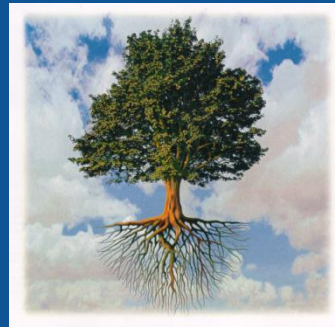




Future and Emerging Technologies (FET) Work Programme 2014-2015 in H2020

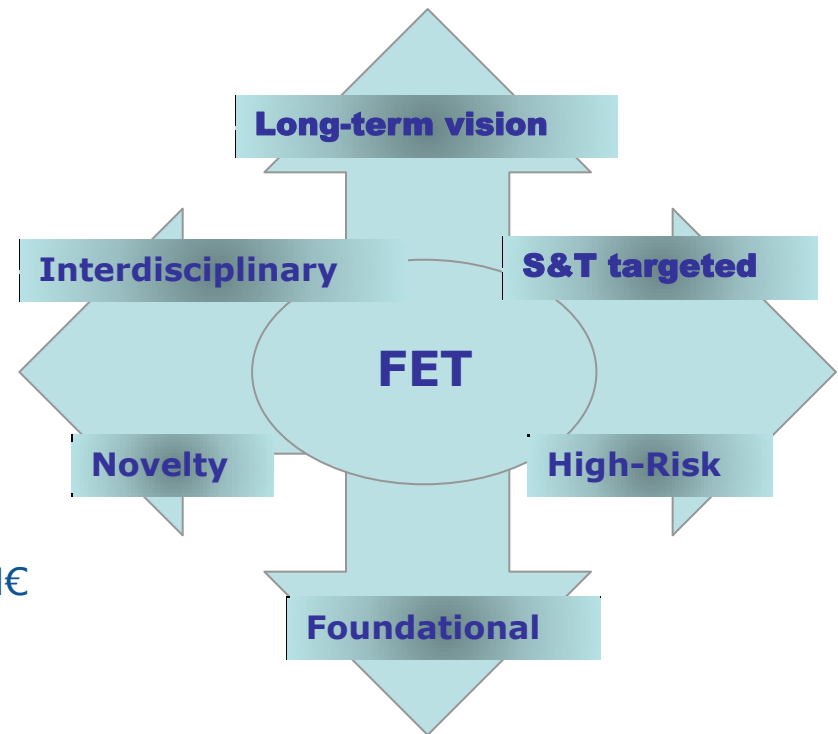


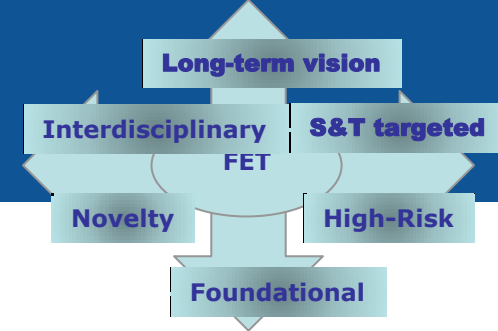
FETPROACT 3: Quantum Simulations

Future and Emerging Technologies
DG CONNECT
European Commission

Characteristics of FET projects

- *FET gatekeepers define the kind of research that FET is looking for*
 - Scope delimited by the 6 gatekeepers
 - Targeted - not blue sky research defined by the call text
 - Collaborative research
- *Instrument*
 - Research and Innovation Action - 10M€





Long-term vision: a new, original or radical long-term vision of technology-enabled possibilities going far beyond the state of the art

Breakthrough S&T target: scientifically ambitious and technologically concrete breakthroughs plausibly attainable within the life-time of the project.

Foundational: the breakthroughs must be foundational in the sense that they can establish a basis for a new line of technology not currently anticipated.

Novelty: new ideas and concepts, rather than the application or incremental refinement of existing ones.

High-risk: the potential of a new technological direction depends on a whole range of factors that cannot be apprehended from a single disciplinary viewpoint.

