



#InvestEUresearch



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

## Opportunities for participation for international partners in Horizon 2020

Name:  
Function:

Research and  
Innovation



# Module overview

- 1. Brief overview of Horizon 2020 and Work Programme**
- 2. The European Research Council**
- 3. FET**
- 4. MSCA**
- 5. Infrastructures**
- 6. Industrial Leadership**
- 7. Societal Challenges**
- 8. Spreading Excellence and Widening Participation**
- 9. Science with and for Society**



# 1. Brief overview of Horizon 2020 and Work Programme



# 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
- **Access to risk finance**
  - Leveraging private finance and venture capital for research and innovation
- **Innovation in SMEs**
  - Fostering all forms of innovation in all types of SMEs

### 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**
- **Security society**



# How is funding allocated?

❖ Multiannual **work programmes** prepared by the EC

## Structure

➤ Introduction

➤ thematic sections: overall objectives, the respective calls for proposals, topics within each call

➤ general annexes describing general rules such as standard admissibility conditions and eligibility criteria, types of action, selection and award criteria, etc.

Each thematic section is self-contained, and describes the overall objectives, the respective calls for proposals, and the topics within each call.

# Work Programmes 2018-2020

## Main WPs:

- Future and Emerging Technologies (FETs) 2018-20
- Marie Skłodowska-Curie actions (MSCA) 2018-20
- Research infrastructures (including e-Infrastructures) 2018-20
- Leadership in enabling and industrial technologies (LEITs) 2018-20 (3 parts: ICT-nanotechnologies-Space)
- Access to risk finance 2018-20
- Innovation in SMEs 2018-20
- 7 Societal Challenges (health, food, energy, transport, climate, inclusive societies, secure societies)
- Spreading excellence and widening participation 2018-20
- Science with and for society 2018-20
- European Innovation Council (EIC) 2018-20
- ERC Work Programme 2018
- Euratom Work Programme 2018-20

## 2. The European Research Council





# What does the European Research Council (ERC) offer?



- For **excellent researchers** wishing to conduct their groundbreaking research **in Europe**
- No thematic priorities → bottom-up approach
- Investigator-driven
- **ERC Principles:**
  - 1 Principal Investigator and team
  - 1 Host institution in the EU/country associated to Horizon 2020
  - 1 Selection criterion: EXCELLENCE
  - At least 50% of the research has to be done in Europe
  - Project duration: Up to 5 years

More than 500  
grants to non-  
EU/AC  
Principal  
Investigators



# Four ERC main funding lines



European Research Council

## Starting Grant:

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

## Consolidator Grant:

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

## Advanced Grant:

Senior researchers with significant research achievements



€2.5 mio.

## Synergy Grant:

2-4 excellent researchers and their teams, researchers with complementary skills, knowledge and resources, project duration max. 6 years | €10 mio.



# Researchers can join running ERC projects as a team member



European Research Council

- Individual new researchers can apply to join existing ERC teams in Europe
- ERC principal investigators expressed interest in hosting researchers also from your country

- More information about Implementing Agreements can be found: <https://erc.europa.eu/funding/additional-opportunities>

# Useful links and ERC promotional video

Helpful links

ERC:

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

ERC videos:

<https://vimeo.com/28818767>

<https://vimeo.com/31716309>



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-2018-StG	ERC-2018-CoG	ERC-2018-AdG	ERC-2018-SyG	ERC-2018-PoC
<i>Call Opens</i>	03/08/2017	24/10/2017	17/05/2018	03/08/2017	06/09/2017
<i>Deadline or cut-off dates for PoC</i>	17/10/2017	15/02/2018	30/08/2018	14/11/2017	16/01/2018 18/04/2018 11/09/2018
<i>Budget million EUR (estimated number of grants)</i>	581 (391)	550 (287)	450 (194)	250 (30)	20 (130)
<i>Planned dates to inform applicants (after each step or cut-off date)</i>	14/05/2018 14/08/2018	06/07/2018 30/11/2018	29/01/2019 08/04/2019	23/04/2018 29/08/2018 19/10/2018	30/03/2018 21/07/2018 10/12/2018
<i>Indicative date for signature of grant agreements (by cut-off date for PoC)</i>	14/12/2018	30/03/2019	08/08/2019	19/02/2019	30/07/2018 21/10/2018 10/04/2019



