Horizon 2020

Future and Emerging Technologies

FET Open

Work Programme 2018-2020

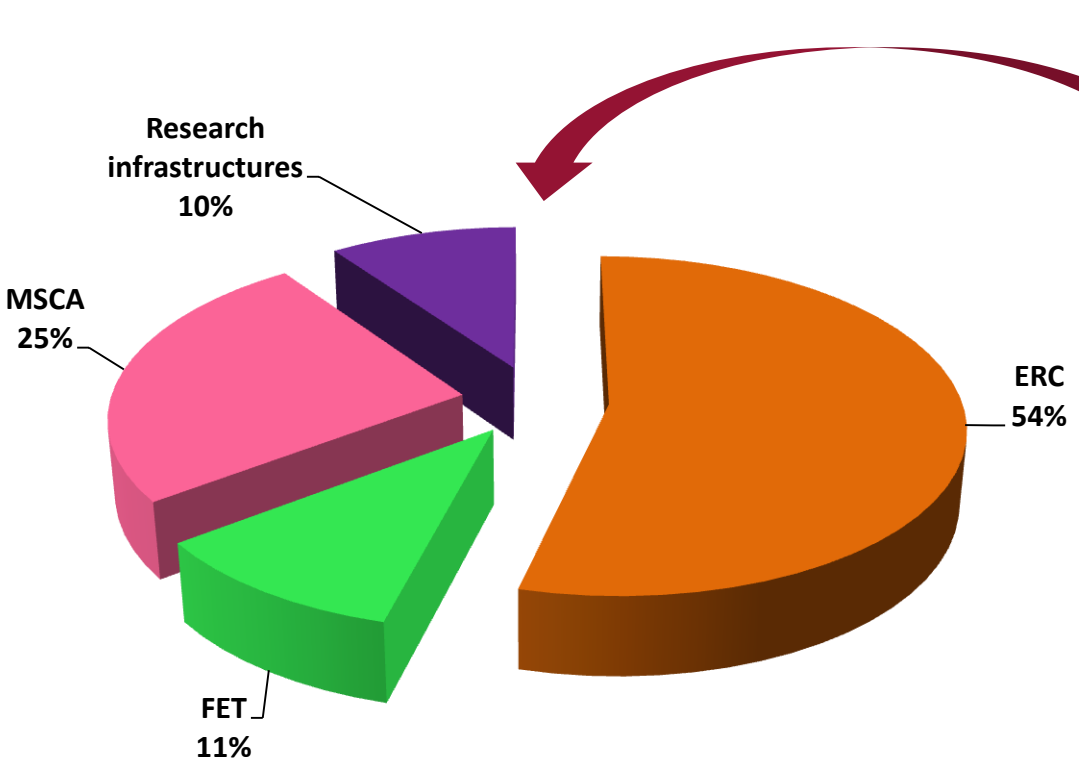
Maciej Lopatka
Research Executive Agency

