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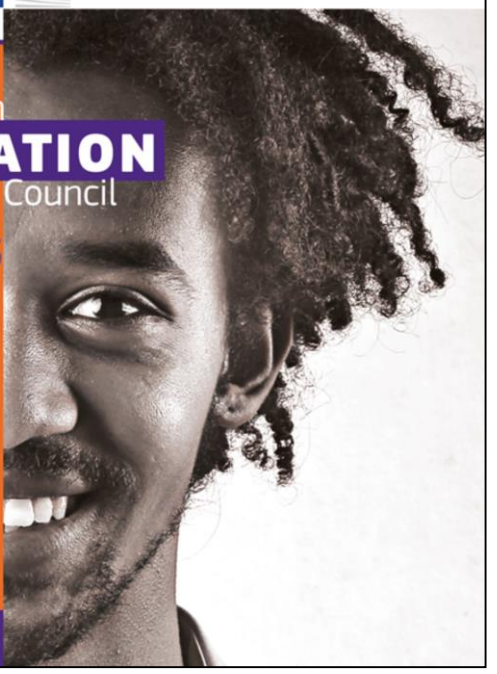
EMPOWERING EUROPEAN INNOVATORS

EIC Pathfinder Pilot

H2020 Work Programme 2020

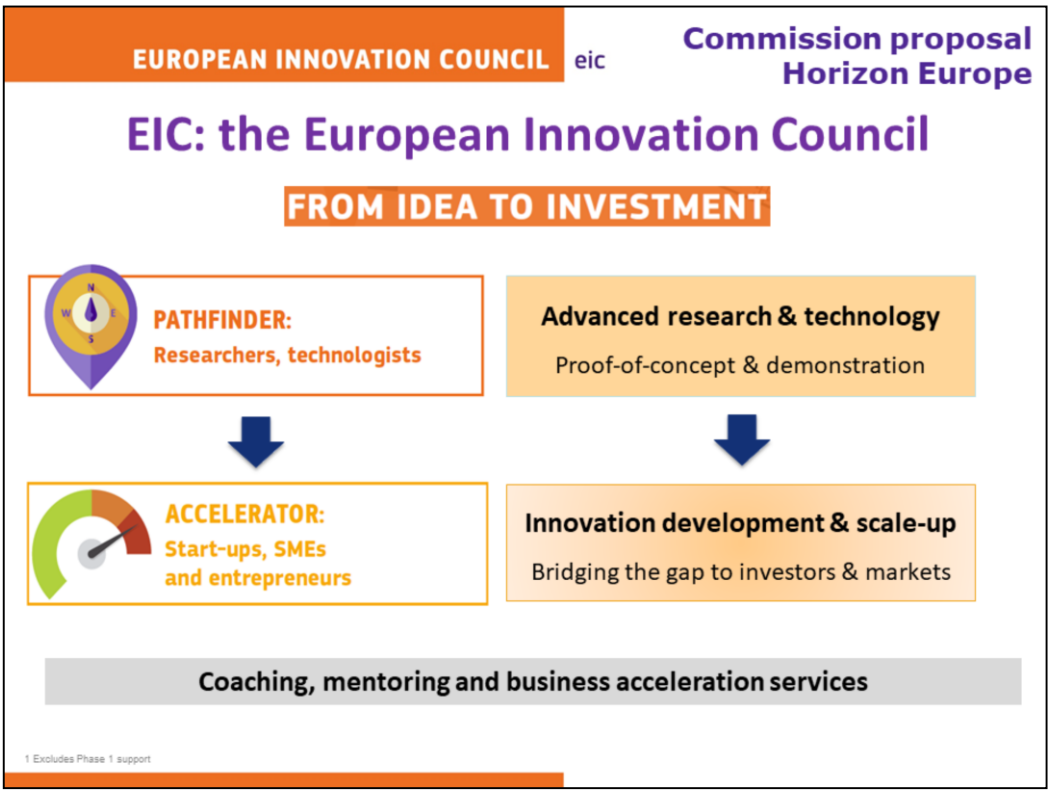
Viorel Peca
Head of Unit DG Connect, FET Proactive

Research and Innovation



Agenda

- Introduction
- FET Proactive 2020 topics
- Tips ad
- Q&A and Proposal presentation



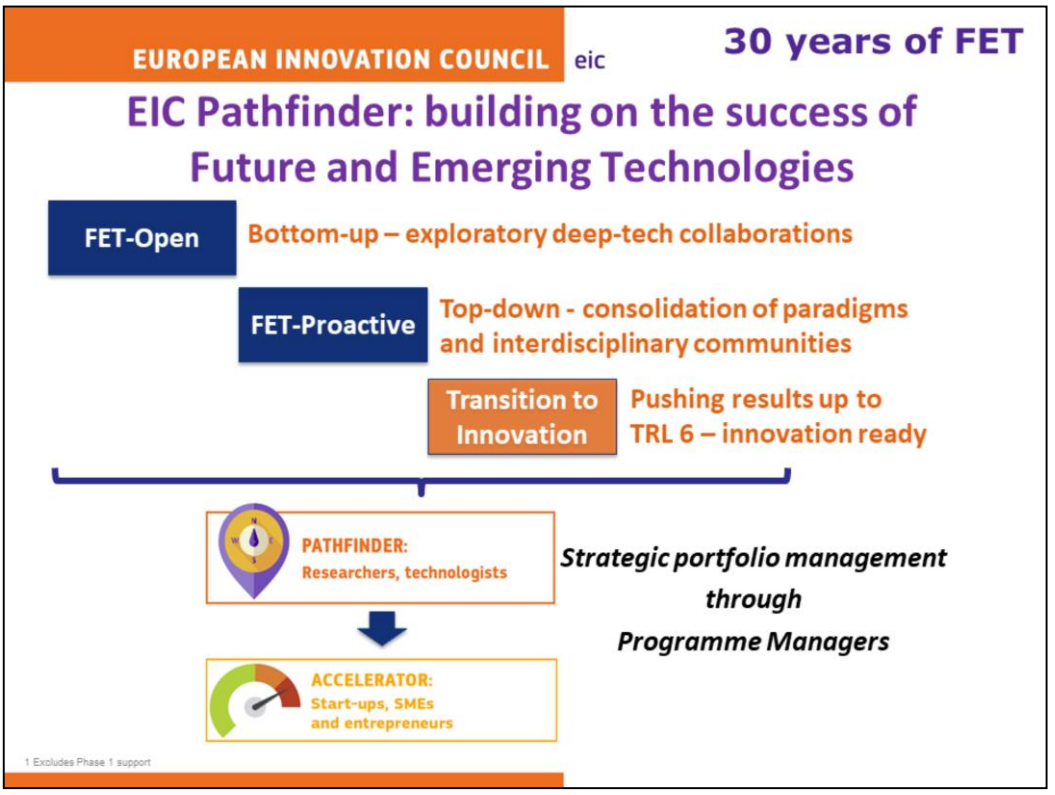
One stop shop for breakthrough & disruptive innovators: Open to all innovators, in any field, at any time. Highest potential innovators selected on basis of ideas and team

