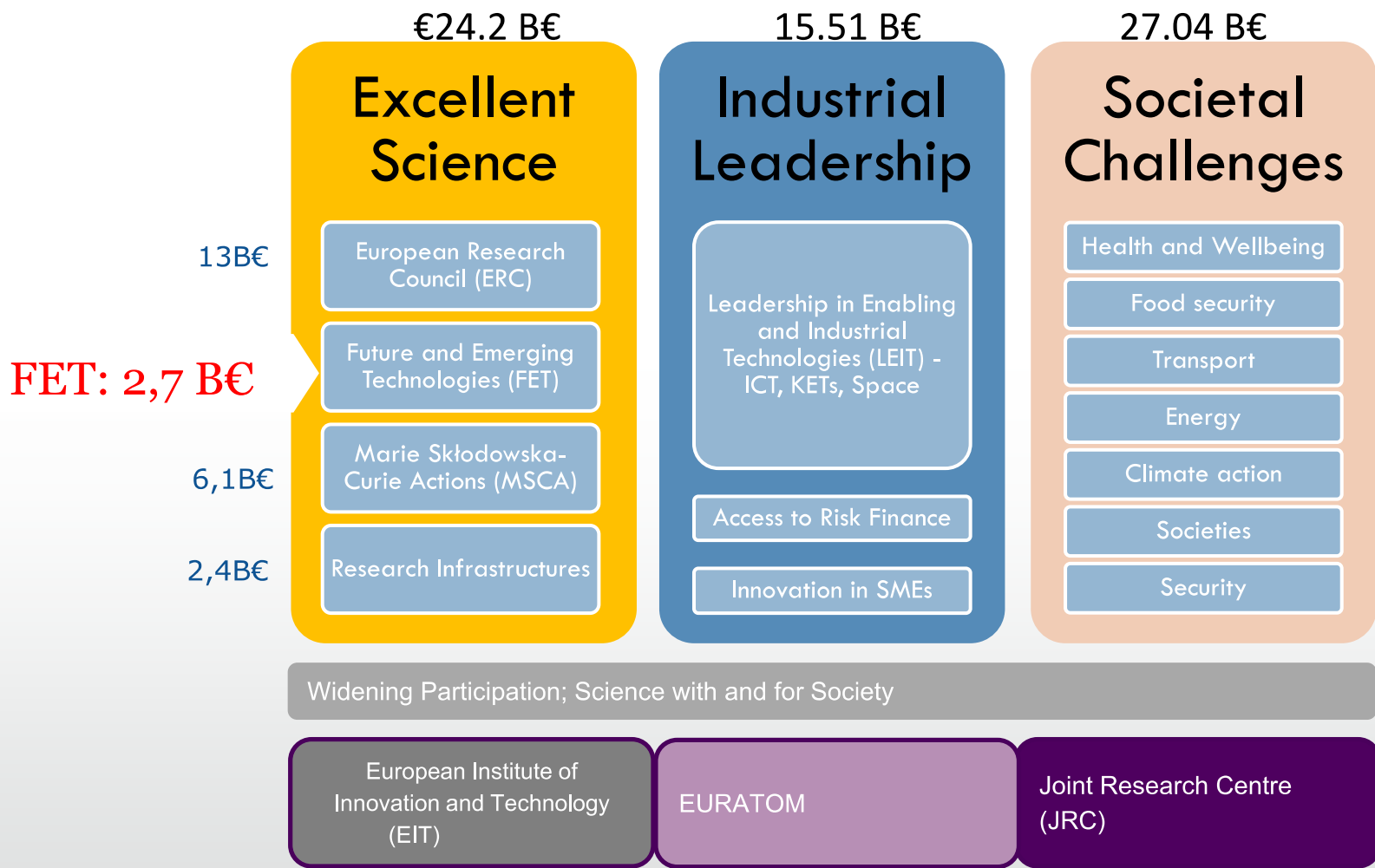


Horizon 2020: stronger, clearer focus

Budget: 77B€



"Future and emerging technologies shall support collaborative research in order to extend Europe's capacity for advanced and paradigm-changing innovation. It shall foster scientific collaboration across disciplines on radically new, high-risk ideas and accelerate development of the most promising emerging areas of science and technology as well as the Union wide structuring of the corresponding scientific communities."

