all actions under H2020
- Reduction of ex-ante checks
- Ex-post audit strategy: reduced audit burden; focus on risk-based audits and fraud detection; expectation: max. 7% audited

✓ **Simplified implementation**

- Single IT platform for all EU research and innovation funding
- All electronic /No paper! **All in Participant Portal!**
- Overhaul of practical processes and requirements for proposal submission, negotiation, reporting etc. Simplified guidance documents, support services

Research and Innovation

European
Commission

General Opening

Fully open to participation from across the world!!

✓ **Automatically eligible for funding**
- Member States, Associated Countries, int'l European interest org.
- Exhaustive list of 'developing countries' identified in annex to the work programme

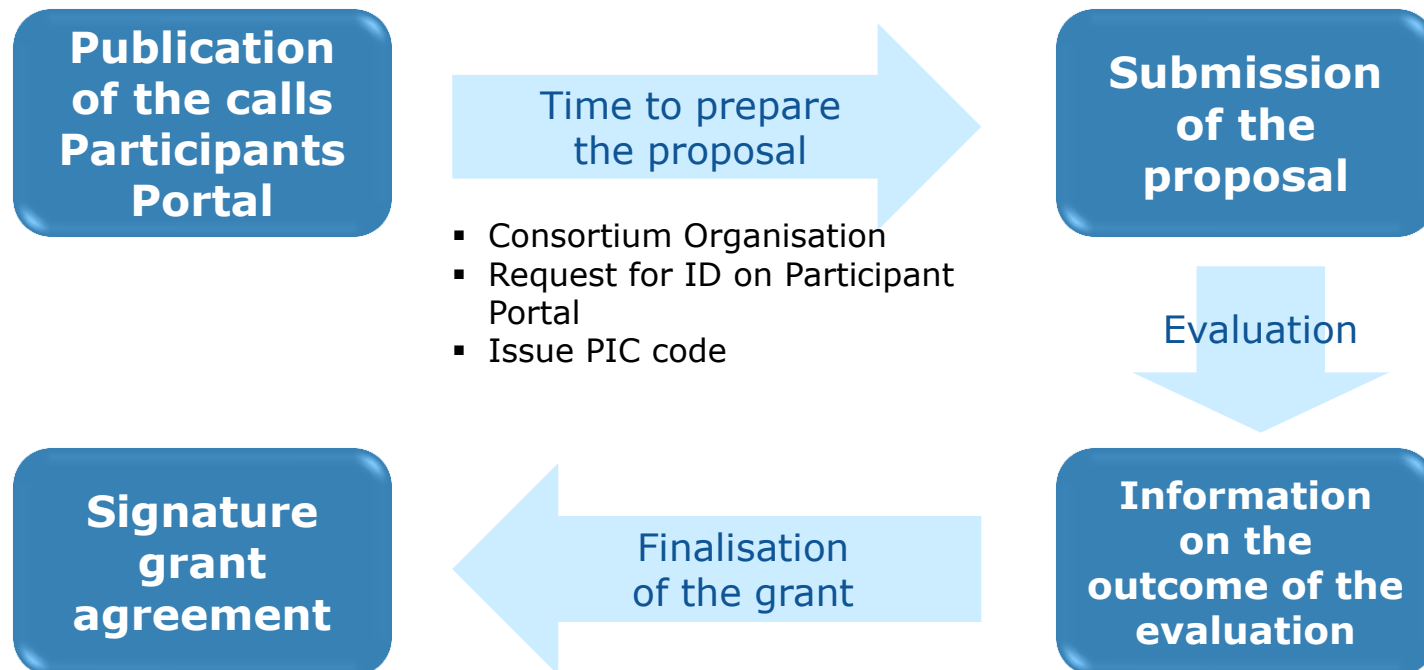✓ **Not automatically eligible for funding**
- 'Industrialised countries and emerging economies' – including Korea, BRIC-M, US etc.

  * Matching funds provided by Korean government to Korean participants

✓ **but may be granted funding when:**
- Provision is made in the work programme; or
- Provision in bilateral S&T agreement; or
- The Commission deems participation essential for carrying out the action (project case-by-case assessment)

Research and Innovation

European Commission

The Process: from Call to Grant Agreement

Publication of the calls Participants Portal

Time to prepare the proposal

- Consortium Organisation
- Request for ID on Participant Portal
- Issue PIC code

Submission of the proposal

Evaluation

Information on the outcome of the evaluation

Finalisation of the grant

Signature grant agreement

http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html

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Research and Innovation

European Commission

Evaluation of Proposals

STANDARD AWARD CRITERIA

EXCELLENCE	IMPACT	QUALITY & EFFICIENCY OF THE ACTION

- Relative evaluation : Top projects within budget
- Score of each criteria : 0-5
- Threshold per criteria : 3
- Maximum Total Score: 15
- Threshold for total score : 10

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Research and Innovation

The Process for matching fund by KR

EU

Opening Calls
(year-round)

Preparation &
Submission
(Researchers)

Evaluation &
Selection
(EC)

Contracting
Grant
Agreement
(EC↔Researchers)