Agile funding from idea to investment:

Pathfinder grants for advanced research on emerging technologies. The **EIC Pathfinder** targets high-risk early-stage research projects exploring new territories aiming at developing radical and innovative technologies. This takes the form of grants for research, typically for small and highly interdisciplinary consortia, to establish a proof-of-concept and to take first steps on the path to innovation.

The EIC Accelerator aims at creating and promoting co-investment by initiating support where market response is absent and/ or insufficient. Accelerator funding for innovative start-ups (<€2.5 million grant, <€15 million equity). Crowding in private investment.

Building ecosystems and communities: Access to mentoring and advisory services and to knowledge partners (e.g EIT).



- Within the EIC pilot, the Pathfinder scheme will build on the FET programme within Horizon 2020, in particular its FET Open and FET Proactive pillars.
- The FET programme has been doing deep-tech for 30 years. It should be no surprise that it is at the heart of the EIC Pathfinder, as the 'creative core' of the EIC.
- FET-Open: *Early-stage, science and technology research by interdisciplinary consortia exploring visionary ideas for radically new future technologies that challenge current paradigms and venture into the unknown*. *Open to research into any area of technology, it aims to attract new, high-potential research and innovation players.*
- FET-Proactive: *Cutting edge-high-risk/ high reward research and innovation projects that aim to firmly establish the future potential of a new and promising technological paradigm*
- FET-open and FET Proactive have been key to the development of many of the digital technologies that are today becoming a part of everyday life – like artificial intelligence, quantum computing, smart robotics and the Internet of Things – and to high-potential new concepts such as neuro-prosthetics and artificial photosynthesis.
- In the context of the EIC we are adding a third element, FET Transition to Innovation activities. This builds on the experience in FET with the FET Innovation Launchpad. Transition to Innovation activities are meant to push promising results up the scale of technology readiness, to where they could become interesting for business creation and investment. Transition to innovation this makes the link with teh EIC Accelerator.
- Strategic portfolio management. Expert Programme Managers to engage with projects and communities to stimulate, orient, accelerate towards visionary goals.

Professionals with visionary thinking, leadership skills and technical expertise from multiple spheres: universities, research organisations, companies…

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Major novelties
EIC Advisory Board

- To **advise** the Commission on the design of European Innovation Council (EIC) support for innovation
- **Group of 15 to 20** entrepreneurs, investors, individuals building start-up communities, innovative researchers and academics working on innovation policy
- Will support the Commission:
  - *Developing the pilot in 2019 and 2020*
  - *Enhancing innovation eco-systems and impact*
  - *With the overall strategy under Horizon Europe*


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EMPOWERING EUROPEAN INNOVATORS
EIC Pathfinder
FET Proactive
Updated WP 2020
Research and Innovation

Why we updated the WP2020?

- 'A Green Deal for Europe' and 'A Europe fit for the digital age' are among the top political priorities of President Elect Ursula Van der Leyen.
- In view of this, the Commission services proposed to adapt the EIC Work Programme for 2020, by strengthening aspects of climate-neutrality, digitisation and Artificial Intelligence, as up-stream low TRL complements to actions in the rest of Horizon 2020.
- This is further supported by the strong response to the 2019 FET Proactive call on the topics of AI and energy.

Draft EIC WP for 2020 has been pre-published:
https://ec.europa.eu/programmes/horizon2020/sites/horizon2020/files/eic_wp_2020_29-01-2020_post-isc_02-03-2020-draft.pdf

WP 2020 Update : Pathfinder Proactive highlights

- **5 FET Proactive topics in 2020:**
  - Artificial Intelligence for extended social interaction
  - Breakthrough zero-emissions energy storage and conversion technologies for carbon-neutrality
  - Digital twins for the life-sciences
  - Measuring the unmeasurable: Sub-nanoscale science for Nanometrology
  - Environmental intelligence.

- **Budget increase for EIC Pathfinder Proactive in 2020**
  - FETPROACT-EIC-07-2020: 56M€ (was 50M€)
    - AI is introduced: Artificial Intelligence for extended social interaction
    - New topic: Breakthrough zero-emissions energy storage and conversion technologies for carbon-neutrality
  - FETProact-EIC-08-2020: no change in budget (remains 18M€)
    - Environmental intelligence
  - Call opens on 26th of March and closes on 2nd of July 2020

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EIC WP p29-32

FETPROACT-EIC-07-2020
FET Proactive: emerging paradigms and communities

Specific Challenge:

1. Explore and consolidate a new paradigm for future technology.
   - Put it firmly on the map
2. Foster the interdisciplinary communities to drive this forward.
   - Reaching wider than consortium alone!
   - Project as a global reference of excellence in the field.
3. Stimulate the emergence of an innovation eco-system around the new paradigm well beyond the world of research alone.
   - Reach-out to a wide type of stakeholders and ecosystem.