HORIZON 2020 - THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (2014-2020)
[<http://ec.europa.eu/programmes/horizon2020/en/h2020-section/excellent-science>]

Path finding Europe's technological future

FET's missions

- To turn Europe's excellent science base into a competitive advantage by uncovering radically new technological possibilities
- To transfer Europe into the best place for collaborative research on future and emerging technologies



- **Research beyond what is known**, accepted or widely adopted;
- Supports novel and visionary thinking to open promising paths towards powerful new technologies;
- Funds **interdisciplinary collaborations** that seek genuine cross-fertilisation and **deep synergies between the broadest range of advanced sciences** (physical sciences, information sciences, life sciences, environmental sciences, social sciences, humanities,...) and cutting-edge engineering disciplines (chemical, physical, biological, computational, geospatial, ...) [HORIZON 2020 - THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (2014-2020)]

Motivation: to turn new knowledge and high-risk ideas into a viable basis for radically new technologies.

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrial environment in the case of KETs)

TRL 6 – technology demonstrated in relevant environment (industrial environment in the case of KETs)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of KETs; or in space)

Innovation Actions (70% funding): is an indication that project is a close to market/innovation project.

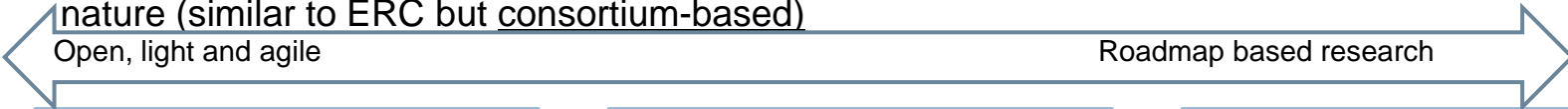
Research & Innovation Actions (100% funding): is an indication that project is a research project.

Co-ordination activities (CSA) (100% funding): are not to fund research. These are networking opportunities.

