



#InvestEUresearch

# Horizon 2020 Work Programme for Research & Innovation 2018-2020

## Opportunities for participation for international partners in Horizon 2020

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Research and  
Innovation

# Module overview

1. Brief overview of Horizon 2020
2. The European Research Council
3. Future Emerging Technologies (FET)
4. Marie Skłodowska-Curie (MSCA)
5. Industrial Leadership
6. Societal Challenges
7. Spreading Excellence and Widening Participation
8. Science with and for Society

# 1. Brief overview of Horizon 2020



# Horizon 2020 – relevant areas for international participation

## Excellent Science

- **European Research Council**
  - Frontier research by the best individual teams
- **Future and Emerging Technologies**
  - Collaborative research to open new fields of innovation
- **Marie Skłodowska Curie actions**
  - Opportunities for training and career development
- **Research infrastructures (including e-infrastructure)**
  - Ensuring access to world-class facilities

## Industrial Technologies

- **Leadership in enabling and industrial technologies**
  - ICT, nanotechnologies, materials, biotechnology, manufacturing, space

## Societal Challenges

- **Health, demographic change and wellbeing**
- **Food security, sustainable agriculture, marine and maritime research & the bio-economy**
- **Secure, clean and efficient energy**
- **Smart, green and integrated transport**
- **Climate action, resource efficiency and raw materials**
- **Inclusive, innovative and reflective societies**
- **Secure societies**



## 2. The European Research Council



# The European Research Council



European Research Council

- For **excellent researchers** of any nationality wishing to conduct their groundbreaking research **in Europe** (EU Member State or Associated Country)
- No thematic priorities → **bottom-up approach**
- **Investigator-driven**

More than 600  
grants to non-  
EU/AC Principal  
Investigators  
since start of  
ERC



# The European Research Council



European Research Council

## ERC Main Principles

- **1 Principal Investigator (PI)** and team
- **1 Host institution** in an EU Member State or Associated Country to Horizon 2020
- 1 Selection criterion: EXCELLENCE
- Project duration: Up to 5 years
- Minimum 50% (StG), 40% (CoG), 30% (AdG, SyG) of **PI working time on ERC project**
- Minimum 50% of ERC PI working time in a EU Member State or Associated Country
- Possibility to move with the grant to any place in Europe if necessary



# Four ERC main funding lines



European Research Council

## Starting Grant (StG)

Early career top researchers, 2-7 years after PhD | up to €1.5 mio.

## Consolidator Grant (CoG)

Top researchers, 7-12 years after PhD | up to €2 mio.

## Advanced Grant (AdG)

Senior researchers with a significant ten-year-track record | up to €2.5 mio.

## Synergy Grant (SyG)

2-4 excellent researchers and their teams (researchers with complementary skills, knowledge and resources) project duration max. 6 years | up to a maximum of €10 mio.



# Additional Funding

- Start-Up costs for scientists moving to EU / Associated Countries
- Purchase of major equipment
- Access to large facilities
- ✓ Up to €500 000 for Starting
- ✓ Up to €750 000 for Consolidator
- ✓ Up to €1 Million for Advanced grantees



European Research Council

# Useful links and ERC promotional video

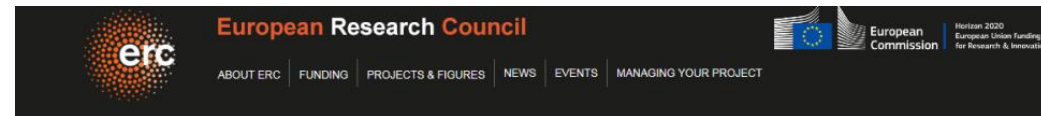
ERC:

<https://erc.europa.eu/>

ERC videos:

<https://vimeo.com/28818767>

<https://vimeo.com/31716309>



SUPPORTING TOP RESEARCHERS FROM ANYWHERE IN THE WORLD



## OPEN CALLS

**Proof of Concept** | [ERC-2018-PoC](#)

[Information for applicants](#)

[Instruction guide for using html5](#)

[Timeframe ongoing evaluations](#)

[FAQs](#)

Deadline: 18 Apr 2018 | 11 Sept 2018

The official deadlines are only those indicated on the [Participant Portal](#)