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EIC WP p29-32

FETPROACT-EIC-07-2020

FET Proactive: emerging paradigms & communities

Scope:

- Cutting-edge high-risk / high-reward research and innovation projects.
  - Science-driven 'deep tech'.
    - Interdisicplinarity is key
  - No incremental research, i.e.,
    - Ambitious vision and targets
    - Currently unreachable through current path
    - Requires bringing in of new knowledge that opens up a new path
    - This is what is meant by high-risk
  - No blue-sky, no ivory tower.
- Demonstrate a new technological paradigm
  - With game changing potential
    - This is what is meant by high-reward

Europe's biggest innovation potential is in the blending of knowledge, data and skills from across disciplines and sectors. This interdisciplinary aspect, often led by digital, is what makes deep-tech so hard to replicate, and therefore so strategic for Europe's future.
(Commissioner Gabriel, June 2019)

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EIC WP p29-32

FETPROACT-EIC-07-2020

FET Proactive: emerging paradigms & communities

Scope:

- Establish a solid baseline of knowledge and skills
- Assemble interdisciplinary communities
  - Including from the social sciences and humanities
- Create a fertile ground for co-design and future take-up
  - Actions to involve downstream stakeholders
  - Responsible Research and Innovation (RRI)

… technological paradigm within the scope of one of the following sub-topics

a. *Artificial Intelligence for extended social interaction*
b. *Breakthrough zero-emissions energy storage and conversion technologies for carbon-neutrality*
c. *Digital twins for the life-sciences*
d. *Measuring the unmeasurable – Sub-nanoscale science for Nanometrology*

Note: these EIC Pathfinder topics have been selected with the help of the FET Advisory Group, for their clear need of breakthrough, and high future innovation potential.

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EIC WP p29

FETPROACT-EIC-07-2020 subtopic a
AI for extended social interaction

- What's next in social media?
- Can Europe develop its own take on this?
- What will VR, AR, mixed reality ('XR') look like?
- What role for Artificial Intelligence to improve social interaction in XR?
- How can active interaction spaces remain transparent and accountable?
- How to achieve trust, privacy, safety, respect, inclusion, belonging, etc., 'by design'?
- What can be learned from human 'natural' perception and interaction space (e.g., nearness), and from social cognition (e.g., believe formation)?
- What are the immersive and multimodal techniques needed and their coupling to human sensori/motor- and cognitive processes?
- What are (could be) the long-term implications and impacts on persons (developmental, addiction,...), especially from extensive and always-on use?

Credit: https://brandglue.com/wp-content/uploads/2014/08/blog-08-18-2014-10piecesofsocialmediadatayoushouldpayattentionto.jpg

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EIC WP p29

FETPROACT-EIC-07-2020 subtopic a
AI for extended social interaction

- **explores** the combination of new AI and immersive interaction technologies to enhance the social dimension in future virtual social spaces
- **addresses** the redefinition of social interaction in light of increasing virtualisation, issues of trust, the nature of social relationships, believe formation, crowd and organisation dynamics (as examples)
- **targets** human-centric responsible AI/XR technologies, for instance for
  - ✓ bringing more social intelligence in the interaction environment, greater user- contextual- and social awareness
  - ✓ coupling with sensorimotor- and cognitive processes through new XR and minimally invasive interaction technologies.

projects should take into acount perceptual and sociocultural factors, influence on self-perception, well-being, addiction, acceptance, learning, brain development/adaptation, Ethics, age and gender differences, safety and health.

Credit: https://brandglue.com/wp-content/uploads/2014/08/blog-08-18-2014-10piecesofsocialmediadatayoushouldpayattentionto.jpg

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EIC WP p29-32

New topic!

FETPROACT-EIC-07-2020 subtopic b

Breakthrough zero-emissions energy storage and conversion technologies for carbon-neutrality

Background

- Clean and sustainable energy as one of the major challenges today
- Europe has set ambitious goals to tackle climate change
- Provisioning clean and sustabinable energy is a must

Applications where it is inefficient to use current batteries:

- Battery capacity insufficient for the needed range (long range trucks, ships and aircraft)
- Battery cost and capacity cannot provide long time shifts for electric or heat applications (long term stationary storage of renewable energies)

Compact, portable, zero-emission energy storage or conversion needed

Credit: https://brandglue.com/wp-content/uploads/2014/08/blog-08-18-2014-10piecesofsocialmediadatayoushouldpayattentionto.jpg

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EIC WP p29-30

Zero-emissions energy storage and conversion technologies: Scope

Early exploration (TRL 1-3) of any new form of thermal and/or electrical storage and conversion technologies.

Proposed technology should be clean, compact and ultimately low-cost with the minimal use of rare/toxic materials.

Equipment should be:

- Decentralized and/or mobile or portable, movable (i.e., as substitutes to fossil fuels for energy or transport applications) for large scale applications
- *Potentially* low-cost and high energy density

Identified application area (e.g., portable uses, sustainable housing, remote places, emergency, transport,…)

Clear/ambitious performance targets and milestones needed

We are looking for any type of energy generation. The only limitation is that this technology should not produce any CO2 as we still want to meet the European emission targets to tackle the climate change. The technology should be portable, compact, not built in a fixed location and have a high energy density. Proposals should say how they expect their energy source to be used, is this for example for disaster releaf, is it for transport, and what other application could be involved. There is a problem with batteries as their rely on rare raw materials. Ideally, the solution should not involve rare and toxic materials. We are looking for a significant take-up, so it should be low-cost in the long term. To manage project development, there should be clear milestones in the proposal with ambitious performance targets.

As the budget has been increased, we have lifted the restrictions on batteries, solar cells and fuel cells. So, you are welcomed to write proposals related to these techologies.