Overview of FET funding schemes in H2020

Total budget: 2.7 B€ vs ~1B€ in FP7

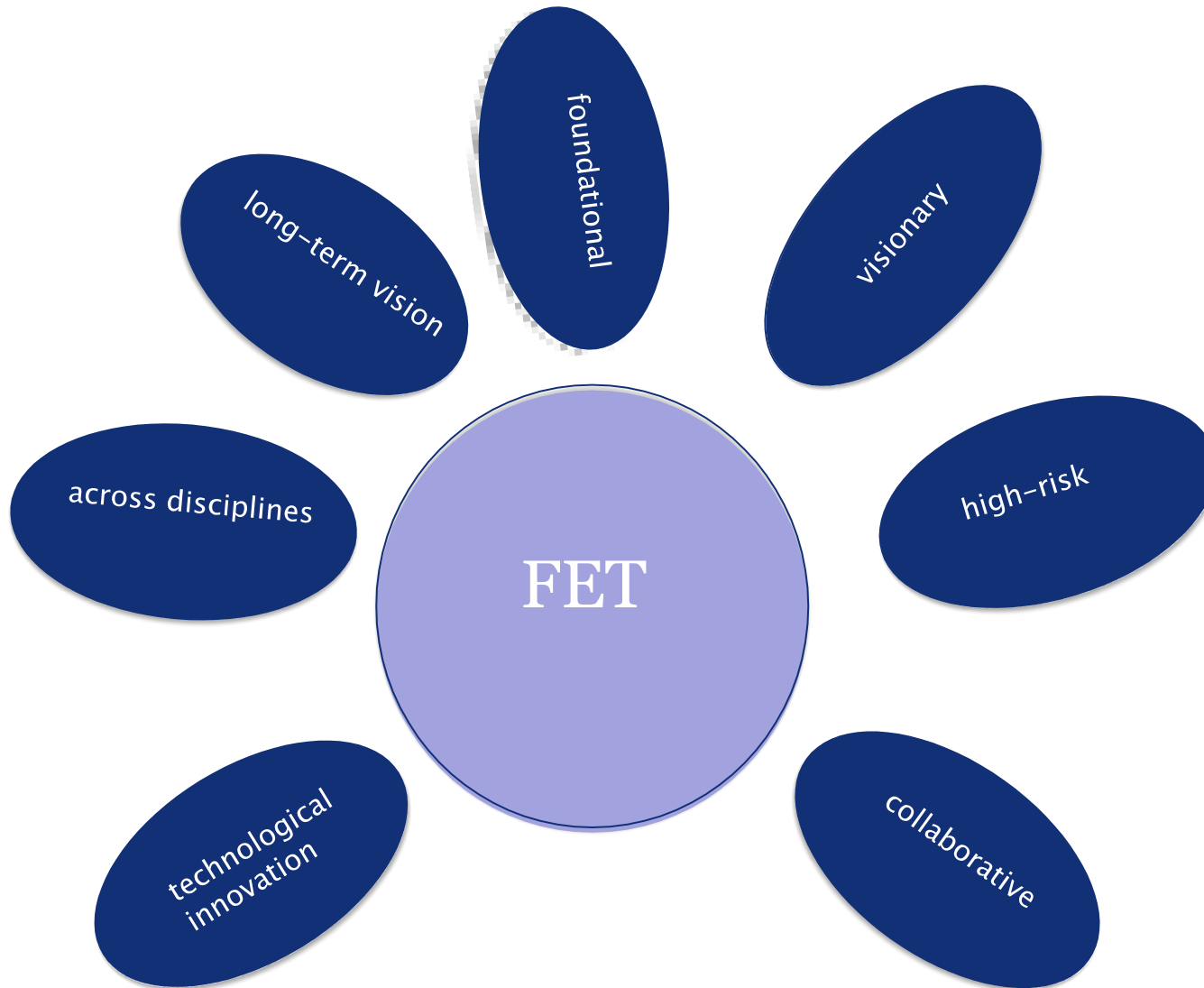
- Expanded from ICT and Energy to be used as cross-cutting funding scheme
- Supports frontier research: alternative ideas, concepts or paradigms of risky or non-conventional nature (similar to ERC but consortium-based)



FET Open: bottom-up	FET Proactive: top-down	FET Flagships
<ul style="list-style-type: none"> Small consortium-type research projects Early ideas Coordination and support activities 	<ul style="list-style-type: none"> ‘Nurturing emerging themes and communities’ Open research clusters <u>Initiatives:</u> Global Systems Science (GSS); Knowing, doing being: cognition beyond problem solving Towards exascale high performance computing 	<ul style="list-style-type: none"> ‘Tackling grand Interdisciplinary science and technology challenges’ Common research agendas <u>Large scale projects</u> Graphene Human Brain Support to Flagships

Exploring novel ideas	Developing topics & communities	Addressing grand challenges
------------------------------	--	------------------------------------

Different schemes with common shared values



FET Open-novel ideas for radically new technologies in WP2014-15

- **'Open is truly open'**

- All technologies, no thematic restriction
- *FET gatekeepers define the kind of research that FET is looking for*
- Scope defined by the 6 characteristics
- Bottom-up, but targeted - not blue sky research any longer
- Collaborative research
- *Total budget: 160M€ in 2014-15*
- **Instrument**
- Research and Innovation Action - 154M€
- Coordination and Support actions (CSA) – 6M€

FET characteristics

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.*

FETOPEN 1: FET-Open research projects

Specific challenge

Supporting a large set of early stage, high risk visionary science and **technology collaborative research projects** is necessary for the successful exploration of **new foundations** for **radically new future technologies**.