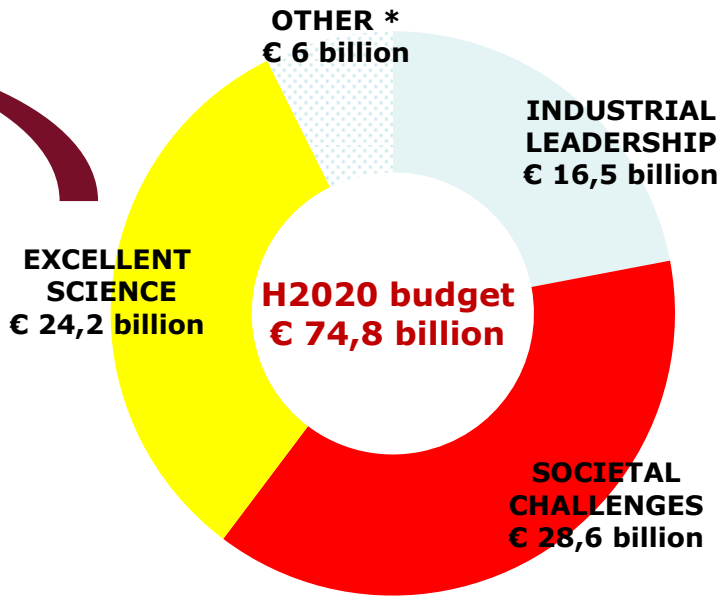
Fostering Novel Ideas: FET-Open

Brussels – Bolzano, February 23rd, 2018

European Commission

H2020: A strong, clear focus



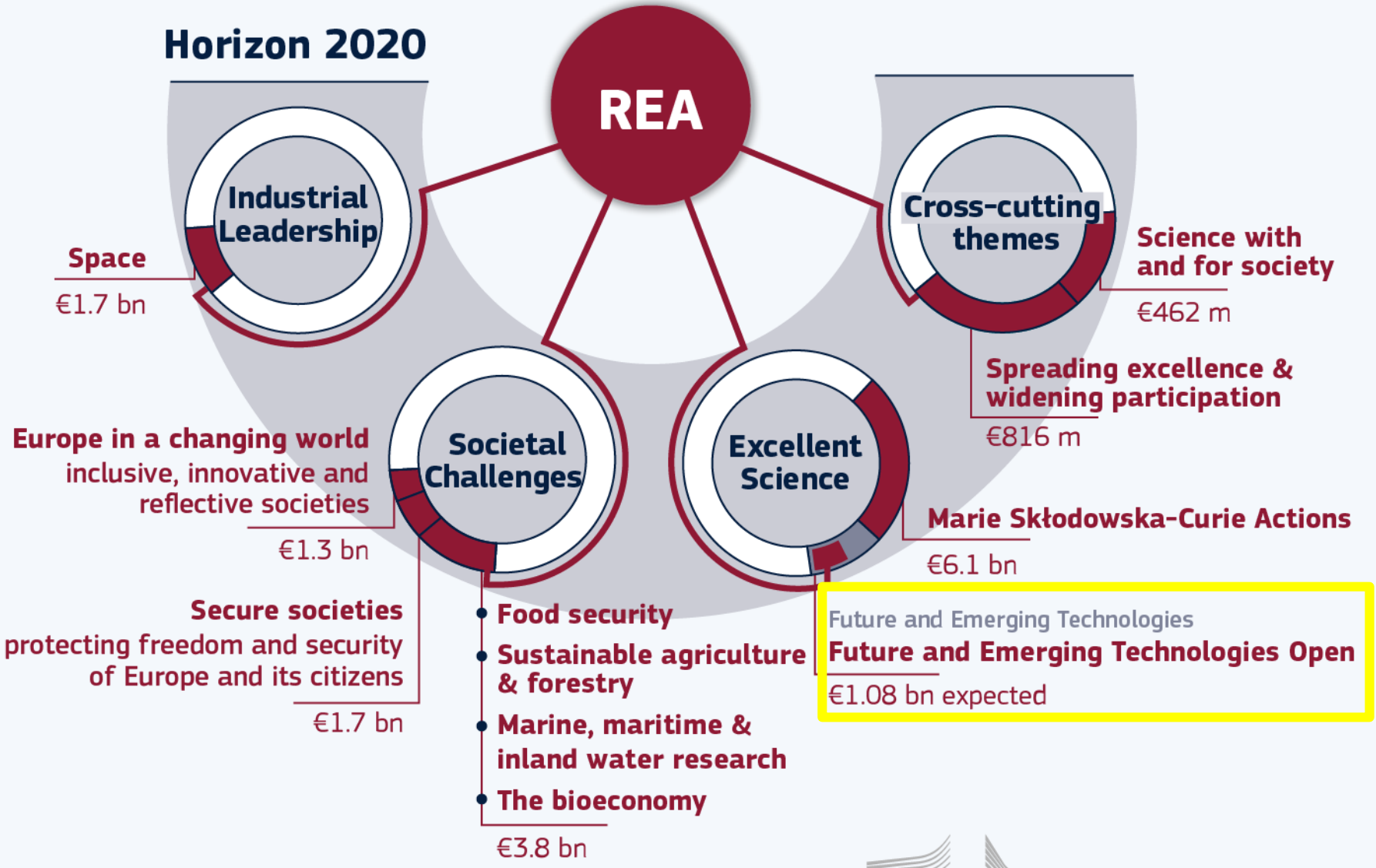


*OTHER:
- Spreading excellence & widening participation
- Science with and for society
- JRC
- EIT

Research Executive Agency

REA's responsibilities in Horizon 2020

2014-2020



European Commission | Research Executive Agency

European Commission

Future and Emerging Technologies: lines of activities

FET activities

- Fertile ground for **multidisciplinary** collaborations on FET
- Kick-starting European **R&I eco-systems**
- Seeds for future **industrial leadership** and tackling **society's** challenges
- Focus on research **beyond** what is currently known