Excellent  
Science

# Indicative summary of main ERC calls from the 2018 budget

	<i>Starting Grant</i>	<i>Consolidator Grant</i>	<i>Advanced Grant</i>	<i>Synergy Grant</i>	<i>Proof of Concept Grant</i>
<i>Call identifier</i>	ERC-2019-StG	ERC-2019-CoG	ERC-2019-AdG	ERC-2019-SyG	ERC-2019-PoC
<i>Call Opens</i>	14/09/2018	24/10/2018	21/05/2019	14/09/2018	16/10/2018
<i>Call closes (cut-off dates for PoC)</i>	17/10/2018	07/02/2019	29/08/2019	08/11/2018	22/01/2019 25/04/2019 19/09/2019
<i>Budget million EUR (estimated number of grants)</i>	580 (390)	602 (314)	391 (166)	400 (48)	25 (167)
<i>Planned dates to inform applicants (after each step or cut-off date)</i>	22/05/2019 28/08/2019	23/07/2019 18/12/2019	31/01/2020 17/04/2020	12/04/2019 30/08/2019 31/10/2019	02/05/2019 25/07/2019 18/12/2019
<i>Indicative date for signature of grant agreements (by cut-off date for PoC)</i>	05/01/2020	26/04/2020	25/08/2020	09/03/2020	09/09/2019 02/12/2019 26/04/2020



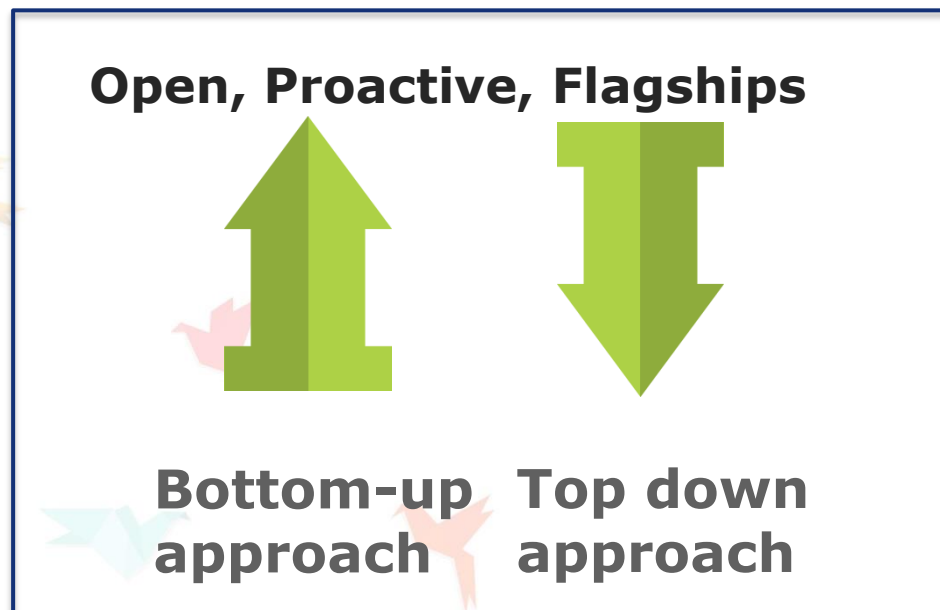
Source: ERCEA

# 3. Future Emerging Technologies (FET)



# Future Emerging Technologies (FET)

- Collaborative research for **radically new lines of technology**
- Supports **frontier research**: alternative ideas, concepts or paradigms of a risky or non-conventional nature (similar to ERC)



# FET Openings and deadlines under WP 2018-2020

Funding scheme	Publication	Budget	Deadline
FETOPEN1	07.11.2017	647,5 Mio. €	*
FETOPEN2	07.11.2017	2 Mio. €	11.04.2018
FETOPEN3	07.11.2017	8,2 Mio. €	**
FETPROACT1	31.10.2017	88 Mio. €	22.03.2018
FETPROACT2	31.10.2017	0,5 Mio. €	22.03.2018
FETPROACT3	05.06.2018	6 Mio. €	18.12.2018
FETHPC1****	01.02.2018	4 Mio. €	15.05.2018
FETHPC2****	07.05.2019	64 Mio. €	24.09.2019
FETFLAG1	31.10.2017	6 Mio. €	***
FETFLAG2	31.10.2017	10 Mio. €	17.04.2018
FETFLAG3	31.10.2017	130 Mio. €	20.01.2018