Nurturing fragile ideas requires an agile, risk-friendly and **highly interdisciplinary** research approach, expanding well beyond the strictly technological disciplines.

Recognising and stimulating the driving role of **new high-potential actors** in research and innovation, such as women, young researchers and high-tech SMEs, is also important for nurturing the scientific and industrial leaders of the future.

Project size: 2 to 4M€

Research & Innovation Actions (100% funding)

Table of calls: FET Activities

FET calls	Publication date	Submission deadline	Budget
FET-OPEN - Novel ideas for radically new technologies <i>*Research & Innovation Actions</i>	11 Dec 2013 11 Dec 2013 11 Dec 2013	30 Sept 2014 31 March 2015 29 Sept 2015	77M€ 38.5M€ 38.5M€
FET-OPEN - Novel ideas for radically new technologies <i>*Co-ordination activities (CSA): networking opportunities</i>	11 Dec 2013 11 Dec 2013	31 March 2015 29 Sept 2015	1.5M€ 1.5M€
FET-PROACTIVE - Towards exascale high performance computing -Topic1: HPC Core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications -Topic2: HPC Ecosystem Development	11 Dec 2013	25 Nov 2014	93.4M€ 4M€
FET FLAGSHIPS* -Graphene FET Flagship Core Project -Human Brain FET Flagship Core Project <i>*only for consortia selected awarded under topics FETFLAG 1 – 2014</i>	Expected in second quarter 2015		~89M€

Finances in H2020

- Single funding rate per project (max. 100%/70%)
- Flat rate for indirect costs 25%
- Inclusion VAT
- 100% reimbursement for non-profit organisations
- No timesheets for staff working full-time on Horizon 2020 projects
- Shorter time to grant (8 months)
- Audit requirement: >325k euro
- Exchange rate

FET: useful websites for navigation

<https://ec.europa.eu/research/participants/portal/desktop/en/home.html>

(Participant Portal – full details)

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-fetopen-2014-2015-ria.html>

(call: FET-Open: Research Projects)

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-fetopen-2014-csa.html>

(call: FET-Open: Coordination and Support Actions)

http://ec.europa.eu/research/participants/portal/doc/call/h2020/common/1597684-part_02_fet_v1.1_en.pdf

(FET Work Programme call text)

https://ec.europa.eu/research/participants/portal/doc/call/h2020/h2020-fetopen-2014-2015-1/1592627-self-evaluation_form_fetopen-1_fetproact_en.pdf

(self evaluation forms for FET-Open: research projects)

<http://ec.europa.eu/digital-agenda/en/fet-projects-portfolio>

http://cordis.europa.eu/fp7/ict/fet-open/portfolio-2007-12-strep_en.html

(FET Projects Portfolio)

□ Types of actions for FET

- Research and innovation actions (RIA) (100% funding)**
- Coordination and support actions (CSA) (100% funding)**

□ Minimum conditions for participation (also valid for FET)

- **For standard collaborative actions (RIA and IA)**
- **3 legal entities, each established in different MS/AC**
- **For CSA : 1 legal entity**

* Note: Switzerland has to be considered a non-associated, third country, can participate in H2020 but is not automatically eligible for funding and will not count towards the minimum number of participants required for a project.

Part A – Administrative forms

Section 1

- Title, acronym, objective etc.
- Fixed and free keywords
- 2000 character proposal abstract
- previous/current submission
- Declarations

Section 2 (one form per partner)

- Participant Identification Code (PIC) compulsory!
- Department
- Dependences
- Contact information
- Other contact information

Section 3

- Cost and requested grant details

Section 4

- Ethics' questionnaire

The screenshot shows the 'Proposal Submission Forms' interface for the European Commission. The page title is 'Research Enterprise & Industry Discretionary General'. It includes navigation links for 'Table of Contents', 'Validate Form', and 'Save And Close'. The form is for proposal ID '123456' and acronym 'ACBD'. The 'General Information' section contains fields for 'Call identifier' (SEP-ACBD), 'Proposal title' (with a 200-character limit), 'Duration in months', 'Fixed keyword', and 'Free keyword'. There is a large text area for the 'Abstract' with a 2000-character limit. At the bottom, there is a checkbox for 'Has this proposal or a very similar one been submitted in the past 2 years or is currently under preparation to be submitted for a call for proposals of any EU programme including Horizon 2020?'. The footer shows 'Multi-Newstaff', 'Page 2 of 11', and 'Last saved: 21/06/2014 at 17:13'.