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EIC WP p29-30

FETPROACT-EIC-07-2020 subtopic b

Breakthrough zero-emissions energy storage and conversion technologies for carbon-neutrality

Proposals should:

- Address new technologies (high risk) for energy storage and coversion technologies with potential for significant take-up
- Bring together a European interdisciplinary pool of expertise to reach its goal, and encourage outside interest to increase the community working on the area
- Lay the foundations for a European innovation ecosystem (not only researchers) that can pursue the development after the project

Credit: https://brandglue.com/wp-content/uploads/2014/08/blog-08-18-2014-10piecesofsocialmediadatayoushouldpayattentionto.jpg

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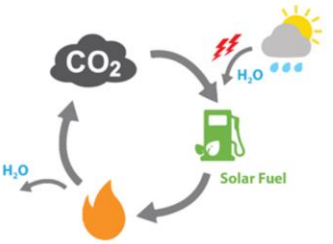
Zero-emissions energy storage and conversion technologies

Scope – example directions



Storage and converstion of clean energy

- Solar, wind, geothermal

Solar fuels and solar chemicals

- Based on recycled and atmospheric CO2 or other

Circular design and/or high recyclablity

- Must be addressed where relevant

Research on electro-chemical batteries is not addressing this sub-topic.

Note: These are not preferred approaches, just possible examples

In case some of you think that this is impossible, the workprogramme can give you some examples to provide inspiration. Could hydrogen storage be the source of the energy such as metal-hydrides or some other materials. However, the challange here is to provide a large, safe increase in storage density. We want to go beyond what is possible today with batteries. Plasmas are the most energetic state of matter but they are very difficult to confine. The fussion research has been trying to do this for several decades now and devices that they are producing are certainly not portable. So, is it possible to confine a plasma in a portable device? Recently, researches have annouced results on cavitation systems that harvest energy from the environment. Can this also be scaled up and made in a portable form? Also, are there new technologies in the areas of batteries, fuel cells and solart cells that can provide what we are looking for.

These are the examples in the workprogramme but they are not prefered approaches. We are looking forward in reading a totally different approaches and proposals.

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Zero-emissions energy storage and conversion technologies

Expected impact

Foundations for new energy technologies

Building up interdisciplinary communities with

- Young researchers
- High-tech SMEs
- First time FET participants

... leading to

Emergence of new innovation ecosystems

- able to develop the market potential of the new tech
- including wider stakeholder engagement beyond researchers alone

For the impact, we are looking for foundations for new portable energy technologies. The important word here is the word „foundations", we do not expect TRL 9 at the end of your project. Typically, for FET is TRL 3 – proof of concept. We want to encourage young researchers to join FET projects. This is a new topic for FET so there is an opportunity for first-time participants to join the proposals. High tech SMEs are welcome as well. Project should think about take-up in the long term. Energy ofter involves regulation and it is imporant to have contact with regulatory bodies. The proposals should include wider stakeholders then just academia and research centres alone.

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Intermediate Q&A

EUROPEAN INNOVATION COUNCIL eic FET WP, page 23

FETPROACT-EIC-07-2020

sub-topic c. Digital twins for the life-sciences

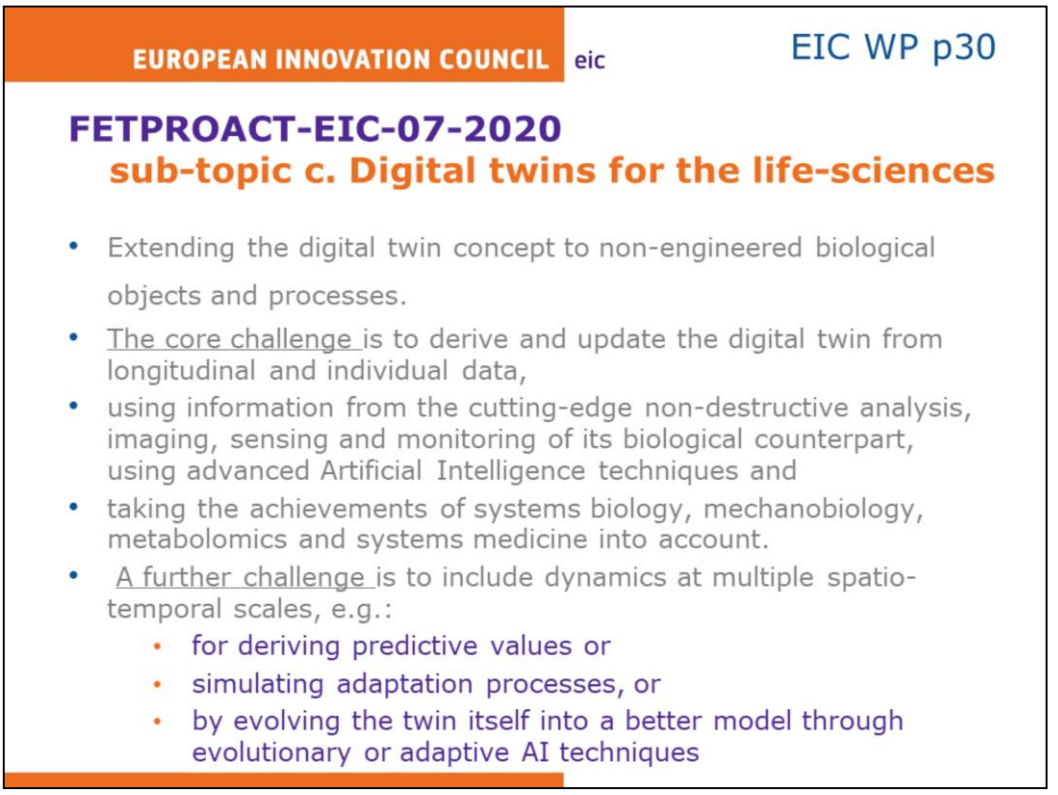
A digital twin is a digital replica of a living or non-living physical entity. By bridging the physical and the virtual world, data is transmitted seamlessly allowing the virtual entity to exist simultaneously with the physical entity. Wikipedia

Digital Twin Technology was named one of Gartner's Top 10 Strategic Technology Trends for 2017, but what really is it and how can ..