\* 16. May 18, 24. Jan. 19, 18. Sep. 19 and 13. May 20

\*\* 16. Okt. 18, 08. Okt. 19 and 14. Okt. 20

\*\*\* 20. Feb. 18 first stage and 18. Sept. 18 second stage

\*\*\*\* FET PROACTIVE – HIGH PERFORMANCE COMPUTING

# Useful links and FET Open promotional video

- FET Open:  
<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/fet-open>
- FET Proactive:  
<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/fet-proactive>
- FET Flagships:  
<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/fet-flagships>

- [FET Open video](#)



# 4. Marie Skłodowska-Curie actions (MSCA)





# What do Marie Skłodowska-Curie actions (MSCA) offer?

- Opportunities for training and career development
- **Mobility of researchers is mandatory**



## MSCA principles:

- Open to all career stages and nationalities
- Bottom-up approach
- International, inter-sectoral and interdisciplinary career and knowledge-exchange

# Four MSCA main funding lines – Part I

## **Individual Fellowships (IF):**

- Supporting experienced international researchers to do research in Europe for 12-36 months
- Host institutions: from academia or industry

## **Co-funding of regional, national and international programmes (COFUND):**

- COFUND provides funding for funders, stimulating regional, or international programmes
- At all stages of researchers' careers (ESR, ER)

## Four MSCA main funding lines – Part II

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

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

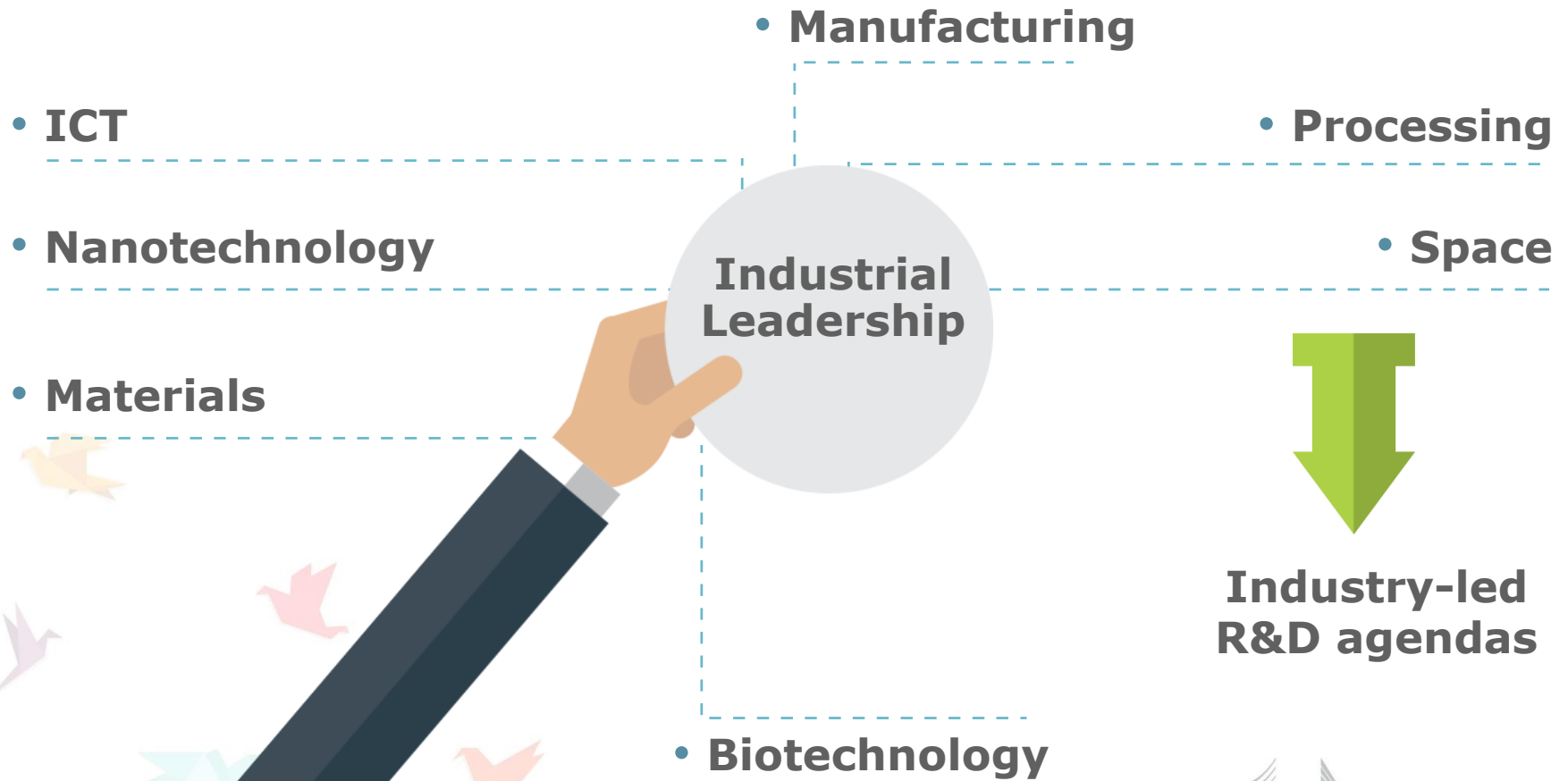
### **Research and Innovation Staff Exchange (RISE):**