Pre-
Announcement
for Opening a
Call

Opening a Call
(NRF: Once a year
KIAT: Year-around)

Evaluation &
Selection
(NRF/KIAT)

Contracting GA &
Management
(KR↔Researchers)

Korea

Research and
Innovation

2. EU-Korea S&T Cooperation Framework

European Commission
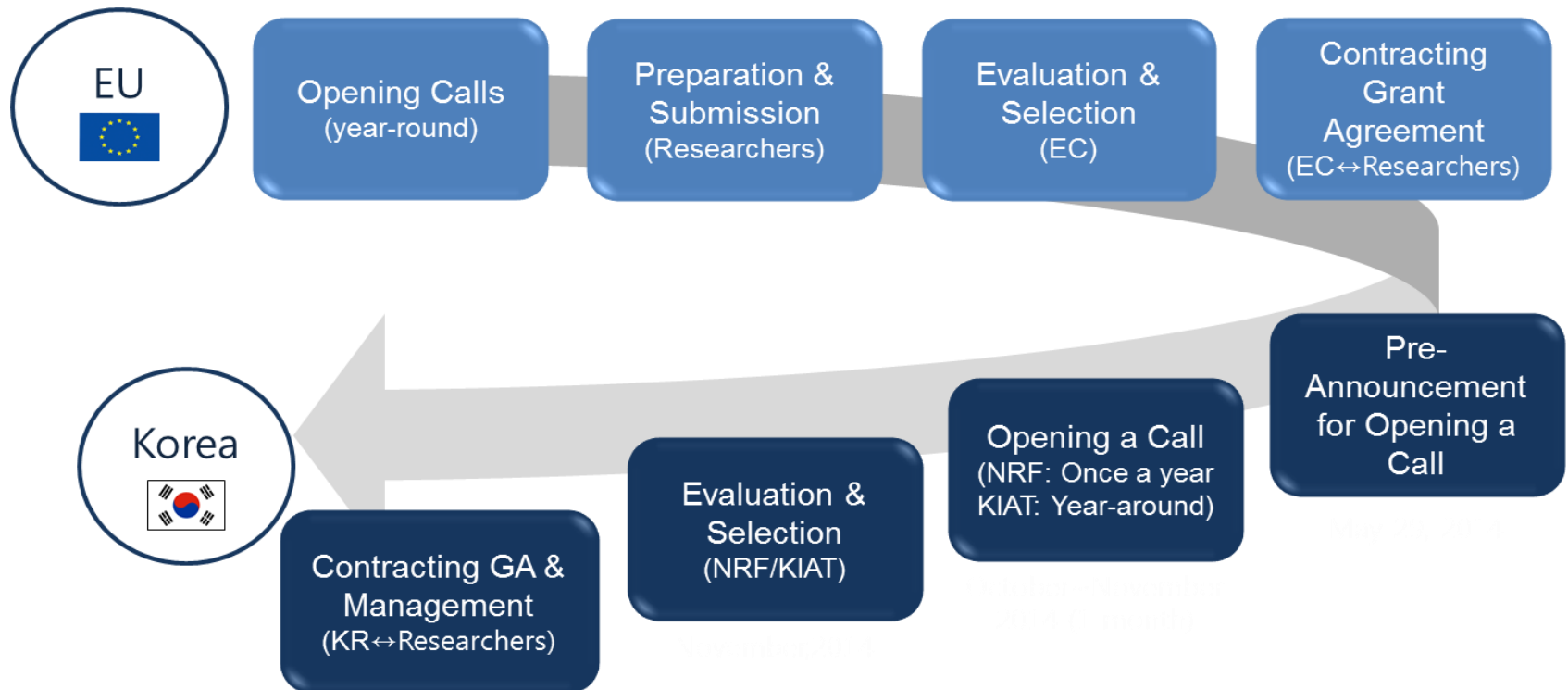
"South Korea
– A Strategic Partner of the EU"

- ✓ **Framework Agreement (2010)**
- ✓ Free Trade Agreement (2011)
- ✓ Crisis Management Agreement (2014)

- ✓ **Agreement for Scientific and Technological Cooperation (2007)**
- ✓ ITER Int'l Agreement + fusion energy + fission research (2006)
- ✓ ERC Implementing Arrangement (2013)
- ✓ Joint Declaration in ICT and 5G (2014)
- ✓ Agreement on a Civil Global Navigation Satellite System (2016)

- ✓ **EU-Korea Joint S&T Cooperation Committee**
  : meeting every two years (2007, 2009, 2011, 2013, 2015, 2017…)

Research and Innovation

EU-Korea Joint S&T Cooperation Committee Brussels, 20 September, 2017

At the meeting both sides reaffirmed commitments to deepen, scale up and open new opportunities for cooperation in strategic areas of mutual benefits. EU-Republic of Korea cooperation will be strongly encouraged on an extended range of topics such as 5G technologies and systems, nanoelectronics, nanosafety, clean energy innovation, automated driving systems, disaster-resilient societies and polar research.