Part B – 2xpdf files

1. Technical Annex section 1-3 (based around evaluation criteria):

-Excellence

E.g. Objectives, concept, progress beyond state-of-art...

-Impact

E.g. Potential impact (*incl. with reference to WP*); measures to maximise impact (*dissemination, communication, exploitation*)

-Implementation

Including **work packages descriptions**

2. Technical Annex section 4-5 (based around evaluation criteria):

-Section 4: Members of the consortium

E.g. legal entity, CV, subcontract, third party, subcontractors

Section 5: Ethics and Security

E.g. Ethics self-assessment & supporting documents; Security checklist

FET-Open (RIA)

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

Section 5: Ethics and Security

Cover page strictly limited to 1 page!

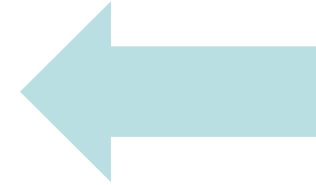
Section 1,2 & 3 are strictly limited to 15 pages!

Section 4 & 5 are not covered by the page limit.

Proposal that do not comply with these page limits will be declared ineligible.

FET evaluation process in H2020

- FET-Open (RIA, CSA) & FET-Pro-active
-**Specific evaluation procedure**
- FET-HPC
-**Standard submission and evaluation procedure**
- FET-Flagship
-**Specific evaluation procedure**



Specific evaluation procedure

- **1 stage evaluation based on FET specific evaluation criteria**

 - 16 pages proposal, FET (RIA)

 - 50 pages, FET (CSA)

Core of part B

- **Operational capacity (no specific provisions)**

- **High quality peer review – 4 experts per proposals to best address multi- disciplinary nature of FET research**

- **Proposals are not anonymous**

- **Grant**

 - Grant based on proposal 'as-is' -> No negotiation.

All information needed has to be in the proposal !

 - Time to contract of max. 8 call deadline/cut-off date

 - ESR within 5 months, contracts within 3 extra months from months !

FET Evaluation under H2020 (Research Projects)

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

FET Evaluation under H2020 (Research Projects)

Excellence (60% weight)

- How does the planned research contribute to new technology?
- FET is not looking for incremental research
- Novel combinations of disciplines especially welcome
- Are all steps in the methodology considered in the proposal?

Impact (20% weight)

- Would the new technology be useful?
- Are dissemination measures/exploitation plans appropriate?
- Are women, young researchers, high tech SMEs involved if appropriate?

