



Info Days
Athens, 11 November 2015
Thessaloniki, 12 November 2015



HORIZON 2020

Future and Emerging Technologies in work programme 2016-17



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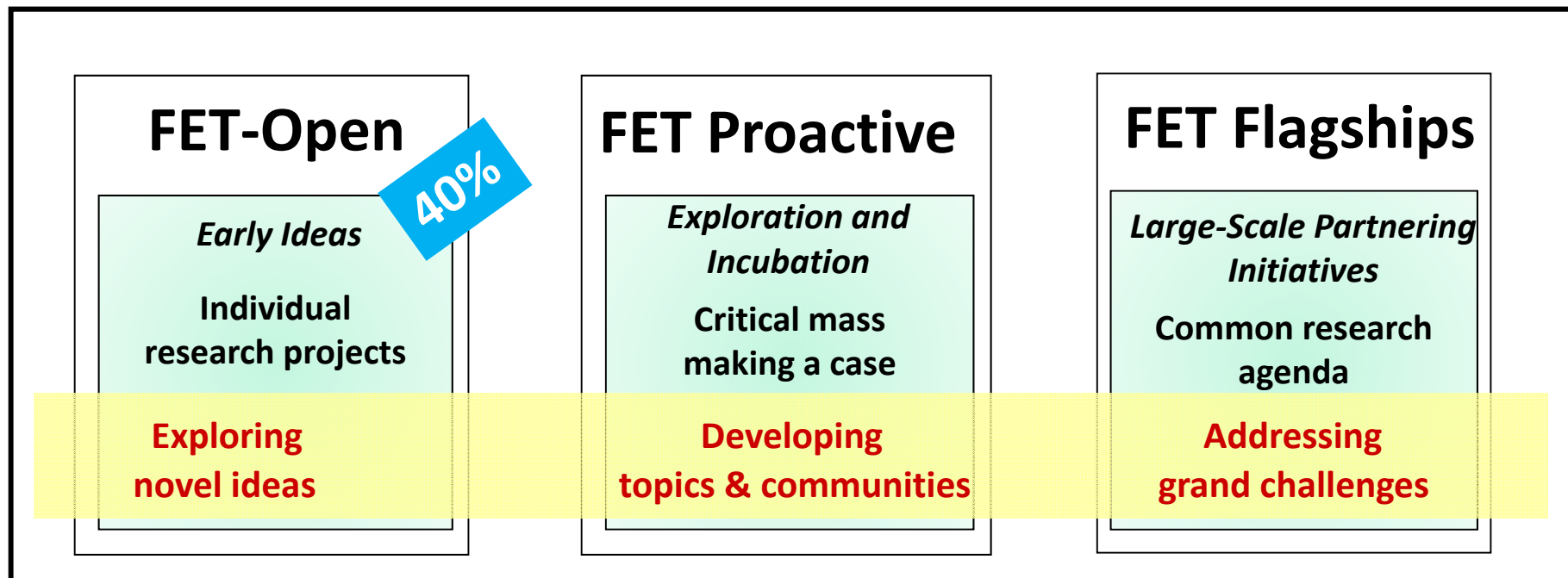
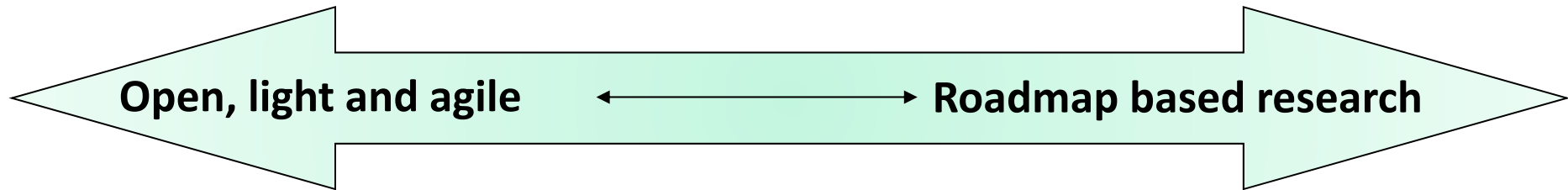
HORIZON 2020