source: http://ec.europa.eu/research/iscp/index.cfm?pg=korea

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Research and
Innovation

Framework conditions
for EU-Korea R&I cooperation

✓ **Commitments to programmatic cooperation**

- Joint, coordinated and twinning calls
- Cooperation through global multilateral initiatives : Health/Bio

✓ **Co-funding mechanism**

- South Korean Ministries offer co-funding for South Korean participants in Horizon 2020 projects
- Covers all thematic areas of Horizon 2020

✓ **Mobility of researchers**

- Implementing Arrangement for South Korean researchers to join the teams of European Research Council Principal Investigators
- Continued promotion of Marie Skłodowska-Curie Actions

Research and Innovation

Framework conditions
for EU-Korea R&I cooperation

✓ **Partnering and guidance**

- Organising R&I Days and other matchmaking events
- Horizon 2020 National Contact Points
- Booklet with EU and Member States activities with Korea

✓ **Institutional-level cooperation**

- Korea Atomic Energy Research Institute (KAERI) – JRC neutron laboratory
- Korea Research Institute of Standards and Science (KRISS) – JRC in nanosafety
- Korean Construction Engineering Development Collaboratory Management Institute (KOCED) – JRC in resilience and protection of civil engineering structures and critical infrastructures against natural hazards and extreme events

✓ **Creating a level playing field**

- Legal and administrative issues
- Monitoring cooperation intensity

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Research and Innovation

European Commission

Priority areas of future cooperation

✓ **ICT:** 5G technologies and systems, Internet of Things, Cloud computing, AI

✓ **Nanotechnology:** Nano safety, Nanoelectronics

✓ **Health and biomedical challenges:** Glopid-R (infectious disease), IRDiRC (rare diseases) / JPIAMR (antimicrobial resistance),

