Module overview

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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

- 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

**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

**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

Useful links and ERC promotional video

ERC:
https://erc.europa.eu/

ERC videos:
https://vimeo.com/28818767
https://vimeo.com/31716309
## Indicative summary of main ERC calls from the 2018 budget

<table>
<thead>
<tr>
<th>Call Identifier</th>
<th>Starting Grant</th>
<th>Consolidator Grant</th>
<th>Advanced Grant</th>
<th>Synergy Grant</th>
<th>Proof of Concept Grant</th>
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<tbody>
<tr>
<td>ERC-2018-StG</td>
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<td></td>
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<tr>
<td>ERC-2018-Cgs</td>
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<td>ERC-2018-SyG</td>
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<td>ERC-2018-PcG</td>
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<td>Call Status</td>
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<td>24/10/2017</td>
<td>11/06/2017</td>
<td>24/01/2017</td>
<td>30/04/2017</td>
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</table>

**Deadline or cut-off dates for Pol**

- ERC: 03/04/2017
- FET: 15/03/2018
- Synergy: 10/05/2017
- Proof of Concept: 15/02/2018

**Budget within ERC per million euros of grants**

- ERC: 1178.5
- FET: 655.8
- Synergy: 117.8
- Proof of Concept: 75.4

**Preceding dates to submit applications**

- ERC: 30/09/2017
- FET: 25/10/2017
- Synergy: 10/05/2018
- Proof of Concept: 15/02/2018

**Indicative date for signature of grant agreements**

- ERC: 04/10/2017
- FET: 07/07/2018
- Synergy: 29/06/2018
- Proof of Concept: 21/10/2018

Source: ERCEA

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### 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)

Open, Proactive, Flagships

Bottom-up approach  Top down approach

FET Openings and deadlines under WP 2018-2020

<table>
<thead>
<tr>
<th>Funding scheme</th>
<th>Publication</th>
<th>Budget</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>FETOPEN1</td>
<td>07.11.2017</td>
<td>647,5 Mio. €</td>
<td>*</td>
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<tr>
<td>FETOPEN2</td>
<td>07.11.2017</td>
<td>2 Mio. €</td>
<td>11.04.2018</td>
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<tr>
<td>FETOPEN3</td>
<td>07.11.2017</td>
<td>8,2 Mio. €</td>
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<td>88 Mio. €</td>
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<tr>
<td>FETPROACT2</td>
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<td>FETPROACT3</td>
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<td>FETHPC1****</td>
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<tr>
<td>FETFLAG2</td>
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<td>FETFLAG3</td>
<td>31.10.2017</td>
<td>130 Mio. €</td>
<td>20.01.2018</td>
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** 16. Okt. 18, 06. Okt. 19 and 14. Okt. 20
*** 10. Feb. 18 first stage and 18. Sept. 18 second stage
**** FET PROACTIVE - HIGH PERFORMANCE COMPUTING
Useful links and FET Open promotional video

- 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)

**IF: Individual Fellowships**
- As an experienced researcher of any nationality you can apply with your individual research project to be conducted at a European organisation
- An individual fellowship provides tailored training for your career in research
- Work contract including social security for 12-36 months
- Possibility to spend 2 years in a TC and one year in Europe (Global Fellowships)
Co-funding of regional, national and international programmes (COFUND):

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

**ITN: Innovative Training Networks**

- Participation of early-stage researchers in existing joint research training or doctoral programmes of international networks
- Duration: 4 years, any nationality of researchers, funds covering researchers' and institutional costs
- Network of organisations can apply for funding within the following funding schemes:

  **ETN**
  - European Training Networks
  - Participants implement a joint research programme
  - Min. 3 beneficiaries from any sector from 3 different MS/AC
  - 540 PM

  **EID**
  - European Industrial Doctorates
  - Doctoral programme with the non-academic sector
  - Min. 2 beneficiaries from 2 different MS/AC:
    - 1 academic + 1 non-academic sector
  - 180PM
  - 540 PM > 2 entities

  **EJD**
  - European Joint Doctorates
  - Doctoral programme to deliver joint degrees
  - Min. 3 beneficiaries from academic sector, awarding PhD from 3 different MS/AC
  - 540 PM
RISE: Research and Innovation Staff Exchange

- As a university, research centre or company you can conduct short term staff exchanges within a joint research project.

- Staff of any nationality, employed by the organisations from the network, can participate.

- All types of staff are eligible (research, management, administrative or technical).

- Sharing of knowledge and ideas from research to market through trans-border and inter-sectoral collaboration with Europe.

Conditions:

- At least 3 entities from 3 different countries of which 2 should come from different MS and/or AC

- Staff should be engaged in or linked to research and innovation activities for at least one month prior to the secondment

- Duration: Up to 4 years

- Costs covered: Secondment of staff members for one month up to one year
## Openings and deadlines under WP 2018-2020

<table>
<thead>
<tr>
<th>Funding scheme</th>
<th>Publication</th>
<th>Budget</th>
<th>Deadline</th>
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<tbody>
<tr>
<td>ITN 19</td>
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<td>RISE 20</td>
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<td>COFUND 20</td>
<td>08.04.2020</td>
<td>100 Mio. €</td>
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</tr>
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</table>

## 5. Research 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 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)

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

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

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