Excellent science: 24.4 B€



- European Research Council (13B€)
- Marie Skłodowska-Curie actions (6.1B€)
- **Future & Emerging Technologies (2.7B€)**
- Research infrastructures (2.4B€)

The power of FET: Complementary schemes



FET WP 2016-17: Overview



- **Call - FET-Open – Novel ideas for radically new technologies** **259,5 M€**
 - FETOPEN-01-2016-2017: FET-Open research and innovation actions → 3 x 84 M€
 - FETOPEN-02-2016: FET-Open Coordination and Support Actions → 3 M€
 - FETOPEN-03-2017: FET-Open Coordination and Support Actions → 1.5 M€
 - FETOPEN-04-2016-2017: FET Innovation Launchpad → 3 M€
- **Call - FET Proactive – Boosting emerging technologies** **95 M€**
 - FETPROACT-01-2016: FET Proactive: emerging themes and communities → 80 M€
 - FETPROACT-02-2017: FET ERANET Cofund → 5 M€
 - FETPROACT-03-2016: FET ERANET Cofund in Quantum Technologies → 10 M€
- **Call - FET Proactive – High Performance Computing** **85 M€**
 - FETHPC-01-2016: Co-design of HPC systems and applications → 41 M€
 - FETHPC-02-2017: Transition to Exascale Computing → 40 M€
 - FETHPC-03-2017: Exascale HPC ecosystem development → 4 M€
- **Call - FET FLAGSHIPS – Tackling grand interdisciplinary science and technology challenges** **9 M€**
 - FETFLAG-01-2016: Partnering environment for FET flagships → 8 M€ Er Janet Cofund + 1 M€ CSA
- **Other Actions** **176 M€**
 - FET Flagship Core Projects (within FPAs) → 2 x 88 M€

FET



FET-Open

FETOPEN-01-2016-2017: 252 M€



FET Open Research and Innovation Actions

FET Open supports the early-stages of the science and technology research and innovation around new ideas towards radically new future technologies

Note that 40% of the H2020 budget for FET is earmarked for FET Open.

- *Continuity with WP2014-15*
- *20% increase of budget*
- *Collaborations that are open to all sciences and disciplines and that dissolve the traditional boundaries between them*
→ *highly interdisciplinary research approaches*
- *Early stages of R&I on any new technological possibility*
- *Scope defined by FET gatekeepers*
- *3 cut-off dates with 84 M€ each*
- *Single step submission, '1+15' pages*

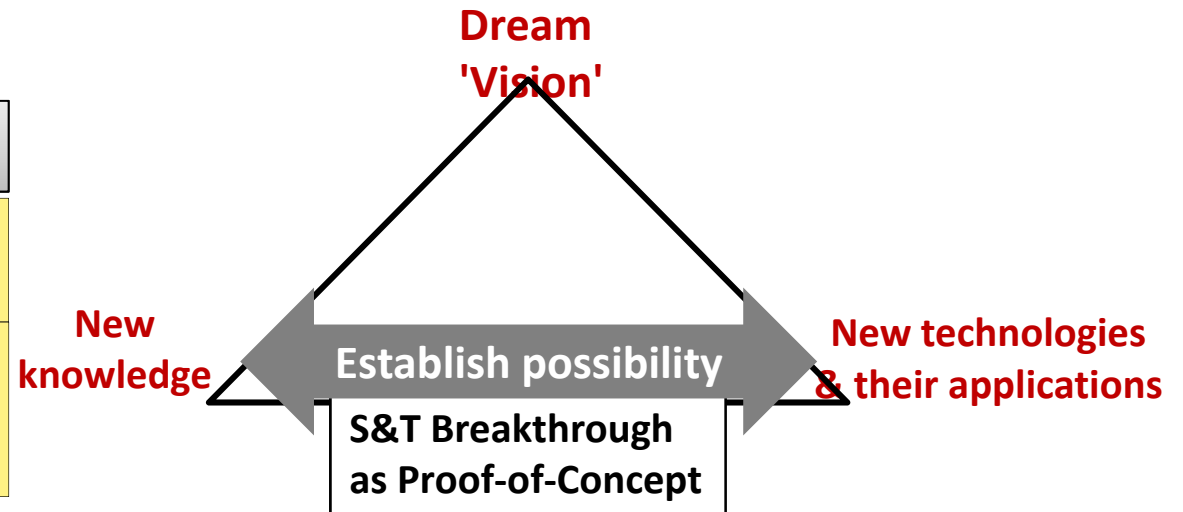
FETOPEN-01-2016-2017: Research and Innovation actions