Open, light and agile ⟷ **Roadmap based research**

FET-Open

Early Ideas

40% H2020 budget

Exploring novel ideas

FET Proactive

Exploration and Incubation

Developing topics and communities

FET Flagships

Large-Scale Partnering Initiatives

Addressing grand challenges

FET-Open spirit

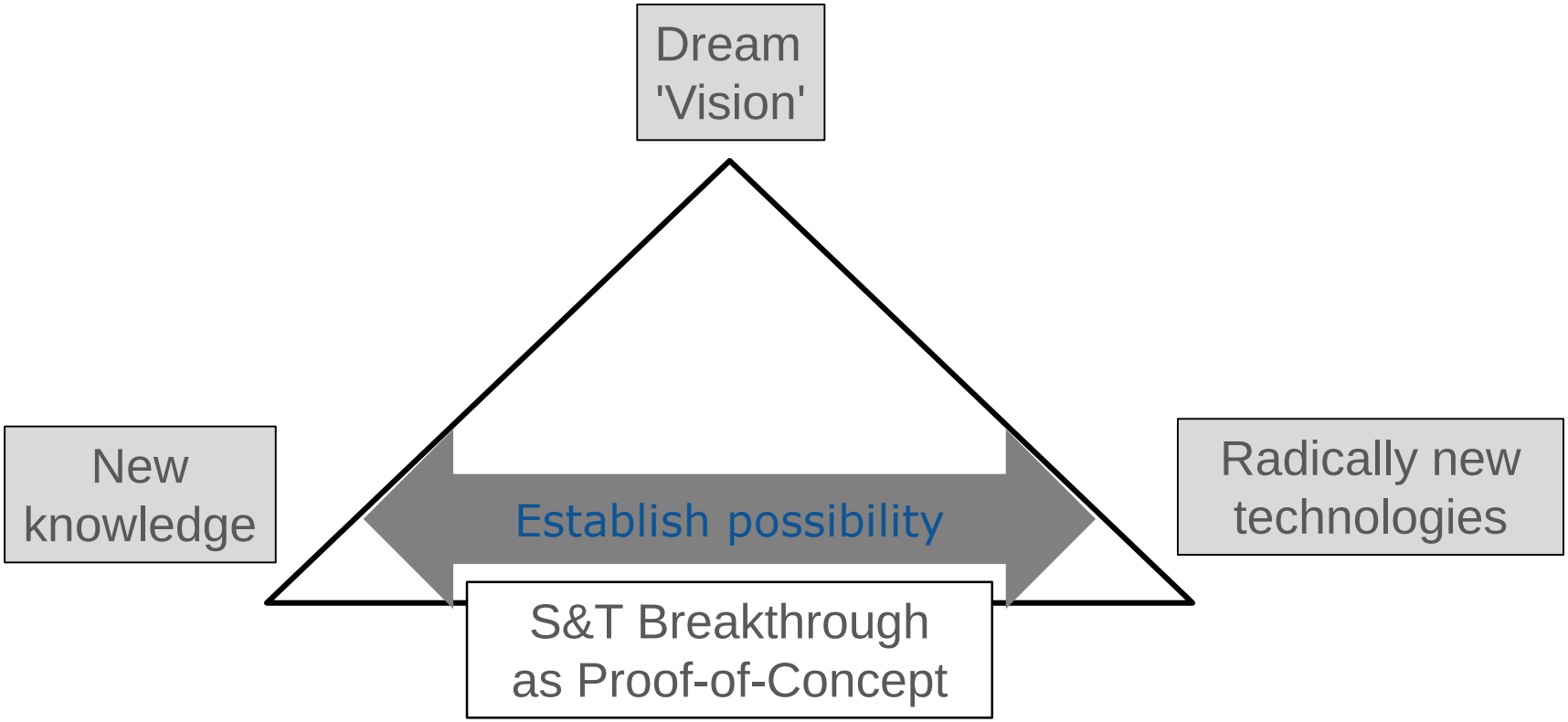
European Commission

Let's try even if it may fail!