- This inherent high-risk has to be countered by a strongly interdisciplinary research approach, where needed expanding well beyond the strictly technological realm.

Interdisciplinary: the proposed collaborations must go beyond current mainstream collaboration configurations in joint S&T research, and must aim to advance different scientific and technological disciplines together and in synergy towards a breakthrough.



FETPROACT-3-2014: Quantum simulation

Specific challenge: Devices that exploit quantum phenomena such as superposition and entanglement have the potential to enable radically new technologies. Several promising directions are now well known, for instance in quantum computation and simulation, quantum communication, quantum metrology and sensing. However, overcoming basic scientific challenges as well as bridging from the scientific results to concrete engineering technologies has proved difficult. This objective challenges the research community to **develop solutions using quantum technologies that will ultimately address real world problem, with a potential for disruptive change.**

Project size: 2 to 4M€

Budget & Deadline: 10M€ -> Deadline: 1/4/2014

FETPROACT-3-2014: Quantum simulation

Scope: Proposals shall address research and development for quantum simulation to **address a class of problems that is beyond the reach of classical computing, and that can contribute to answering questions in fundamental or applied sciences**, e.g. in quantum materials science or the life sciences.

This topic is complementary to quantum technology research topics that are called under the ICT part of the LEIT Workprogramme 2014-15 and that are related to the domains of nano- electronic technologies (“new computing paradigm like quantum computing”), photonics (“disruptive approaches in sensing.. ..based on quantum optics or quantum technologies...”) and cybersecurity (“Quantum key distribution systems and networks for long-term security by design”).

FETPROACT-3-2014: Quantum simulation

Expected impact

- Contribution to solving problems in fundamental and applied science using new tools based on quantum physics and quantum technologies
- Build-up of **core competences for the wider exploitation of quantum science and technologies in mainstream engineering.**

One step submission and evaluation

Part A: Administrative part of the proposal

Part B : Scientific part of the proposal

- **16 pages – core proposal**
 - Cover page
 - Section 1: S&T Excellence
 - Section 2: Impact
 - Section 3: Implementation
- **Additional information**
 - Section 4: Members of the consortium
 - E.g. legal entity, CV, subcontract, third party
 - Section 5: Ethics and Security
 - Ethics self-assessment & supporting documents
 - Security checklist

Evaluation criteria (Research project)