2016-17: **3 x 84 M€**

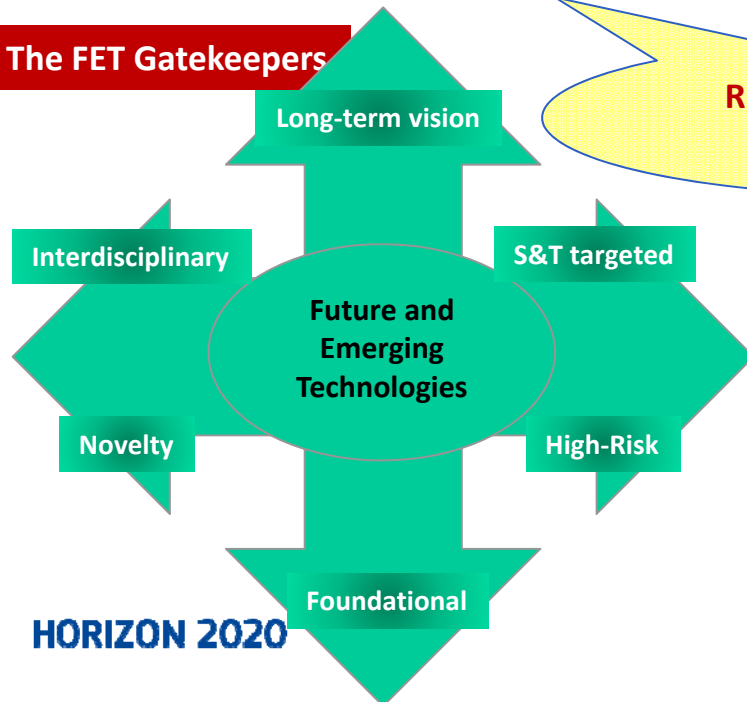
Scope

Support the early stages of research to establish a new technological possibility

Proposals are sought for collaborative research with all of the following characteristics ('FET gatekeepers')



The FET Gatekeepers



RIAs ≤ 4 M€ (indicative)
100% funding

Expected impact

- Establish baseline of feasibility or a radically new line of technology and innovation potential
- European thought-leadership and future leaders
- New R&I practices

Opens: 08 DEC 2015

Deadlines: 11 MAY 2016, 17 JAN 2017, 27 SEP 2017

FET-Open is extremely competitive



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- Don't waste time on a proposal that has no chance to make it through the FET-Open evaluation
- **Is FET-Open really the right scheme for you?**
→ Check out H2020 work programmes
- **FET is not ERC:** collaboration, science and technology are all essential ingredients.
- It is not because something has not been done before that it is sufficiently novel for FET Open
- FET is not the long-term end of an established industry's road-map
- A long-term vision is essential, but also a plausible idea on how to get there
- Writing a good proposal is probably as hard as writing a good scientific publication