Research Executive Agency

FET-Open spirit

FET-Open Research and Innovation Actions support the early stages of research to establish a new technological possibility



FET Open

WP 2018-2020

*"FET Open aims to establish **European leadership in the early exploration of future technologies**. It looks for opportunities of **long-term benefit for citizens, the economy and society**. It aims to **mobilise Europe's most creative and forward thinking researchers from all disciplines** to work together and explore what may become the **leading technology paradigms of the future**."*

Call FET Open – Novel ideas for radically new technologies
H2020-FETOPEN-2018-2020 – 3 topics:

- *FETOPEN-01-2018-2019-2020*: FET-Open Challenging Current Thinking
- *FETOPEN-02-2018*: FET-Open Coordination and Support Actions
- *FETOPEN-03-2018-2019-2020*: FET Innovation Launchpad

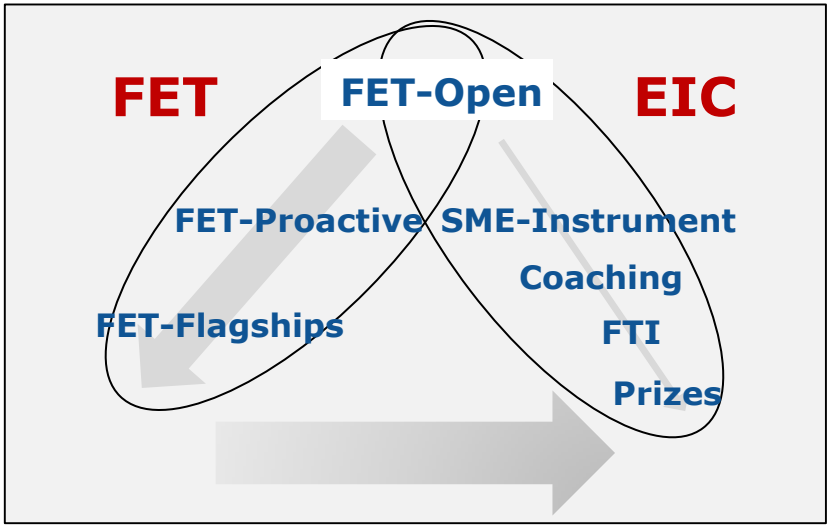
The **FET-Open call** is a part of the **European Innovation Council (EIC)** pilot.

FET Open and EIC

WP 2018-2020

- **The European Innovation Council (EIC) pilot** supports innovators developing breakthrough innovations with the potential to create new markets and boost jobs, growth and prosperity in Europe
- support with **no thematic restrictions**, particularly aimed at people and companies who have ideas that are radically different from existing products or services on the market or under development (not incremental improvements), are highly risky, and require significant investments to get to market
- **FET Open** uses interdisciplinary collaboration to tap into Europe's excellent science base for exploring radically new technologies, which may become the game-changers of the future (no change in scope and orientation)

- Governance of FET Open remains under DG CNECT and the ERC-FET-MSCA Programme Committee
- SMEs in FET Open can benefit of networking, coaching and mentoring as foreseen in the EIC Work Programme



Research Executive Agency

Dates and indicative budget

Topic (Type of Action)	Budget 2018 EUR million	Budget 2019 EUR million	Budget 2020 EUR million	Deadlines (cut-off dates)
FETOPEN-01-2018-2019-2020 (RIA)	123,70	160,40 160,40	203,00	16 May 2018 24 January 2019 18 September 2019 13 May 2020
FETOPEN-03-2018-2019-2020 (CSA)	2,50	2,70	3,00	16 October 2018 8 October 2019 14 October 2020

Total budget for RIA: 647,50 M€ (92,7% more per cut-off than in WP 2016-2017)
Total budget for FET Innovation Launchpad (CSA): 8,2M€ (82,2% more per cut-off than in WP 2016-2017)