Source: ERCEA

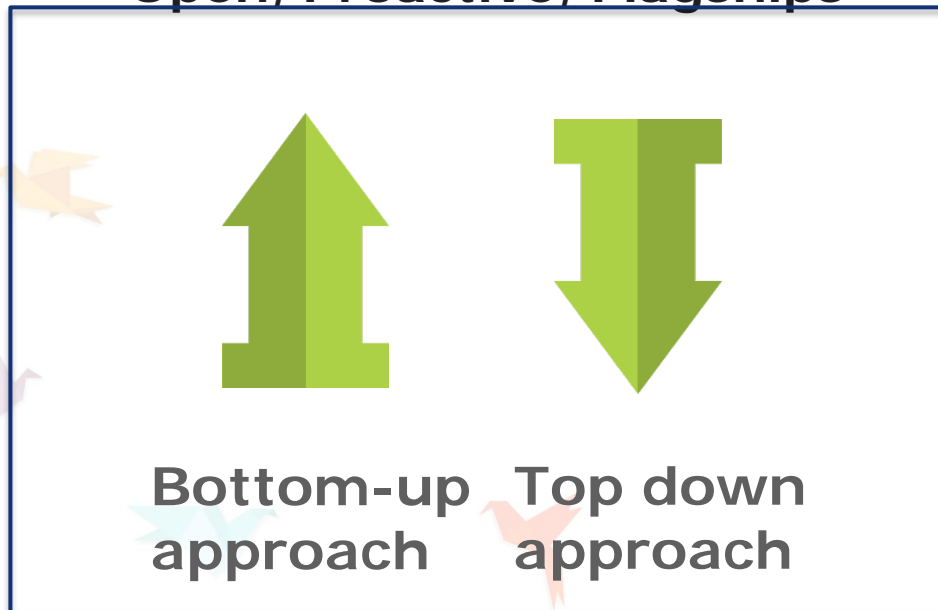
# 3. Future Emerging Technologies (FET)



# Future Emerging Technologies (FET)

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

## Open, Proactive, Flagships



# FET Openings and deadlines under WP 2018-2020



Funding scheme	Opening call	Deadline	Budget
<b>FET PROACTIVE – BOOSTING EMERGING TECHNOLOGIES</b> FETPROACT-03-2018 ERANET COFUND	05. June 18	18 Dec. 2018	6 Mio. €
<b>FET PROACTIVE – HIGH PERFORMANCE COMPUTING</b> FETHPC-01-2018	01. Feb. 18	15 May 2018	4 Mio. €
FETHPC-02-2019	07. May 19	24 Sept. 2019	64 Mio. €
<b>FET OPEN – NOVEL IDEAS FOR RADICALLY NEW TECHNOLOGIES</b> FETOPEN-01-2018-2019-2020	7 Nov. 2017	16 May 2018 24 Jan. 2019 18 Sept. 2019 13 May 2020	181 Mio. € 163 Mio. € 361 Mio. €
FETOPEN-02-2018	7 Nov. 2017	11 April 2018	2 Mio. €
FETOPEN-03-2018-2019-2020	7 Nov. 2017	16 Oct. 2018 08 Oct. 2019 14 Oct. 2020	2,5Mio. € 2,7Mio. € 3 Mio. €
FETFLAG-02-2018	31 Oct. 2017	17 April 2018	10 Mio €



# Useful links and FET Open promotional video

Helpful links:

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:

<https://www.youtube.com/watch?v=oTEzxpz69TU>

## 4. 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

## MSCA objectives

- Attract and retain **research talent** in Europe
- Develop state-of-the-art, **innovative training schemes**, consistent with the requirements of R&I
- Promote sustainable **career development** in R&I
- Focus on **delivering new knowledge and skills**
- Back up **strong partnership with MS** via co-funding mechanism



# Three MSCA main funding lines



## **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

# IF: Individual Fellowships (European Fellowship)



- As an **experienced researcher** of any nationality you can apply with your individual research project to be conducted at a European organization
- An individual fellowship provides tailored training for your career in research to enhance **the creative and innovative** potential
- You will receive a work contract including social security for 12-24 months
- Resume a career or Return to Europe - Career Restart Panel and Reintegration Panel
- Duration: 2 years (Global Fellowships: 3 years)



# ITN: Innovative Training Networks

- Raise excellence and structure **research and doctoral training**
- **Trigger cooperation** and exchange of best practice among participants
- Enhance **researchers' employability** and provide them with new career perspectives
- Only for **early stage researchers**
- Fellowships of **3-36 months**
- Project duration up to **4 years**
- Maximum **540 researcher-months**





# ITN: Innovative Training Networks

- As an early-stage researcher you can participate in existing joint research training or doctoral programmes of international networks in Europe

## ETN

### European Training Networks

*Participants implement a joint research programme*

*At least 3 beneficiaries from 3 different EU MS or AC. Above this minimum any country can participate*

## EID

### European Industrial Doctorates

*Doctoral programme with the non-academic sector*

*at least 2 beneficiaries established in 2 different MS or AC. At least one beneficiary must come from the non-academic sector, at least 50% in the non-academic sector. The joint supervision is mandatory*

## EJD

### European Joint Doctorates

*Doctoral programme to deliver joint degrees*

*at least 3 beneficiaries from different EU MS or AC entitled to award doctoral degrees, creation of joint doctoral programmes, leading to the delivery of joint, double or multiple doctoral degrees*



# RISE: Research and Innovation Staff Exchange

## Objective

- Strengthen the interaction between academic and non-academic organisations, and between Europe and third countries
- Research projects implemented through research and innovation short-term staff exchanges
- International, cross-border and inter-sector transfer of knowledge and sharing of ideas and of R&I culture
- Highly skilled research and innovation staff move for 1-12 months
- Staff (research or technical) of **any nationality** can participate.