✓ **Energy:** Carbon Capture Storage / Clean energy innovation

✓ **Satellite Navigation:** GNSS

✓ **Automated road transport**

✓ **Innovation for disaster-resilient societies**

✓ **Climate Action and cryosphere research**

Research and Innovation

3. Work Programme 2018-2020 - Targeting Korea

Korean Participation in Horizon2020 2014-2017

Korean Participation in Horizon2020 2014-2017

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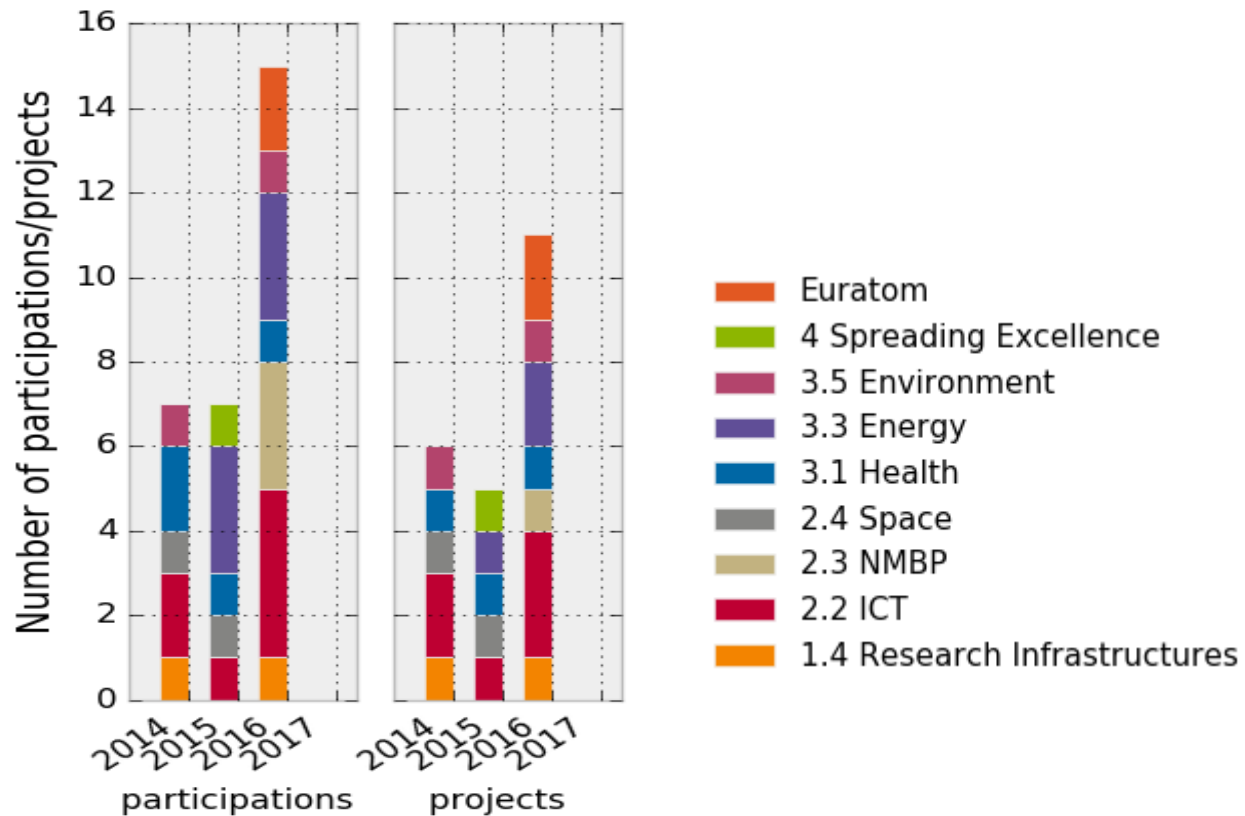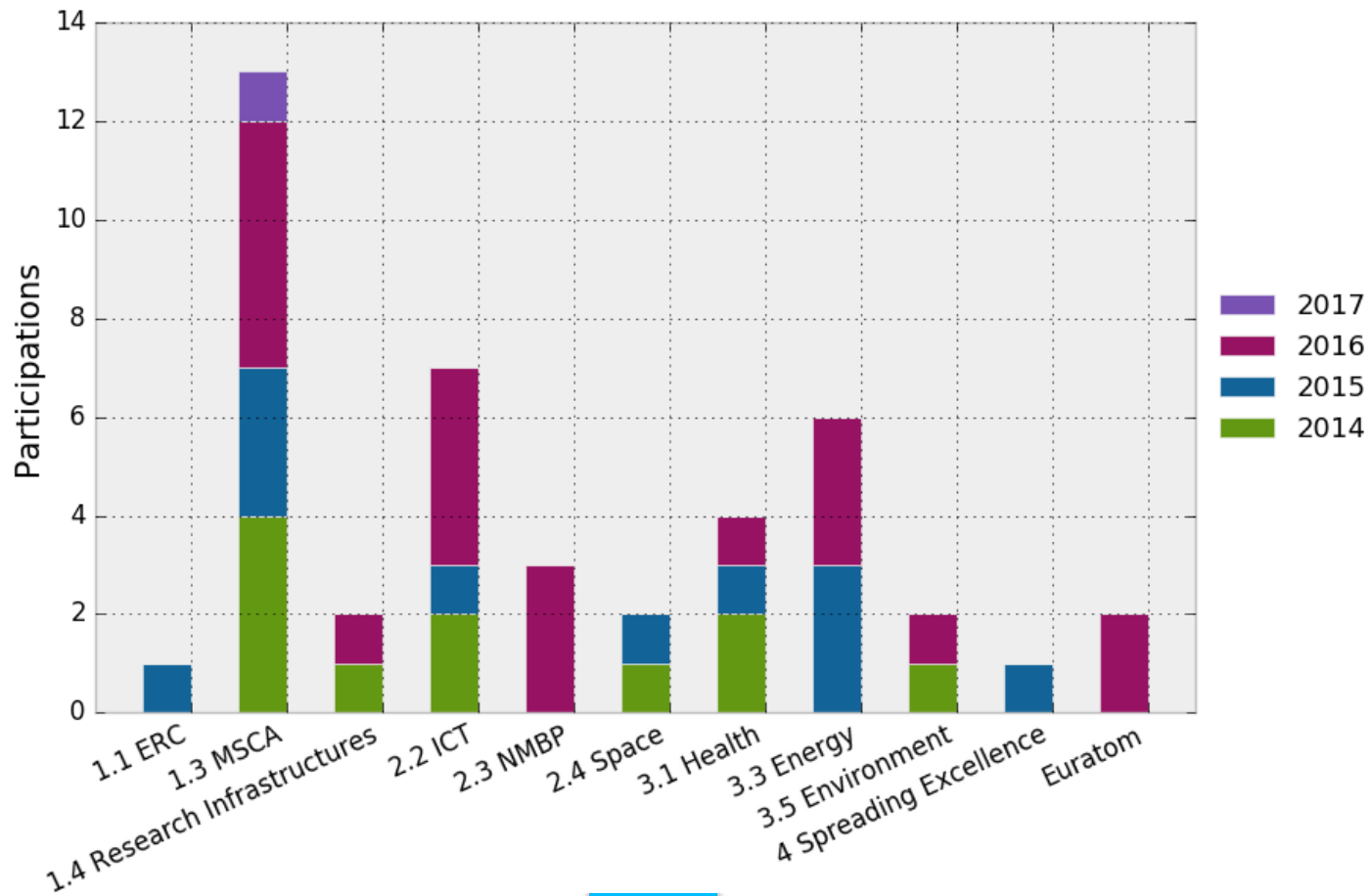
Open to the World

- ✓ **600+ topics open for international cooperation**

- ✓ **150+ topics targeting cooperation with specific (group of) countries**

- ✓ **Over €1 billion investment for around 30 international cooperation flagship initiatives:**

  - Climate action in support of the Paris Agreement
  - Clean energy in context of Mission Innovation
  - All Atlantic Ocean Research Alliance Flagship
  - wide range of bilateral cooperation initiatives
  - ….