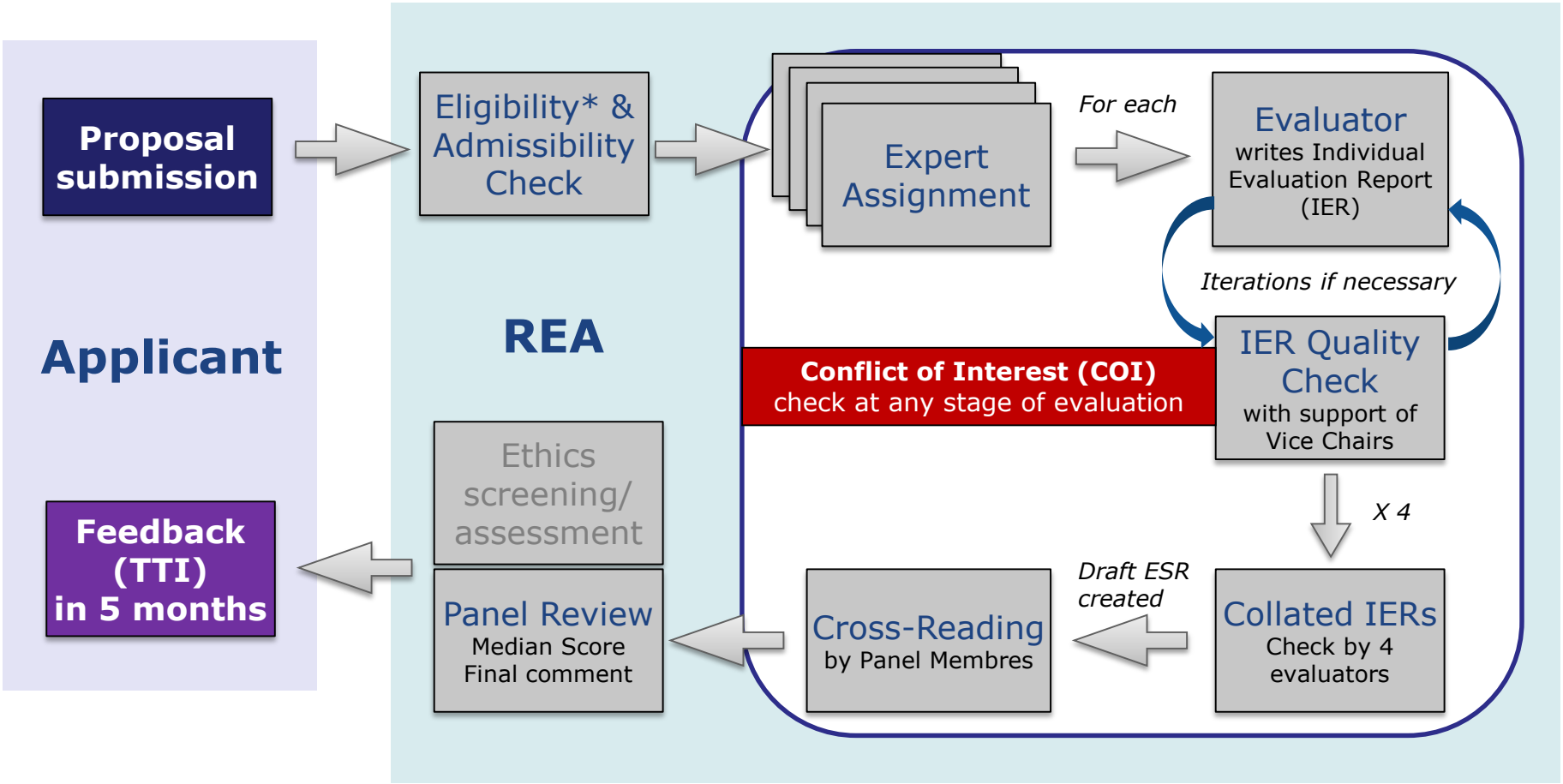
Opening of the call: 7 November 2017 at 17h00 CET

FET-Open Call Conditions and Evaluation

- **Single stage procedure** (submission and evaluation)
- **High quality peer review** by 4+4 experts
- Timetable for evaluation and GA signature
  - **Time to Inform** (TTI) – outcome of the evaluation within 5 months
  - **Time to Grant** (TTG) – signature of the GA within 8 months
- **Eligibility and admissibility conditions** – parts B and C of the General Annexes to the Work Programme (exception for FETOPEN-03-2018-2019-2020)
- **Grant Agreement Preparation (GAP)** – grant completely based on proposal (no negotiation)
- **Consortium Agreement** for RIA: to be concluded in principle prior to signature of Grant Agreement (GA)

Note: Evaluation procedure, criteria, scoring and threshold are described in General Annex H of the work programme (but exceptions apply to both topics!)