Some Tips

- **Be ambitious, follow your 'dream'**
 - Novelty is essential; Integration projects or incremental refinements rarely make it – high-risk does
 - Boil down the vision to a concrete and ambitious proof-of-concept ('proof of a concept that proves the concept')
 - Deliver what you want or need, not what you think 'we' want
- **Consortium for pathfinding**
 - There are no hidden expectations from EC side (beyond the rules for participation)
 - No cosmetic roles – keep it simple
 - Look for renewal here too - novelty probably starts here
 - Narrow interdisciplinarity may not be good enough to win (look beyond your comfort zone)
 - Commitment: will the project transform the partner(ship)? (mission vs. role)
- **Collaborate, collaborate, collaborate...**
 - Take interdisciplinarity seriously - write your proposal together
 - Collaboration driven by joint questions, goals and mutual learning, not just passing on results between silos
 - Explore new ways of working/learning/changing together
- **Communicate**
 - Scientific publications
 - Social networks, media, public engagement

FETOPEN-02-2016: FET-Open Coordination & Support Actions

2016: **3 M€**

Scope

- a. FET Communication: visibility and outreach 1 project
- b. FET Exchange: networking in future and emerging R&I areas
- c. FET Conference 1 project
- d. FET Innovation Greenhouse: services for facilitating earliest stages of innovation from FET research

In 2017

- a. *FET Futures – looking for new topics and strategies*
- b. *FET Exchange – networking in future and emerging R&I areas*

CSAs for a., b. and d.: 0.3 to 0.5 M€

CSAs for c. ≤ 1 M€

→ Single step submission

Opens: 08 DEC 2015

Deadline: 11 MAY 2016

FETOPEN-04-2016-2017: FET Innovation Launchpad

2016-2017: **3 M€**

NEW

Inspired by the ERC Proof-of-Concept
→ CSAs ≤ 100 K€ - up to 18 months
Single step submission, '1+7' pages

Scope

- Short and focused actions (18 months indicative)
- Early innovation from an ongoing or recently finished FET project (max 1 year from call deadline)
- Any FET-funded project (FP7 or H2020)
- The link with the originating project is to be substantiated in the proposal
- No additional S&T research
- No actions that are/were foreseen in originating project
- No direct link needed with originating consortium
- Single participant possibility
- Assurance on necessary rights and agreement to be stated
- No prescribed actions but 'fitness for purpose'
- Complementary to ODI and SME schemes

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Opens: 01 MAR 2016

2016 budget: 1.2 M€ → Deadline: 29 SEP 2016

2017 budget: 1.8 M€ → Deadline: 27 SEP 2017



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FET-Proactive

FET Proactive: Boosting emerging technologies



FET Proactive addresses promising directions for research on future technologies in order to build up a European critical mass of knowledge and excellence around them

FET Proactive Research and Innovation Actions

Emerging themes and communities

- *Almost 3x budget increase compared to WP14-15*
- *Further opening up to all technology areas*
- *New design in WP2016-17 - more 'bottom-up' while still strategic*

FETPROACT-01-2016: FET-Proactive –emerging themes and communities

2016: 80 M€

Scope

RIA activities aimed at jointly exploring directions and options to establish a solid baseline of knowledge and skills and to foster the emergence of a broader innovation ecosystem for a new technology and its future take-up.

Proposals should address one specific subtopic within one of the following areas:

■ Area 1: Future technologies for societal change

- Being human in a technological world
- New science for a globalised world

20 M€ MAX

■ Area 2: Biotech for better life

- Intra- and inter-cell bio-technologies
- Bio-electronic medicines and therapies
- Cognitive neuro-technologies

30 M€ MAX

■ Area 3: Disruptive information technologies

- New computing paradigms and their technologies
- Quantum engineering
- Hybrid opto-electro-mechanical devices at the nano-scale