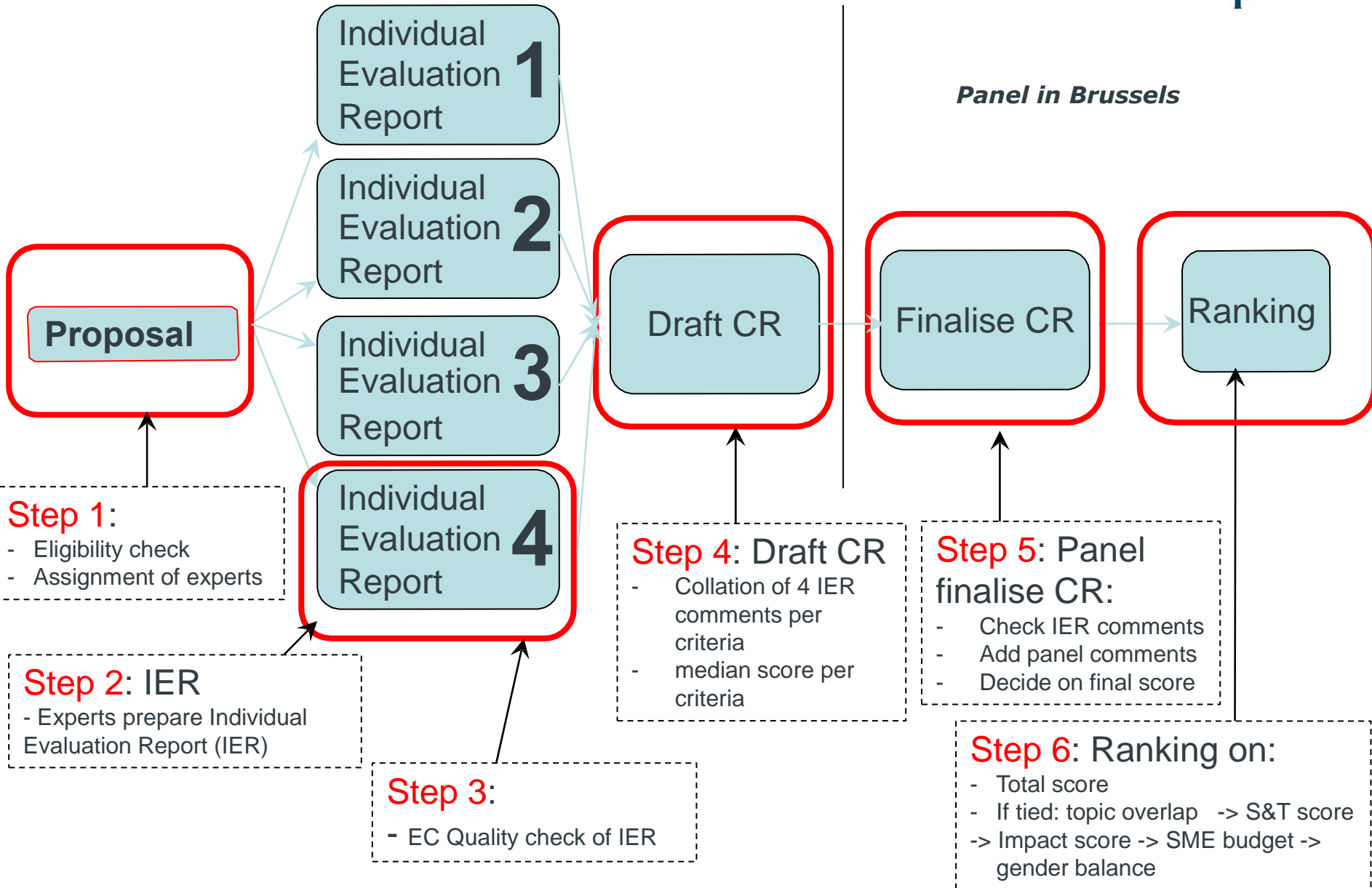
Implementation (20% weight)

- Can the workplan be managed?
- Does the consortium description demonstrate they know how to do the work?
- Are all the necessary resources described?
- Are all the described resources necessary?

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
- **Implementation: 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
- **Total weighted score /5**

Examples of negative comments from Evaluation Summary report (ESR) (FP7)

1. Scientific and/or technological excellence

“The conceptual novelty is weak”

“The proposed methods are recent but well established”

“the proposal does not sufficiently target other relevant communities such X.”

“workplan is not well focused on coordination activities but includes RID activities that are beyond the scope of a coordination action”

2. Quality and efficiency of the implementation and the management

“There is no indication given as to the amount of person-months allocated, neither for the totality of the research and partners, nor broken down over the different work packages.”

“There is a risk that the proposed coordinated actions will be reduced rather to a source of travel funds than to the proper coordinated activities.”

3. Potential impact through the development, dissemination & use of project results

“..a fundamental high risk or breakthrough component is not clearly discernable from the proposal.” impact outside area X is limited by the focused approach.