- ✓ Strong international component in **European Research Council (ERC)** & **Marie Skłodowska-Curie actions (MSCA)**

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Research and Innovation

WP 2018-20 Major Call Deadlines

2018		2019					
Aug	Sep	Jan	Feb	Mar	Apr	Aug	Sep
Secure societies	**Climate**		**Climate** Cryosphere	**Space** GNSS, Int'l Cooperation, space weather		**Secure societies**	
		Nano, **Transportation**		**ICT** Unconventional Nanoelectonics	**Transportation**		**Transportation**
	Energy Clean- energy transition, Conversion of captured Co2					**Energy** Clean- energy transition, CCUS	

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Research and Innovation

European Commission

ICT

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018 (m€)	Indicative budget 2019 (m€)
EUK-02-2018	**5G**	KR	31/01/2018	4	0
EUK-01-2018	**Cloud, IoT and AI** technologies	KR	31/01/2018	2,2	0
ICT-06-2019	Unconventional **Nanoelectronics**	JP, KR, TW, US	28/03/2019	0	30

Research and Innovation

Nanotechnologies, Materials, Biotechnologies, and Production technologies

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018 (m€)	Indicative budget 2019 (m€)
NMBP-13-2018	**Risk Governance** of nanotechnology	US, KR, BR, CA, AU, CN, JP, ZA	23/01/2018	14	0
NMBP-14-2018	**Nanoinformatics**: from materials models to predictive toxicology and ecotoxicology	US, KR, BR, CA, AU, CN, JP, ZA	23/01/2018	14	0
NMBP-15-2019	**Safe by design**, from science to regulation: metrics and main sectors	US, KR, BR, CA, AU, CN, JP, ZA	22/01/2019	0	24

Research and Innovation

Space

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018 (m€)	Indicative budget 2019 (m€)
SPACE-E**GNSS**-4-2019	**Awareness Raising and capacity building**	All	5/03/2019	0	2
DT-SPACE-06-EO-2019	**International Cooperation Copernicus – Designing EO downstream applications with international partners**	Partners with Copernicus cooperation arrangement	12/03/2019	0	5
SU-SPACE-22-SEC-2019	**Space weather**	All	12/03/2019	0	9

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Research and Innovation

European Commission

Health

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018 (m€)	Indicative budget 2019 (m€)
SC1-HCC-03-2018	**Support to further development of international cooperation in digital transformation of health and care**	US, CA, CN, JP, KR	24/04/2018	2	0

+ Topics contributing to Global Health Multilateral Initiatives

Research and Innovation

Energy

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018 (m€)	Indicative budget 2019 (m€)
LC-SC3-RES-4-2018	**Renewable energy system** integrated at the building scale	Mission Innovation countries	31/01/2018	27	0
LC-SC3-RES-5-2018	**Increased performance of technologies for local heating and cooling solutions**	Mission Innovation countries	13/02/2018	10	0
LC-SC3-RES-25-2020	Development of next generation **biofuel and alternative renewable fuel** technologies from CO2 and renewable energy (Power and Energy to Fuels)	Mission Innovation countries	To be decided	To be decided	To be decided
LC-SC3-CC-1-2018-2019-2020	Social Sciences and Humanities (SSH) aspects of the **Clean-Energy Transition**	Mission Innovation countries	2 steps: 6/9/2018; 27/8/2019	10	10
CE-SC3-NZE-2-2018	**Conversion of captured CO2**	Mission Innovation countries	06/09/2018	12	0
LC-SC3-NZE-5-2019-2020	**Low carbon industrial production using CCUS**	Mission Innovation countries	27/08/2019	0	33
LC-SC3-ES-3-2018-2020	Integrated local energy systems (**energy islands**)	All	05/04/2018	32	0

Innovation

Transport

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018 (m€)	Indicative budget 2019 (m€)
DT-ART-01-2018	**Testing, validation and certification procedures for highly automated driving functions under various traffic scenarios based on pilot test data**	US, JP, KR, SG, AU	4/04/2018	6	0
DT-ART-02-2018	**Support for networking activities and impact assessment for road automation**	US, JP, KR, SG, AU	4/04/2018	9	0
DT-ART-03-2019	**Human centred design for the new driver role in highly automated vehicles**	US, JP, KR, SG, AU	24/04/2019	0	8
DT-ART-04-2019	**Developing and testing shared, connected and cooperative automated vehicle fleets in urban areas for the mobility of all**	US, JP, KR, SG, AU	24/04/2019	0	30
LC-MG-1-10-2019	**Logistics solutions that deal with requirements of the 'on demand economy' and for shared-connected and low-emission logistics operations**	All	2 steps: 16/01/2019 12/09/2019	0	10

Climate Action

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018(m€)	Indicative budget 2019(m€)
LC-CLA-07-2019	**The changing cryosphere: uncertainties, risks and opportunities**	US, CA, CN, JP, RU, KR, NZ, IN, SG	19/02/ 2019	0	39
LC-CLA-08-2018	**Addressing knowledge gaps in climate science, in support of IPCC reports**	All	2 steps: 27/02/ 2018 04/09/ 2018	60	0

Secure Societies

Topic Code	Topic Title	Targeted countries	Deadline	Indicative budget 2018(m€)	Indicative budget 2019(m€)
SU-DRS02-2018-2019-2020	**Technologies for first responders**	JP, KR	2 steps: 23/8/ 2018; 22/8/ 2019	28	21

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European
Commission

European Research Council

erc

European Research Council

✓ **For excellent researchers wishing to conduct their ground breaking research in Europe**

✓ **Investigator-driven, no thematic priorities, bottom-up approach**

✓ **1 Principal Investigator and team; 1 Host institution in Europe; 1 Selection criterion: Excellence**

✓ **At least 50% research to be done in Europe; Project duration: Up to 5 years**

Korean researchers can apply to join ERC teams !!