In practice mostly for engineered assets:

- A *digital twin* is a virtual representation of a physical product or process, used to understand and predict the physical counterpart's performance characteristics. (Siemens)
- *Digital twins* are software representations of assets and processes that are used to understand, predict, and optimize performance in order to achieve improved ... (GE)
- A *digital twin* is a virtual representation of a physical object or system across its lifecycle, using real-time data to enable understanding, learning and reasoning. (IBM)

Credit: https://www.networkworld.com/article/3280225/what-is-digital-twin-technology-and-why-it-matters.html



The core challenge is to derive and update the digital twin from longitudinal and individual data, and using information from the cutting-edge non-destructive analysis, imaging, sensing and monitoring of its biological counterpart, using advanced Artificial Intelligence techniques and taking the achievements of systems biology, mechanobiology, metabolomics and systems medicine into account.

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EIC WP p30

FETPROACT-EIC-07-2020
sub-topic c. Digital twins for the life-sciences

- Pushing frontiers in data-driven modelling, model adaptation and evolution
- Tight coupling between twin and biological structures at different levels (from biochemical pathways to human individuals). In-vivo or in-vitro, or using hybrid twins, like organ/body-on-chip.
- Sensing, imaging, monitoring and possibly interaction/ actuation/intervention for coupling.
- Clinical or non-clinical scenarios can be explored.
- Uses for personalised medicine, advanced diagnostics, therapeutic approaches, theranostics and prevention (lifestyle, nutrition, environmental factors).
- Ethical implications should be included: privacy, (in-)equality, liability, segregation, etc.

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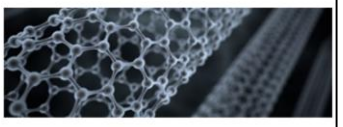
FET WP, page 23

FETPROACT-EIC-07-2020

sub-topic d. Measuring the unmeasurable – Sub-nanoscale science for Nanometrology

- New approaches for nano- and sub-nano metrology:
  - Dimensional, 1-2-3D-characterisation at nano (10^{-9} m) or pico-metre (10^{-12} m) scales.
  - Temporal, transient phenome at femto-second (10^{-15} s) or atto-second (10^{-18} s).
- Research from novel measurement concept up to a technique and/or method including prototype measuring devices/setups and procedures.
- Challenges in measurement in e.g., morphology, composition, reactivity, energy, dynamics or relevant optical, electronic, chemical and biochemical properties.
- Sound metrological aspects like quantification of uncertainty and traceability, and minimizing sample damages.



Credit https://www.ri.se/en/what-we-do/projects/nanomag-nanometrology-methods-magnetic-nanoparticles

https://www.qmul.ac.uk/sbcs/research/research-themes/functional-materials-and-nanoscience/

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Impacts

New exciting science
And technology

Creating the community of researchers and innovators that will change the future

Potential returns for society, economy and markets

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Expected Impacts

- Scientific and technological contributions to the foundation and consolidation of a radically new future technology.
- Potential for future returns in terms of societal or economic innovation or market creation.
- Spreading excellence and building leading innovation capacity across Europe by involvement of key actors that can make a difference.
- Build-up of a goal oriented interdisciplinary community (within and beyond the consortium).
- Emergence of an innovation ecosystem around a future technology in the theme addressed from outreach
- Partnership with high potential actors in research and innovation, and from wider stakeholder/public engagement.

Spreading excellence and building leading innovation capacity across Europe by involvement of key actors that can make a difference in the future, for example excellent young, researchers, ambitious high-tech SMEs or first-time participants to FET under Horizon 2020.

EIC WP, p31

FETPROACT-EIC-07-2020
FET Proactive: emerging paradigms and communities

Indicative size and relevant call conditions:

- EUR 4-4,5 million, up to 4 years
  - Ask what you need, no more, no less
  - Don't stretch the proposal to want to do everything
- Minimum 3 partners from 3 MS/AC – no hidden expectations
- 'Cascading grants' allowed, for:
  - Punctual small scale experimentation and use of project results by third parties
  - To award a prize following a contest
  - Needs to be described in the proposal
  - Max 60.000 EUR per third party

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EIC WP, p35-41

FETPROACT-EIC-07-2020

- Call opens 26th of March 2020 Call deadline: 2nd of July 2020
- FET Proactive has its specific evaluation criteria, thresholds and weights:
  - Excellence (Threshold: 4/5, Weight: 60%)
  - Impact (Threshold: 3.5/5, Weight: 20%)
  - Implementation (Threshold: 3/5, Weight: 20%)
- Total budget EU 56 million of which at least EUR 12 million will be allocated to each of the sub-topics 'a. Artificial Intelligence for extended social interaction', 'b. Breakthrough zero-emissions energy storage and conversion technologies for carbon-neutrality' and 'c. Digital twins for the lifesciences'.
- Maximally two grants for sub-topic d.
- Maximum 30 A4 pages for Section 1 to 3 of Part B.
- Collaboration agreement among the projects in same sub-topic
- Selection of proposals above threshold:
  - Top two for each sub-topic (within total topic budget of EUR 50 million)
  - Third one for each sub-topic according to ranking
  - According to ranking for remaining budget

FETPROACT-EIC-08-2020
Environmental Intelligence

Specific Challenge:

- Build a deeper understanding of the socio-environmental inter-relationships, for example, by testing and validating complex theoretical models.
- Creating new synergies between distant communities of environmental modelling, advanced sensor research, social sciences, and artificial intelligence.
- Taking critical steps towards the realisation of a full-fledged system for environmental intelligence.

➢ 'A digital twin' for the environment ?

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FETPROACT-EIC-08-2020
Environmental Intelligence

a. New techniques for creating and using dynamic models of environmental evolution

- Combining in-situ and remote sensing/observation with other environmental data sources, human behavior data, economics and social sciences.
- Interplay of natural and societal systems: policy, economics, human behavior, social norms' impact on evolution and exploitation of the environment, and vice-versa.

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FETPROACT-EIC-08-2020
Environmental Intelligence

b. Radically novel approaches to resilient, reliable and environmentally responsible in-situ monitoring

- In-situ sensing technology (physical, chemical, biological, behavioral) for environmental monitoring.
- Focus on under-sampled but critical parameters and environments.
- Affordable and responsible sensor life-cycles.
- Advanced research on networking aspects is not addressing this sub-topic.