FET-Open Evaluation process (example for RIA)



*out-of-scope can be declared at further stages

FETOPEN-01-2018-2019-2020:
FET-Open Challenging Current Thinking (RIA)

+ Foundations for **radically new future technologies**

+ **Cutting-edge high-risk / high-impact** interdisciplinary research with "**FET gatekeepers**":

- Radical vision
- Breakthrough technological target
- Ambitious interdisciplinary research

Expected Impact:

- Scientific and technological contributions to the foundation of a new future technology
- Potential for future social or economic impact or market creation
- Building leading research and innovation capacity across Europe by involvement of key actors that can make a difference in the future

European Commission

FET-Open is OPEN!

- No thematic restriction, no emphasis on any subject
- All areas: physics, chemistry, mathematics, ICT, materials, medicine, biology, energy, social sciences…
- Completely bottom-up, but with a clear target – NOT blue sky research!
- Successful FET-Open project can be a proof-of-concept…
- Combination of **high scientific ambition** with **concrete technological implications**
- Collaborative research (min. 3 partners from different EU/AC)
- Interdisciplinary consortia (new connections between remote disciplines – unexpected collaborations)
- High risk projects potentially leading to ground breaking breakthroughs
- EU contribution of up to 3M€ (indicative)

Evaluation criteria, Scoring and Thresholds

Excellence	Impact	Quality and efficiency of the implementation
Adherence to the "FET gatekeepers" as described in the call text: ☐ Clarity of the **radical vision** of a science-enabled technology and its differentiation from current paradigms. ☐ Novelty and ambition of the proposed **science-to-technology breakthrough** that addresses this vision. ☐ Range of and added value from **interdisciplinarity** for opening up new areas of research; **non-incrementality** of the research proposed. ☐ **High-risk, plausibility and flexibility** of the research approach.	☐ The extent to which the outputs of the project would contribute to the **expected impacts** listed in the work programme under this topic. ☐ Effectiveness of measures and plans to **disseminate** and **use the results** (including management of IPR) and to **communicate** about the project to different target audiences.	The following aspects are taken into account: ☐ **Coherence** and **effectiveness** of the research methodology and work plan to achieve project objectives and impacts, including **adequate allocation** of resources to tasks and partners. ☐ **Role** and **complementarity** of the participants and extent to which the consortium as a whole brings together the necessary expertise.
Threshold: **4/5** Weight: **60%**	Threshold: **3.5/5** Weight: **20%**	Threshold: **3/5** Weight: **20%**

Proposal composition (RIA)

- **Part A:** Administrative part of the proposal
- **Part B:** Narrative part of the proposal (core proposal)
  - Section 1: **Excellence**
  - Section 2: **Impact**
  - Section 3: **Quality and efficiency of the implementation**
  - Section 4: **Members of the consortium** (additional information)
  - Section 5: **Ethics and security** (additional information)

Pages limit: Sections 1 to 3 together are limited to 15 pages A4 (clearly shown) and Sections 4 to 5 are not covered by the page limit

FETOPEN-03-2018-2019-2020:
FET Innovation Launchpad (CSA)

+ Turning results from FET-funded projects into **genuine societal or economic innovations**

- Short (up to 18 months) individual or collaborative focused actions
- Early innovation from an ongoing or recently finished FP7/H2020 FET project (precise link)
- No additional S&T research; limited low-risk technology development is possible if necessary
- No actions that are/were foreseen in originating project
- Declaration of necessary rights and ownership/agreements for results to be exploited
- No prescribed activities, but 'fit for purpose'

EU contribution of up to 0.1M€

FETOPEN-03-2018-2019-2020:
FET Innovation Launchpad (CSA)

Expected impact:

- Increased value creation from FET projects by picking up innovation opportunities
- Improved societal and market acceptance of concrete high-potential innovations from FET projects
- Stimulating, supporting and rewarding an open and proactive mindset towards exploitation beyond research world
- Contributing to the competitiveness of European industry/economy by seeding future growth and creation of jobs from FET research

Proposed activities (non-exhaustive list):

Commercialization process, market and competitiveness analysis, technology assessment, verification of innovation potential, consolidation of IPRs, business case development etc.