✓ **So far, more than 1500 ERC principal investigators have expressed interest in temporarily hosting a Korean researcher in their team**

✓ **So far, more than 100 Korean researchers on short term visits**

Research and Innovation

Marie Skłodowska-Curie actions

✓ **Individual Fellowships (IF):**

- Supporting experienced international researchers to do research in Europe for 12-24 months
- Host institutions: from academia or industry

✓ **Innovative Training Networks (ITN):**

- Networks of organisations offering research and training to early-stage researchers

✓ **Research and Innovation Staff Exchange (RISE):**

- **International and inter-sectoral cooperation**

European Commission

More Information:

- ✓ **Participant Portal**
  http://ec.europa.eu/research/participants/portal/

- ✓ **Horizon 2020 National Contact Points**
  http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html

- ✓ **Research Enquiry Service**
  http://ec.europa.eu/research/index.cfm?pg=enquiries

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Research and Innovation
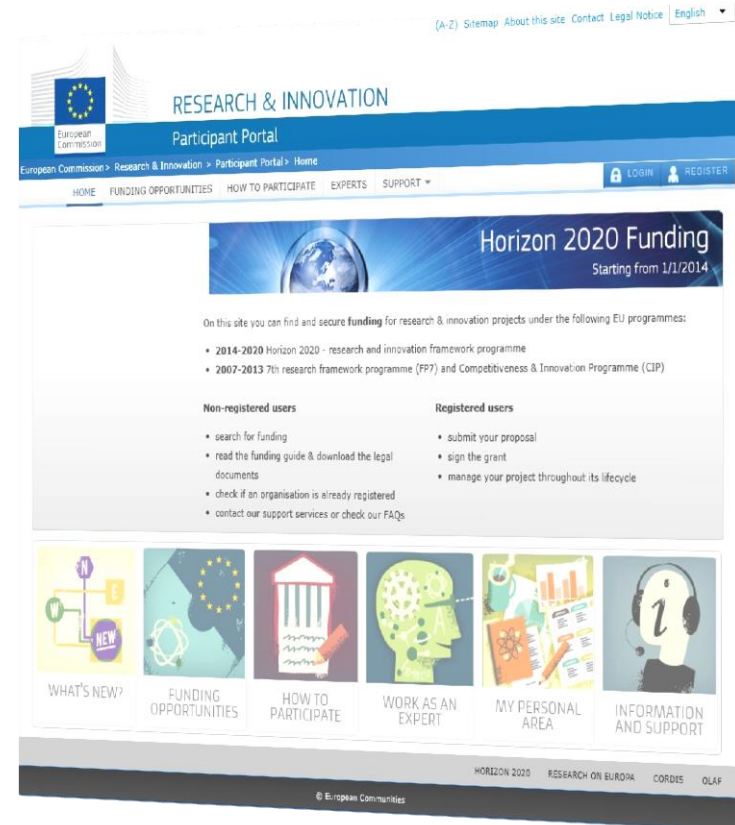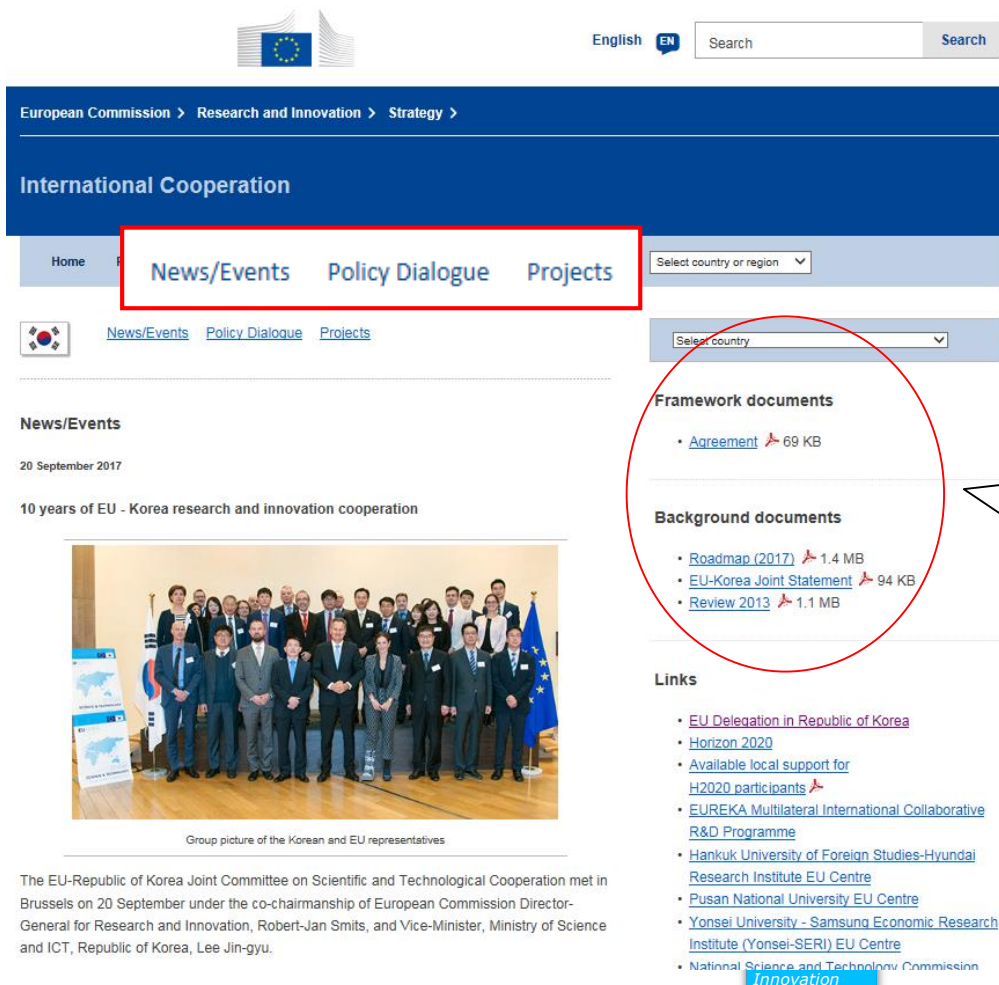
4. Vehicles for Cooperation