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FETPROACT-EIC-08-2020
Environmental Intelligence

Indicative size and relevant call conditions:

- EUR 4 million, up to 4 years
  - Ask what you need, no more, no less
  - Don't stretch the proposal to want to do everything
- Minimum 3 partners from 3 MS/AC – no hidden expectations
- Maximum 30 A4 pages for Section 1 to 3 of Part B.

- Note: cascading grants not allowed.

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EIC WP, p35-41

FETPROACT-EIC-08-2020
Environmental Intelligence

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  - Excellence (Threshold: 4/5, Weight: 60%)
  - Impact (Threshold: 3.5/5, Weight: 20%)
  - Implementation (Threshold: 3/5, Weight: 20%)
- Selection of proposals above threshold:
  - Top two for each sub-topic (within total topic budget of EUR 18 million)
  - Third one for each sub-topic according to ranking
  - According to ranking for remaining budget
- Collaboration agreement between projects

As you can see, for each sub-programme, cut-offs dates have been set until the end of Horizon 2020.


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TIPS and SUGGESTIONS
FOR SUCCESSFUL
PROPOSALS
+
Feedback from Evaluators
in FetProact 2019
Research and Innovation

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Within EIC, the spirit of FET remains the same

https://webcast.ec.europa.eu/the-fet-spirit-revisited-recording

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TIPS and TRICKs FOR SUCCESSFUL PROPOSALS*

FIRST: Make sure your proposal has/involves:

- A radically new vision
- A concrete breakthrough tech target
- Ambitious interdisciplinary research



*we refer here to the majority of proposals that start from basic scientific/technological principles; EIC Pathfinder also supports proposals that try to use direct or indirect results from the latter into demonstrations of technology.

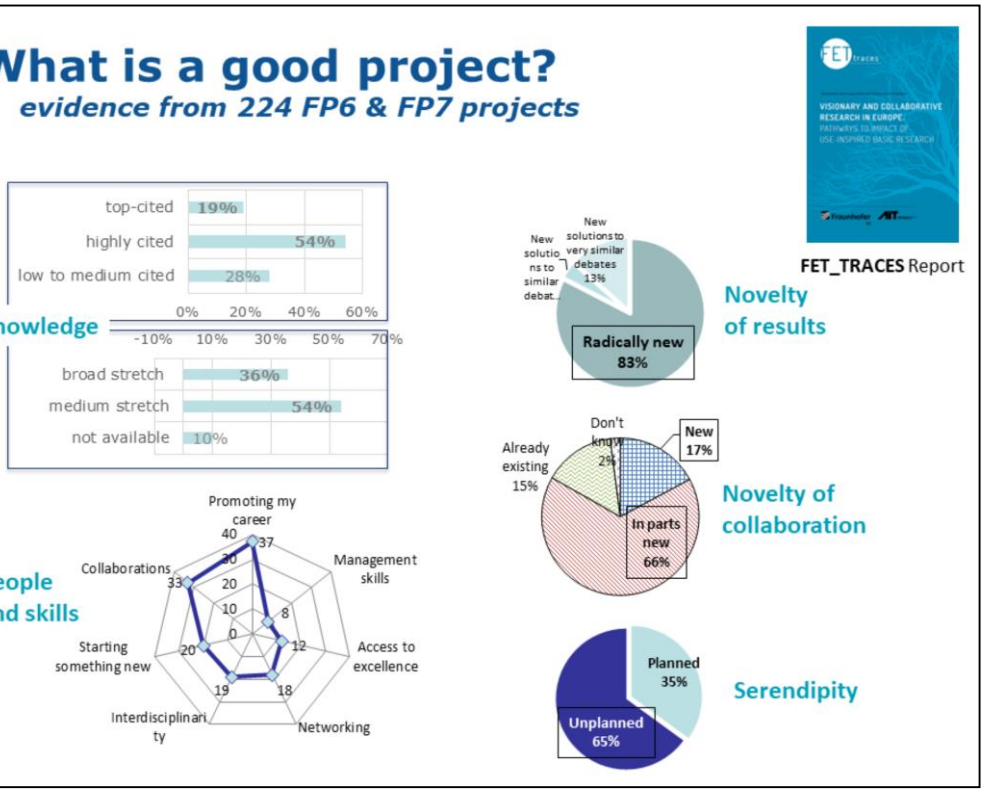
FET Features and Impacts maintained in EIC Pathfinder

- ✓ Visionary
- ✓ Science driven
- ✓ Breakthrough tech
- ✓ Interdisciplinary
- ✓ Radical Novelty
- ✓ Non-incremental

Evidence of Impacts based on a representative sample of 224 completed FET-Open and FET-Proactive projects.

What is a good project?

evidence from 224 FP6 & FP7 projects



FET_TRACES Report

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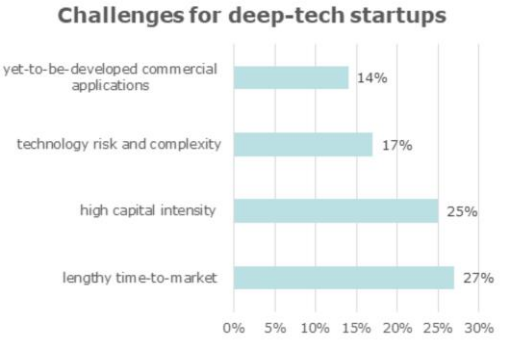
EIC Pathfinder Pilot
Deep-tech 'made in Europe'

- **Needs a strong research base**
- Deep-tech companies **constantly pushing the technological frontier**
- **Collaborations** are important: deep-tech operates at the crossroads of disciplines, fundamental research and industrial application



Source: BCG and Hello Tomorrow Report: "From tech to deep tech"

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Jan Lichtenberg
CEO and Co-Founder
InSphero

Success case

FET-Open 'Body-on-a-Chip' from research to commercialization

"Young companies must be focused on generating market interest for their products. **The FET Open programme allowed us to get the balance right and to work on the next wave of innovation for the company.** We are proud to have made this project a success from start to commercial launch. This technology platform will change the way **new drugs** are developed in the future: **without animal testing.**"

https://ec.europa.eu/digital-single-market/en/blogposts/new-way-find-better-medication-fet-open-project-body-chip-commercialised