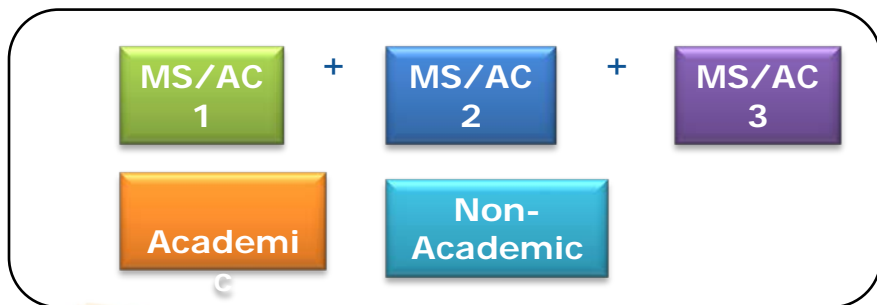
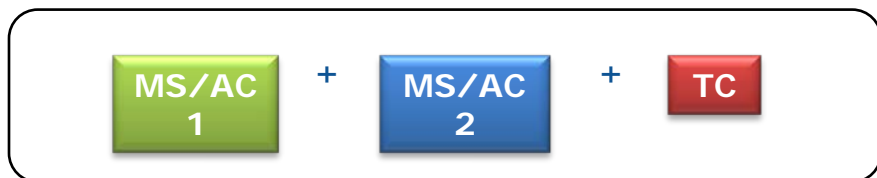
# RISE: Research and Innovation Staff Exchange



## Conditions:

- At least 3 entities from 3 different countries out of which 2 should come from the EU
- Staff should be engaged in or linked to research and innovation activities for at least six months prior to the secondment
- Duration: Up to 4 years
- Maximum 540 researcher-months
- Costs covered: Secondment of staff members for one month up to one year

# Set ups



International

European



# Financial overview

**RISE**

Research, networking, training costs	1800 €
Management and indirect costs	700 €

Top-up allowance	2000 €
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**ITN**

Research, networking, training costs	1800 €
Management and indirect costs	1200 €

Living allowance*	3110 €
Mobility allowance	600 €
Family allowance	500 €

**IF**

Research, networking, training costs	800 €
Management and indirect costs	500 €

Living allowance*	4650 €
Mobility allowance	600 €
Family allowance	500 €

**COFUND**

Management costs	325 €
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Living allowance Early-stage researchers	1855 €
Living allowance Experienced researchers	2625 €



# MSCA Openings and deadlines under WP 2018-2020



Funding scheme	Publication	Budget	Deadline
ITN 18	12. Oct. 17	442 Mio. €	17. Jan. 18
ITN 19	13. Sept. 17	470 Mio. €	15. Jan. 19
RISE 19	04. Dec. 18	80 Mio. €	2. April 19
IF 18	12. April 18	273 Mio. €	12. Sept. 18
IF 19	11. April 19	295,62 Mio. €	11. Sept. 19

# 5. Infrastructures



# Research Infrastructures (RI)

## Goal:

- Integrate and open global research infrastructures
- Build consortia of several key research infrastructures in a field and unite stakeholders from different countries

## Third countries also eligible for funding:

- Australia, Brazil, Canada, China, India, Japan, Russia, Mexico and USA
- They provide, under the grant, access to their research infrastructures



# 6. Industrial Leadership



# Leadership in enabling and industrial technologies (LEIT)



- ICT
- Nanotechnology
- Materials
- Biotechnology
- Manufacturing
- Processing
- Space



**Top down  
approach**

# 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 KETs
- Seizing ICT opportunities
- Contributing to solving Societal Challenges and to Focus Areas
- Cross-cutting aspects, like international cooperation and responsible research and innovation.

## 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** 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 in the future and reap the benefits of space now'.



# 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 bio-economy
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 bio economy

**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 societies based 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:**

- Reduction of poverty - 80 million people with lack of access to education and work
- Funding of new strategies and governance structures in order to overcome the prevailing economic instability
- Supporting new forms of innovation such as open innovation, innovation of business models, public sector innovation and social innovation to meet social needs
- Supporting research and innovation in European heritage, identity, history and culture and the role of Europe throughout the world

# 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
- Cooperation is established through 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

# Science with and for Society (SwafS)

**The SwafS WP18-20 is built around the following five strategic orientations:**

- 1- Accelerating and catalysing processes of institutional change
- 2- Stepping up support to Gender Equality in R & I policy
- 3- Building the territorial dimension of SwafS partnerships
- 4- Exploring and supporting citizen science
- 5- Building the knowledge base for SwafS

## Examples of call topics

- ❖ SwafS-04-2018: Encouraging the re-use of research data generated by publically funded research projects
- ❖ SwafS-12-2019: The gender perspective of science, technology and innovation (STI) in dialogue with third countries
- ❖ SwafS-15-2018-2019: Exploring and supporting citizen science

# Thank you!

## #InvestEUresearch

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

### Participant Portal

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

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