- International and inter-sectoral cooperation
- Exchange of all types of staff (research, management, administrative and technical)

# 6. Industrial Leadership



# Leadership in enabling and industrial technologies (LEIT)



## Leadership in enabling and industrial technologies (LEIT)

Key Enabling Technologies (KETs), ICT and Space are areas of key industrial competences determining Europe's global competitiveness.

**KETs** currently cover different areas: Nanotechnologies, Advanced materials, Advanced manufacturing and processing as well as Biotechnology

**ICT-LEIT** has six main activities: A new generation of components and systems, Advanced Computing, Future Internet, Content technologies and information management, Robotics, Micro- and nano-electronic technologies, Photonics

The motto for EU **Space R&D for 2014 to 2020** is '*Prepare for the increasing role of space and reap the benefits of space now*'.

## Leadership in enabling and industrial technologies (LEIT)

The emphasis for Leadership in Enabling and Industrial Technologies (LEIT) actions will be on:

- Research and innovation to **strengthen Europe's industrial capacities and business perspectives**, including SMEs
- **Public-private partnerships** (PPPs)
- Cross-cutting **Key Enabling Technologies** (KETs)
- Seizing **ICT opportunities**
- Contributing to solving Societal Challenges and to Focus Areas
- Cross-cutting aspects, like international cooperation and responsible research and innovation.

# 7. Societal Challenges





# Societal Challenges

1. **Health**, demographic change and wellbeing
2. **Food** security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy
3. Secure, clean and efficient **energy**
4. Smart, green and integrated **transport**
5. **Climate** action, environment, resource efficiency and raw materials
6. Europe in a changing world: Inclusive, innovative and reflective **societies**
7. **Secure societies** – Protecting freedom and security of Europe and its citizens



**Top down  
approach**

# Societal Challenge 1 : Health, demographic change and wellbeing

**Budget: € 7,472 billion**

## **Main objectives:**

- Improve our **understanding** of the causes and mechanisms underlying health
- Improve our **ability to monitor health** and to prevent, detect, treat and manage disease
- Support **older persons** to remain active and healthy
- Test and demonstrate **new models and tools** for health and care delivery

# Societal Challenge 2 : Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the Bioeconomy

**Budget: € 3,851 billion**

## **Main objectives:**

- Population growth requires **a change in approach to production, consumption , processing, storage and recycling of waste**
- Environmental contamination responses
- Agriculture, forestry and industrial sectors of food and bio-based products play an important role in **rural development** and management of the natural heritage

# Societal Challenge 3 : Secure, clean and efficient energy

**Budget: € 5,931 billion**

## Main objectives:

- **Energy is the driving force** of the modern economy - maintaining our standard of living requires huge amounts of energy
- As the second largest economy in the world, Europe **depends** too much on the rest of the world in terms of energy
- The EU has set **ambitious climate and energy targets** to be achieved