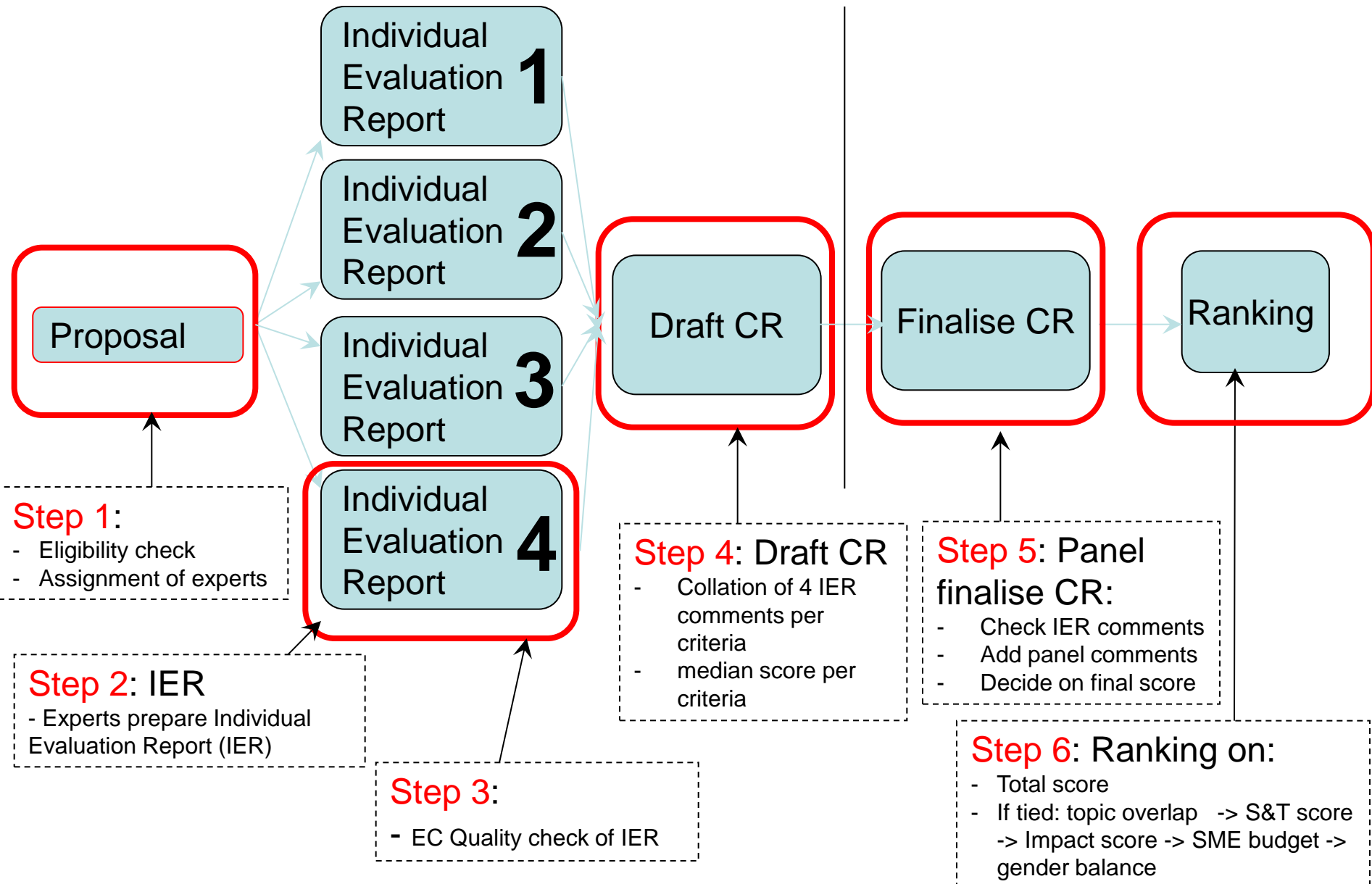


| Excellence | Impact | Implementation |
|--|--|---|
| <ul style="list-style-type: none"><input type="checkbox"/> Clarity of targeted breakthrough and its specific science and technology contributions towards a long-term vision.<input type="checkbox"/> Novelty, level of ambition and foundational character.<input type="checkbox"/> Range and added value from interdisciplinarity.<input type="checkbox"/> Appropriateness of the research methods. | <ul style="list-style-type: none"><input type="checkbox"/> Importance of the new technological outcome with regards to its transformational impact on technology and/or society.<input type="checkbox"/> Quality of measures for achieving impact on science, technology and/or society.<input type="checkbox"/> Impact from empowerment of new and high potential actors towards future technological leadership. | <ul style="list-style-type: none"><input type="checkbox"/> Quality of the workplan and clarity of intermediate targets.<input type="checkbox"/> Relevant expertise in the consortium.<input type="checkbox"/> Appropriate allocation and justification of resources (person-months, equipment, budget). |
| Threshold: 4/5 Weight: 60% | Threshold: 3,5/5 Weight: 20% | Threshold: 3/5 Weight: 20% |

Evaluation process

Remote phase

Panel in Brussels



Final CR=> Evaluation Summary Report

- S&T Excellence: score /5
 - Panel comments
 - Expert 1 comments
 - Expert 2 comments
 - Expert 3 comments
 - Expert 4 comments
- Impact: score /5
 - Panel comments
 - Expert 1 comments
 - Expert 2 comments
 - Expert 3 comments
 - Expert 4 comments
- Implementation: score /5
 - Panel comments
 - Expert 1 comments
 - Expert 2 comments
 - Expert 3 comments
 - Expert 4 comments
- Total weighted score /5