European Commission

EU-Korea Researh & Innovation Day

- ✓ **Date**   Wednesday, 12 September, 2018
- ✓ **Venue**   Lotte Hotel Seoul (TBD)
- ✓ **Organisor**   EU Delegation to Korea, NRF
- ✓ **Sponsor**   European Commission, Ministry of Science, ICT and Technology
- ✓ **Programme**   [Morning Session] **EU and Member States' STI Policies**

[Afternoon1] **Key programmes of the EU**

[Afternoon2] **NCP workshop in 6 areas**

**ICT, Nanotechnology, Energy, Health, Transport
EUREKA/EUROSTAR2 programme for SMEs**

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Research and Innovation

Websites : EU International R&I Cooperation

http://ec.europa.eu/research/iscp/index.cfm?pg=korea

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Websites : EU International R&I Cooperation

www.haneurope.com

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National Contact Point (NCP)

✓ Korean NCPs

Area	NCP	
	EU Office	Korea
National Coordinator	You Sik KIM (MSIT)	Seok Ho KIM (NRF)
MSCA (Mobility)	-	Seung Mi HAN (NRF)
ICT	Oh Cheon KWON (KERC/ETRI)	-
Secure, clean and efficient energy	-	Ho-Jeong RYU (KIER)
Climate / Resource / Raw Material	Sang-Won RA (KERC/NRF)	Ho-Jeong RYU (KIER)
Health, Bio, Food Security	-	Kwang-Hee BAE (KRIBB)
Nanotechnology	-	Jae Yong SONG (KRISS)
Small and Medium Enterprises	Cheonkyo PARK (KIAT)	-
European Research Council	-	Man Sok PARK (MSIT) / Hyong Ha KIM (KRISS)
Future Emerging Technology	Jongwoon HWANG (KIST-Europe)	Jung Wook KIM (KIAT)
Space	-	Eun-jung LEE (KARI)

✓ European NCPs :
http://ec.europa.eu/research/participants/portal/desktop/en/support/national_contact_points.html

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Other Sources of Guidance and Information

In Korea

Delegation of the European Union to the Republic of Korea

https://eeas.europa.eu/delegations/south-korea_en

In Belgium

Korea Research & Innovation Centre in Europe
www.k-erc.eu

KIAT Europe Office
http://kiat.or.kr

✓ **Horizon 2020 Participant Portal**
http://ec.europa.eu/research/participants/portal/desktop/en/home.html
http://ec.europa.eu/research/participants/portal/desktop/en/funding/index.html

✓ **Partner Search**
https://cordis.europa.eu/partners/web/guest/home

Research and Innovation

5. Horizon Europe 2021-2027

Horizon Europe

is the Commission proposal for a **€ 100 billion** research and innovation funding programme for seven years (2021-2027)

to strengthen the EU's scientific and technological bases

to boost Europe's innovation capacity, competitiveness and jobs

to deliver on citizens' priorities and sustain our socio-economic model and values

Additional **€ 4.1 billion** are proposed to be allocated for defence research, in a separate proposal for a European Defence Fund

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Research and Innovation

European
Commission

Horizon Europe

While benefiting from world–class research and strong industries…

Our knowledge and skills are our main resources.