# Societal Challenge 4 : Smart, green and integrated transport

**Budget: € 6,339 billion**

## **Main objectives:**

- **Transportation will boost** employment, economic development, welfare and global trade
- Growing **connections** between individuals and communities
- Reduction of societal **dependence on oil stocks**
- Reduction of traffic congestion and air pollution, road safety - influence on health and quality of life
- Creating a **sustainable transport system** adaptable to a modern, competitive Europe

# Societal Challenge 5 : Climate action, environment resource efficiency and raw materials

**Budget: € 3,081 billion**

## **Main objectives:**

- Securing **access to raw materials and clean water**
- Protection of **biodiversity** and ecosystems
- Investing in innovative solutions to support a "**green**" economy that is in harmony with the natural environment
- Tackling **climate change** as a multidisciplinary priority (35% of the total budget of the program)
- **Management** of water and waste

# Societal Challenge 6 : Europe in a changing world - Inclusive innovative and reflective societies

**Budget: € 1,309 billion**

## **Main objectives:**

- Reduce **inequalities**, promote social fairness and propose solutions for adapted governance structures
- Identify **untapped sources of growth** and support new forms of innovation (e.g. open innovation, innovation of business models, public sector innovation, social innovation) to meet social needs
- Support research and innovation in **European heritage**, identity, history and culture
- Strengthen EU's capacities for developing and improving its **external action and international cooperation**
- Main themes for 2018-2020: **migration**, transformations in the Industry 4.0 context, governance for the future

# Societal Challenge 7 : Secure societies – Protecting freedom and security of Europe and its citizens

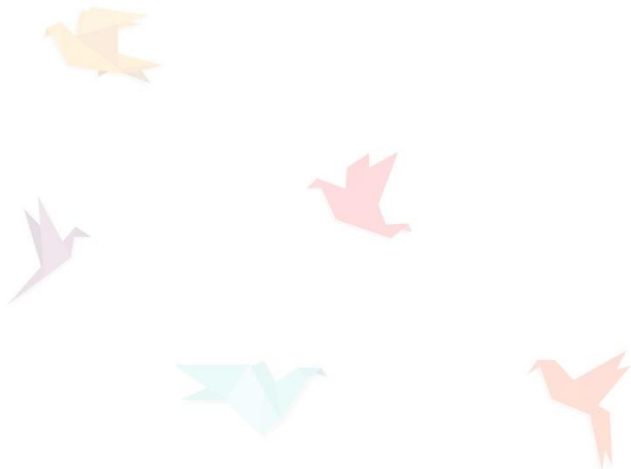
**Budget: € 1,695 billion**

## **Main objectives:**

- Maintaining **public security** through
  - combating crime and terrorism
  - protect communities from natural disasters
  - tackling illegal trafficking of people, drugs and counterfeit goods
- Development of **new technologies** for the protection of citizens
- **Respect for privacy** and compliance with fundamental rights



# 8. Spreading Excellence and Widening Participation



# Spreading Excellence and Widening Participation

**Budget: € 816,5 million**

## **Main objectives:**

- Enhancing economic growth and competitiveness in Low Research & Innovation (R&I) Performing Countries
- Facilitating access to networks and partnering opportunities
- Providing technical assistance and expertise
- Increasing efficiency of the national research and innovation systems

## **Several actions**

- Teaming, ERA-Chairs, Twinning, COST and more

**Funding for 3-7 years**

# 9. Science with and for Society



# Science with and for Society (SwafS)

**Budget: € 462 million**

- Integrates Horizon 2020 cross-cutting issues
- Emphasizes on **Responsible Research and Innovation** (RRI) including gender, and enhancing the attractiveness of the research profession

## **Main objectives:**

- Ensure **responsible science** and enable the development of policies more relevant to citizens
- Improve **science-literacy**, citizens' responsibility and access to scientific careers
- Further enhance **active participation** and focus on science, research and innovation

# Join Now!

#InvestEUresearch

[www.ec.europa.eu/research](http://www.ec.europa.eu/research)

Funding & Tender Portal

<http://ec.europa.eu/research/participants/portal/>

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