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Do's and Don'ts – concrete advice

- *Be ambitious, follow your 'dream' and have fun*
  - Your proposal is just a starting point
  - Don't write it for 'us', but for people like you
  - Deliver what you want or need, not what you think 'we' want
- *Consortium as embryonic ecosystem*
  - There are no hidden expectations from our side
  - No cosmetic roles – keep it simple
  - Work with the best (don't just read their books)
  - Novelty probably starts here
- *Collaborate, collaborate, collaborate…*
  - Write your proposal together
  - Collaboration driven by joint goals and mutual learning
  - Explore new ways of working/learning together
- *Communicate and engage*
  - Scientific publications
  - Inspire others!
    - Social network, accessible and understandable material
    - Engage beyond scientific community

EUROPEAN INNOVATION COUNCIL eic BETA

FET projects are looking for radical novelty. What information are you looking for in the proposal when evaluating this?

1. Novelty, radical novelty!
2. Statement of the state of the art- applicants often misunderstand/are not sufficiently familiar with SOA. What is the new insight/approach/strategy.
3. I'm looking for the answer to: "what does this team has discovered, or figured out from other researchers results, that will solve the open problems addressed by the call? " I'm looking for information that leads me to conclude that after that proposal we will have started a new research path to solve an existing problem.
4. Comparison with state-of-the-art / alternative existing approaches
5. Entirely new ideas that may lead to a new paradigm
6. I need to see the gap, the innovation jump is going to fill, with sufficient details and justifications.
7. information to justify why the proposal is disruptive and not incremental.
8. Information about why this was not possible before and now it becomes conceivable.

European Commission

EUROPEAN INNOVATION COUNCIL eic BETA

FET projects are looking for interdisciplinarity. What information are you looking for in the proposal when evaluating this?

1. 1 If the right disciplines contribute in the right way to the area. This is, for example, hugely important in many IT applications.
2. I am looking for multidisciplinarity that goes beyond the multidisciplinarity generally met in FET projects. It should be larger than the conventional multidisciplinarity of todays encountered researches.
3. Description of discipline specific approaches to problem and how a new inter disciplinary approach can move the field forward.
4. Do they bring in new developments in one discipline to create breakthroughs in another one? Are they able to invent a new kind of synergism?
5. Consortia significantly beyond usual interdisciplinary disciplines that are typically put together.
6. I'm looking to find evidence that the proposal is based on an idea, and will be implemented like that, that will be designed by all expertise available in the consortium.

European Commission

EUROPEAN INNOVATION COUNCIL eic BETA

FET projects are looking for visionary proposals. What information are you looking for in the proposal when evaluating this?

1. Clearly defined insight/preliminary data describing the solution/way forward. Clear description of how solution will be created/delivered/implemented.
2. A clear vision statement, supported by ambitious mission statements.
3. Innovation compared to a complete state of the art that includes pioneering references and not only references of the consortium (this I found to be generally the case however other references from the world are generally omitted)
4. I'm looking for the answer to: "what does this team has discovered, or figured out from other researchers results, that will solve the open problems addressed by the call? " I'm looking for information that leads me to conclude that after that proposal, we will have a new research path to solve an open problem.

European Commission

Do you prefer to have graphics/pictures included in the proposal? What other types of visualization elements do you prefer?

Evaluators in general like graphics:

1) Graphics and pictures are essential components in presenting a convincing case for funding and at a minimum each proposal should have a single unifying graphic summarizing the proposal vision and objectives- perhaps even mandatory?
2) The ability to visualise a concept and/or to present its architecture shows the level of understanding that the consortium has
3) The consortium should be forced to fill out a graph with numbers to get a clear and fast overview as evaluator
4) One good scheme can replace a page of text. I strongly support graphic presentation.
5) They can help to understand (or can also help to see how confused are the ideas behind one proposal).

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EIC Pilot
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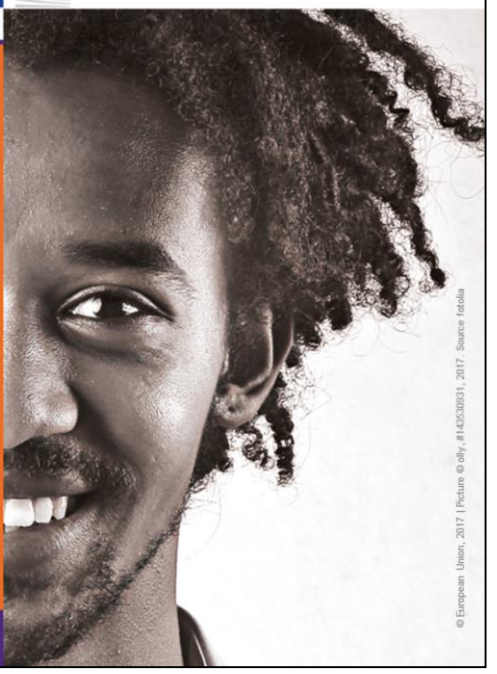
Thank you for your attention!

Questions?

Research and Innovation

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EMPOWERING EUROPEAN INNOVATORS
EIC Pathfinder
FET Open
Work Programme 2020
Research and Innovation

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EIC Pathfinder - FET Open
Research and Innovation Actions

- Foundations for radically new future technologies, high-risk & high-impact interdisciplinary research:
  - *Radical vision*
  - *Breakthrough technological target*
  - *Ambitious interdisciplinary research*

  Gatekeepers
- **Bottom-up and continuously open**
- **15-page proposal,** up to **€3 million** (indicative), consortium of minimum **3 partners** from minimum **3 EU or associated countries**

https://www.youtube.com/watch?v=t8dAJvoiguM

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EIC Pathfinder - FET Open

Expected Impact – Research and Innovation Actions

- 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, for example excellent young researchers, ambitious high-tech SMEs or first-time participants to FET under Horizon 2020

First-time participants to FET under Horizon 2020 are individuals who are not / have not been involved in any action funded under any call in the FET work programmes under Horizon 2020. This refers to the individuals involved, not their institution or organization.

