

Future Emerging Technologies (FET) in H2020



*Proposal: Particle detectors for research
& industry*

Partners: CEA-Saclay, Zaragoza, Demokritos, IPG-P, IPN-L, LSBB

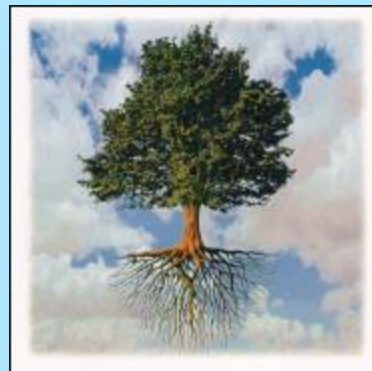
Horizon2020: the EU framework programme for research & innovation – 2014-2020

→ approved in Dec. 2013

Continuation of FP7, but covers more domains,
more ambitious, higher budget



6.1 B€



2.7 B€



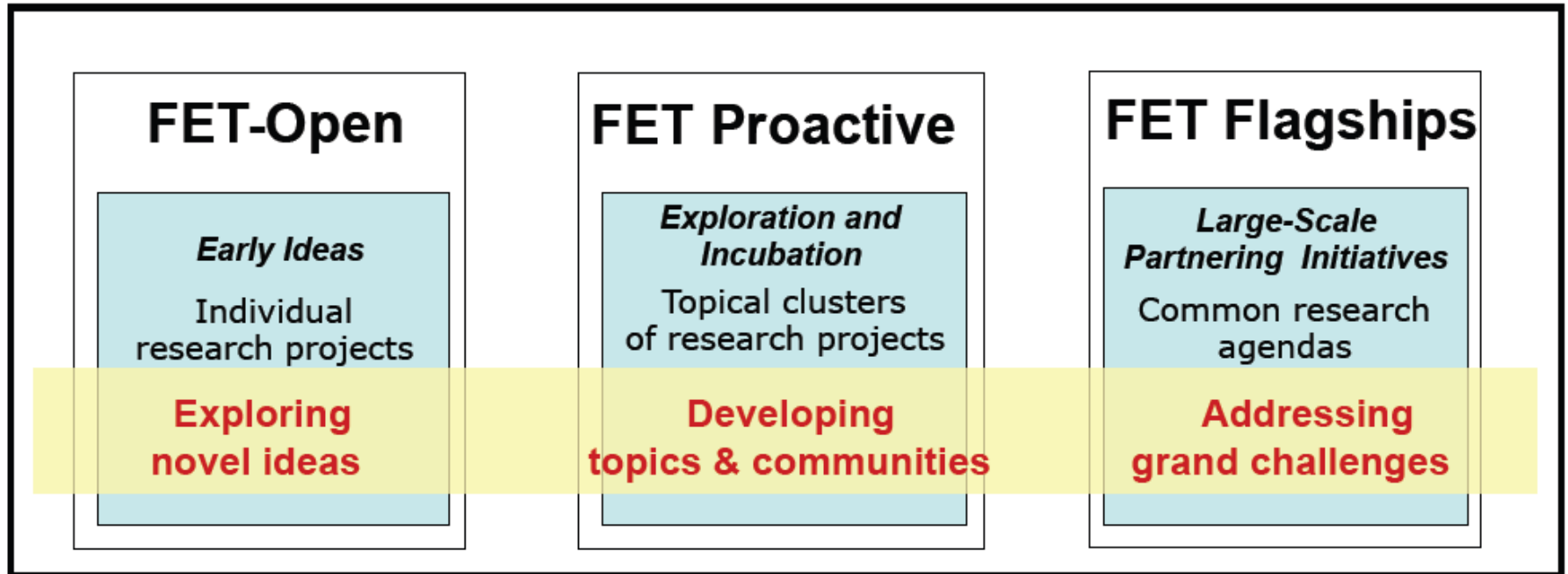
13 B€

(480 M€ for 2014-2015)

Future Emerging Technologies

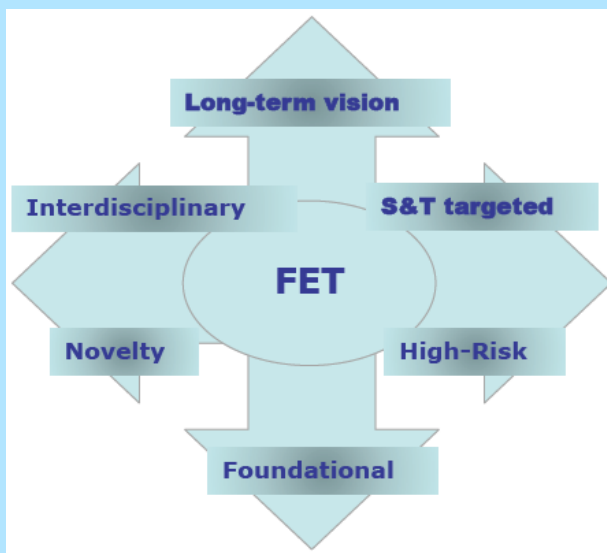


(480 M€ for 2014-2015)



160 M€

FET-Open



- Project size: 2 to 4 M€
- 1 step submission on a 16 pages proposal
- 1st deadline: 30/09/2014 (77M€)

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).
Threshold: 4/5 Weight: 60%	Threshold: 3,5/5 Weight: 20%	Threshold: 3/5 Weight: 20%

Particle detectors for research & industry

Development of multi-usage MPGDs, i.e. not only driven by fundamental physics

- Taken into account in the R&D stage
- More collaboration between fundamental physics & other disciplines/industrials




MPGDs have excellent performances, but they are not adapted outside labs

- Often lack of robustness
- Require a lot of equipments
- Cost

However, there is a bunch of applications outside particle physics!

- Volcanology (IPG-P, Rennes)
- Geology (LSBB, IRSN)
- CO₂ storage/survey (Schlumberger)
- Mining exploration in boreholes (AREVA)
- Archeology (LRMH)
- Portable dosimetry (Landauer)
- Medical imaging
- Civil engineering (monitoring of structures)
- Industrial control of manufacturing products
- ...

Strengths/Weaknesses wrt FET

- Multi-disciplinarity: particle physics, geoscience, archeology, mining exploration, dosimetry, astrophysics, industrial control, civil engineering 
- Fundational & Long Term Vision: many new applications, new vision of what a particle detector can do, in particular outside high energy physics 
- Breakthroughs : scientifically ambitious... but technological breakthroughs?
- High Risk : ...?
- Novelty: « new ideas and concepts, rather than the application or refinement of existing ones » 

Main tasks

- R&D side

- autonomisation/robustness
- resistive and/or cylindrical micro-bulk
- **sealed multiplexed TPC**
- potential of nano-technologies (Igor/Theo)
- ...

- Targeted applications

- collaboration with non-HEP institutes to prove feasibility with in situ exp.
- contact/interactions with industrials, one being official partner