FET Open
(FET Innovation Launchpad)

WP 2018-2020

Call conditions and evaluation

Evaluation criteria, Scoring and Thresholds (FET Innovation Launchpad)

Excellence	Impact	Quality and efficiency of the implementation
The following aspects are taken into account: ☐ Clarity and quality of the **innovation idea** and its link with the previous or ongoing FET project indicated in the proposal. ☐ Concreteness of **objectives** and their pertinence for moving the output of FET research through the initial steps of a process leading to a **commercial or social innovation**. ☐ Suitability and necessity of the proposed **activities** to reach the stated objectives, including their complementarity to actions already foreseen or expected from the previous or ongoing FET project.	Contributions to the impacts listed under this topic in the work programme: ☐ **Added innovation potential** with respect to the FET project from which this innovation originates. ☐ Extent of **economic and/or societal benefits** resulting from this innovation as identified in the proposal. ☐ Suitability of **measures** for taking the innovation beyond the research world, including through engagement with prospective exploitation partners, other stakeholders, users or society.	The following aspects are taken into account: ☐ Quality of **workplan** and **management**. ☐ Relevance of **expertise** in the consortium. ☐ Appropriate **allocation of resources** (person-months).
Threshold: **3/5** Weight: **40%**	Threshold: **3.5/5** Weight: **40%**	Threshold: **3/5** Weight: **20%**

Proposal composition (FET Innovation Launchpad)

- **Part A:** Administrative part of the proposal
- **Part B:** Narrative part of the proposal (core proposal)
  - Section 1: **Excellence**
  - Section 2: **Impact**
  - Section 3: **Quality and efficiency of the implementation**
  - Section 4: **Members of the consortium** (additional information)
  - Section 5: **Ethics and security** (additional information)

Pages limit: Sections 1 to 3 together are limited to 7 pages A4 (clearly shown) and Sections 4 to 5 are not covered by the page limit

Feedback to applicants – Evaluation Summary Report (ESR)

- **Collation of all individual comments**, per sub-criterion, from the IERs – may be mutually contradicting (no consensus): full transparency
- **Consensus score** of the proposal, per criterion, is calculated as a median of all individual scores from Individual Evaluation Reports (IERs)
- **Final score** is decided by the final Panel Review and calculated as a weighted sum of scores from all 3 criteria
- Final **Panel Review** adds also some additional comments, possibly including the advice not to resubmit the proposal

Additional important information

- **No more** "cover page"**!**
- **In/Out of scope** (decided by each evaluator) - "does the proposal convincingly satisfy all FET gatekeepers?": assessment under Criterion 1 (RIA)
- **Operational capacity** – reflected in the score for Criterion 3
- **Ethics screening/assessment** – not part of the evaluation
- **Research Data sharing** (default, but possible opt-out) as stipulated under Art. 29.3 of the Horizon 2020 Model Grant Agreement (MGA) - deliverable *"Data Management Plan"* due at month 6

FET Open

FET-Open RIA statistics (per cut-off)

Call (cut-off)	Number of eligible and admissible proposals	Number of grants	Budget requested (M€)	Success rate (%)
September '14	639	24	78,1	3,8
March '15	665	11	41	1,7
September '15	800	11	37,8	**1,4**
May '16	544	23	87,8	4,2
January '17	365	26	84,8	7,1
Total	3019	95	329,5	-
September '17	*395*	*27 (to be signed)*	*84 (budgeted)*	*6.8*