- → **7%** of the world's population
- → **20%** of global R&D
- → **1/3** of all high-quality scientific publications
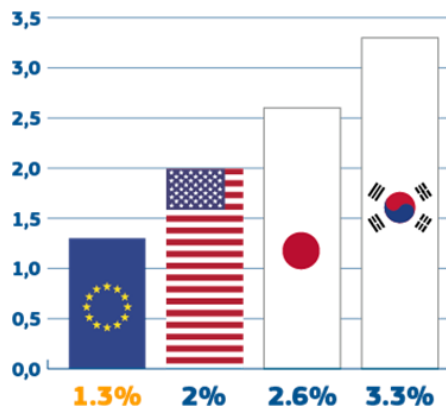
1.3%
EU business
R&D
investment

…Europe fails to transform leadership in science into leadership in innovation and entrepreneurship

Research and
Innovation

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European Commission

Horizon Europe: evolution not revolution

Specific objectives of the Programme

Support the creation and diffusion of high-quality knowledge	Strengthen the impact of R&I in supporting EU policies	Foster all forms of innovation and strengthen market deployment

Optimise the Programme's delivery for impact in a strengthened ERA

Pillar 1
Open Science

- European Research Council
- Marie Skłodowska-Curie Actions
- Research Infrastructures

Pillar 2
Global Challenges and Industrial Competitiveness

Clusters
- Health
- Inclusive and Secure Society
- Digital and Industry
- Climate, Energy and Mobility
- Food and natural resources

Joint Research Centre

Pillar 3
Open Innovation

- European Innovation Council
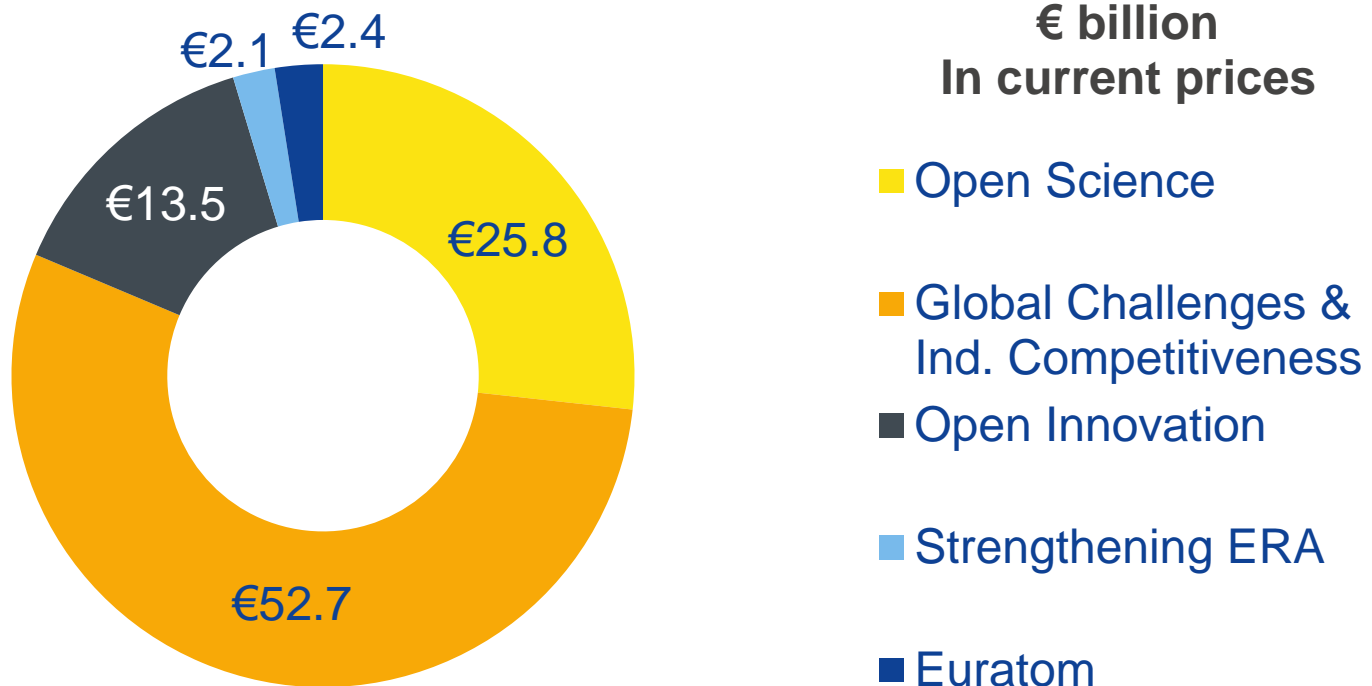- European innovation ecosystems
- European Institute of Innovation and Technology

Strengthening the European Research Area

Sharing excellence	Reforming and Enhancing the European R&I system

Research and Innovation

Budget: €100 billion* (2021-2027)

**€ billion
In current prices**

■ Open Science

■ Global Challenges & Ind. Competitiveness

■ Open Innovation

■ Strengthening ERA

■ Euratom

* This envelope includes EUR 3.5 billion allocated under the InvestEU Fund.

Research and Innovation

HORIZON 2020

Thank you
for your attention!

Find out more:
www.ec.europa.eu/horizon2020

HORIZON 2020