EUROPEAN INNOVATION COUNCIL eic

Evaluation criteria, Scoring and Thresholds
Research and Innovation Actions

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%**

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EIC Pathfinder - FET Open (CSA)

FET Innovation Launchpad

- **Turning results from FET-funded projects into genuine societal or economic innovations**
- Examples of activities:
  - Market or competitiveness analysis, commercialisation process, business case development, technology assessment, consolidation of IPRs
- EU contribution of up to **100 k€** (eligibility) and up to **18 months**
- **Sole applicant** or as part of a consortium from MS/AC
- 7-pages (A4) proposal
- Cut-off in 2020: introduction of lump sums

EIC Pathfinder - FET Open
Expected Impact – FET Innovation Launchpad

- 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 mind-set towards exploitation beyond the research world.
- Contributing to the competitiveness of European industry/economy by seeding future growth and the creation of jobs from FET research.

EUROPEAN INNOVATION COUNCIL eic

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%**

As you can see, for each sub-programme, cut-offs dates have been set until the end of Horizon 2020.

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Enhanced EIC Pilot

Business Acceleration Services

- For **EIC beneficiaries** (Pathfinder and Accelerator)
- **Coaching***: up to 12 days available
- **Mentoring** for individual founders, CEOs and leaders
- EIC **Community** Platform
- EIC **Networking** events**,** such as Corporate Days (companies meet large corporations as potential investors)

*only available to SMEs, including natural persons, or for the purpose of setting-up such a company

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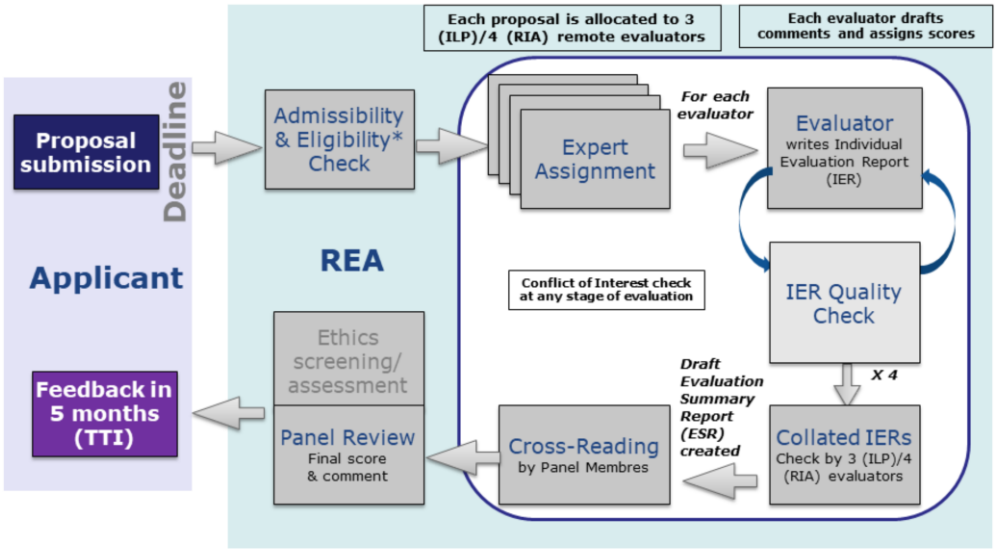
FET-Open Evaluation process



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

Time-to-grant: 8 months

FET and EIC work programme H2020 reference documents

The FET WP 2018-2020 can be downloaded from
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-fet_en.pdf

The EIC Pilot WP 2018-2020 can be downloaded from
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-eic_en.pdf

The WP 2018-2020 for cross-cutting activities can be downloaded from
http://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-cc-activities_en.pdf

All are part of
European Commission Decision
C(2019)4575 of 2 July 2019

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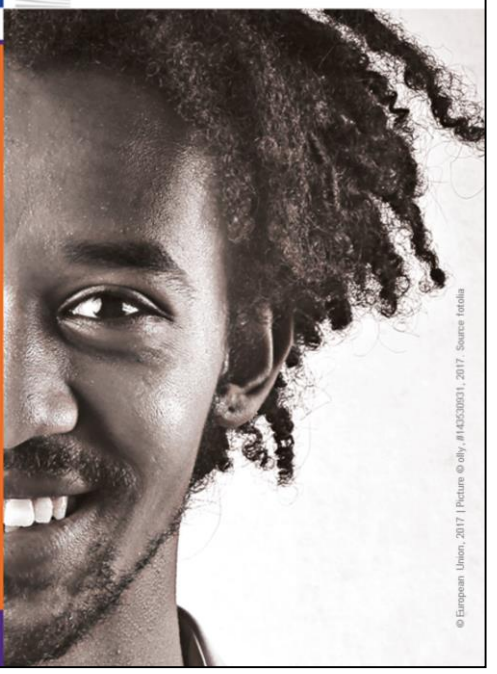

Proposal composition

- 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
  - Section 5: Ethics and security

Interpretation of the scores

Scores must be in the range 0-5. Half marks may be given. When an evaluator identifies significant shortcomings, he or she must reflect this by awarding a lower score for the criterion concerned.

0 The **proposal fails to address the criterion** or cannot be assessed due to missing or incomplete information.

1 **Poor**. The criterion is inadequately addressed, or there are serious inherent weaknesses.

2 **Fair**. The proposal broadly addresses the criterion, but there are significant weaknesses.

3 **Good**. The proposal addresses the criterion well, but a number of shortcomings are present.

4 **Very Good**. The proposal addresses the criterion very well, but a small number of shortcomings are present.

5 **Excellent**. The proposal successfully addresses all relevant aspects of the criterion. Any shortcomings are minor.

Feedback to applicants

Evaluation Summary Report (ESR)

- Collation of all individual comments, per sub-criterion, from ALL Individual Evaluation Reports (IER) – 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 IERs
- Final score, per criterion, is decided by the final Panel Review and the proposal total score is 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