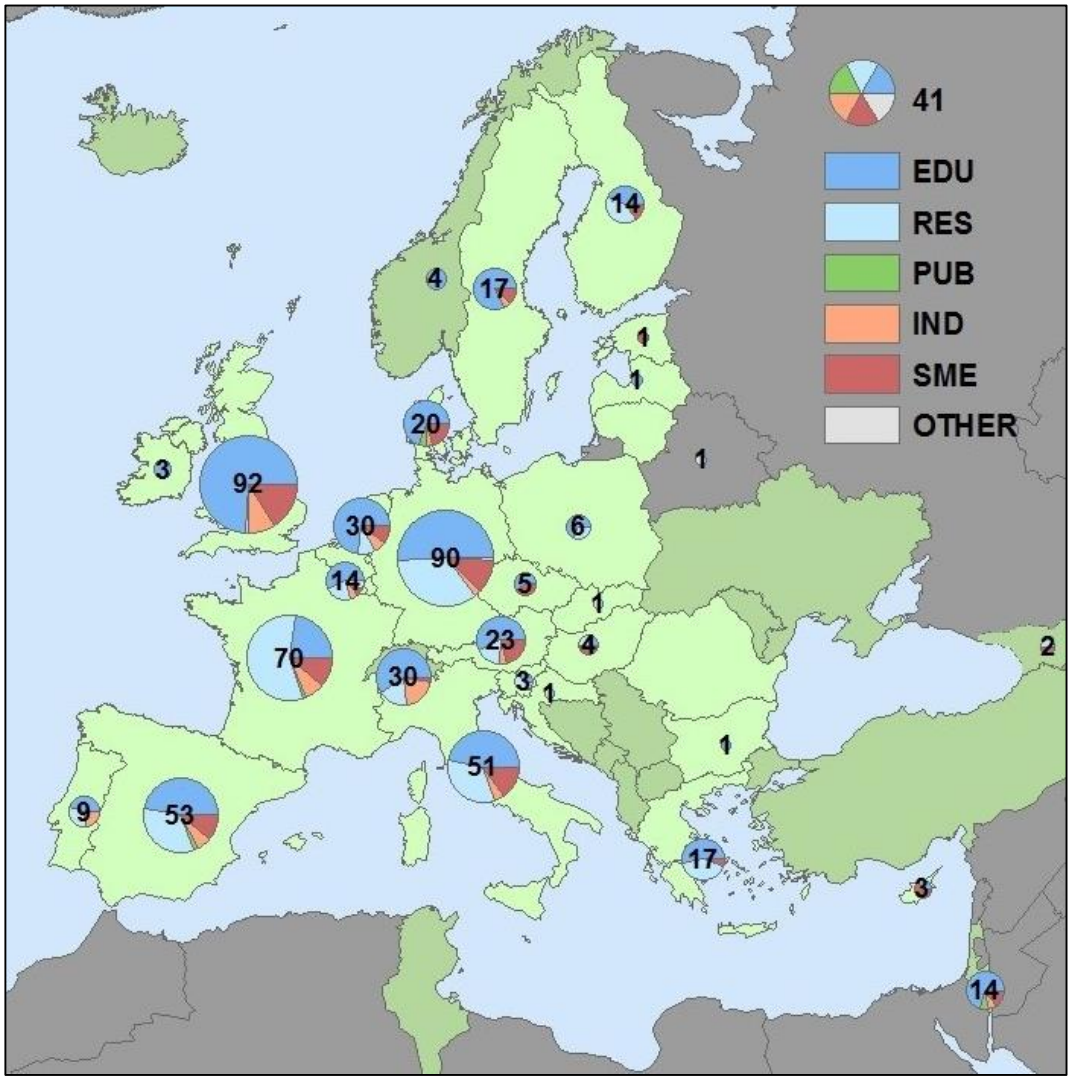
Research Executive Agency

European Commission

FET Innovation Launchpad statistics (per cut-off)

Call (cut-off)	Number of eligible and admissible proposals	Number of grants	Budget requested (M€)	Success rate (%)
September '16	88	16	1,6	18
September '17	*50*	*19 (to be signed)*	*1,8 (budgeted)*	*38*

FET Open



Country participation

H2020 FET-Open 2014-2017
(RIA signed grants)

Research Executive Agency

FET Open RIA example

European Commission

FutureAGRICULTURE

Transforming the future of agriculture through synthetic photorespiration

http://www.futureagriculture.eu/

Breakthrough

The seed industry seeks sustainable and economically viable solutions to increase crop yield. A fundamental way to improve plant productivity and performance is through the use of **plant genomics**. **Photorespiration** represents a big challenge in this respect, because it dissipates energy and leads to the futile loss of CO2, thereby limiting plant growth yield. Implementing an **efficient metabolic bypass for photorespiration** can therefore increase the photosynthetic efficiency of many cultivated crops.

Action objectives

*The aim of this project is to explore **a new line of technology that will represent a radically different approach: to engineer entirely novel CO2-neutral or CO2-positive photorespiration bypasses based on novel enzyme chemistry** that support significantly higher agricultural yields; These bypass routes could support 60% higher biomass yield per turn of the Calvin Cycle*

Novelty

The project will pursue the challenge of making the **photorespiration bypass more efficient and stable** by designing and realizing **synthetic photorespiration pathways in an unprecedented, innovative way**

Main scientific disciplines

Computational biology, chemistry, biochemistry, microbiology and plant physiology

Research Executive Agency

European Commission

Thank you for your attention

http://ec.europa.eu/programmes/horizon2020/en/h2020-section/fet-open

Twitter: @FET_EU

Research Executive Agency

European Commission

Research Executive Agency