30 M€ MAX

■ Area 4: New technologies for energy and functional materials

- Ecosystem engineering
- Complex bottom-up construction

20 M€ MAX

Opens: 08 DEC 2015
Deadline: 12 APR 2016

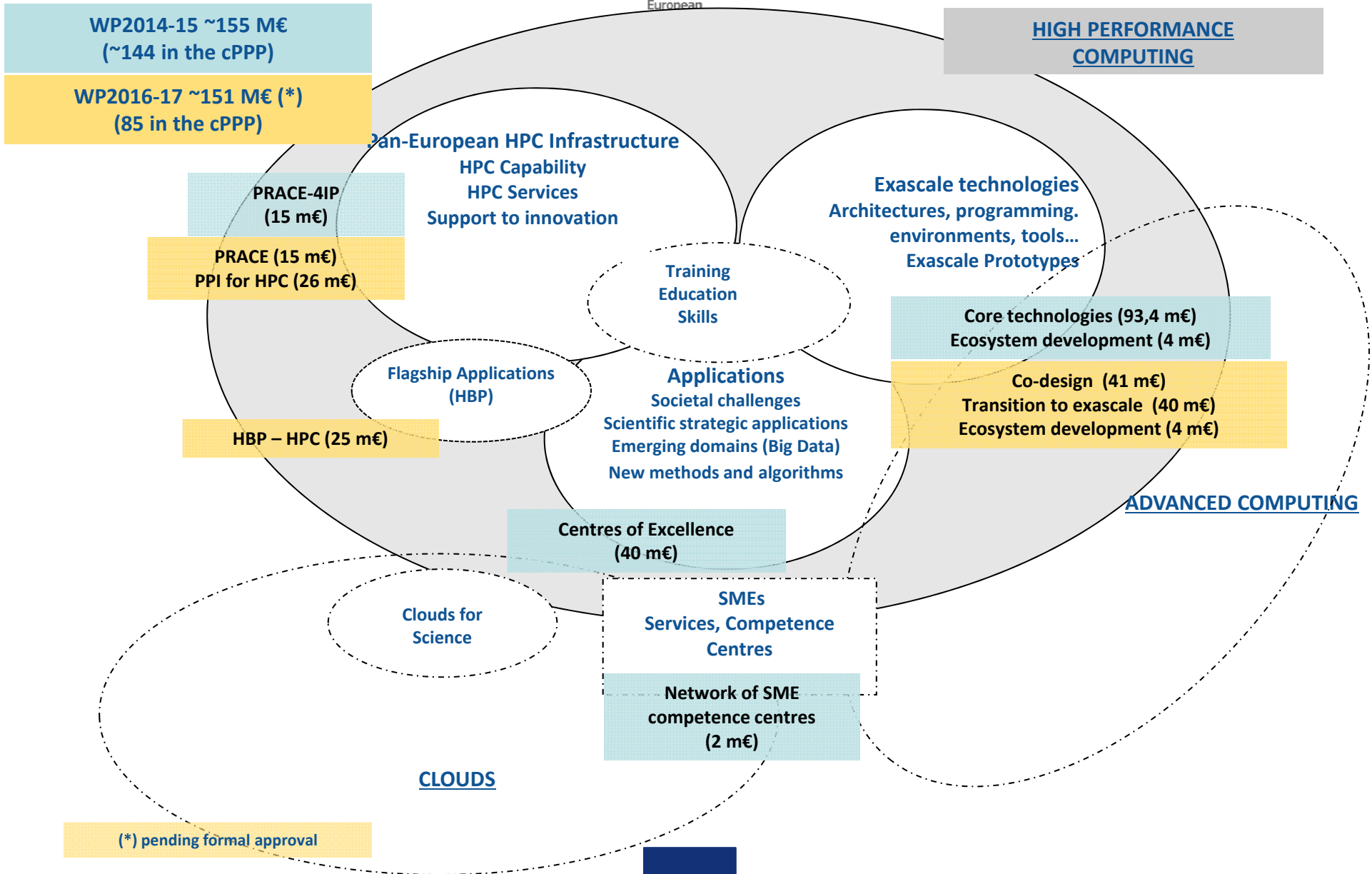


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RIAs of 4-10 M€,
up to 5 years

HPC Overall strategy

Horizon 2020 - Calls 2014-2017



Call - FET Proactive – High Performance Computing

FETHPC-01-2016: Co-design of HPC systems and applications

2016: 41 M€

Implements Strategic Research Agenda (SRA) of **PPP 4HPC**
<http://www.etp4hpc.eu/strategy/strategic-research-agenda>

Specific Challenge & Scope

RIAs: 10-20 M€
(indicative funding)

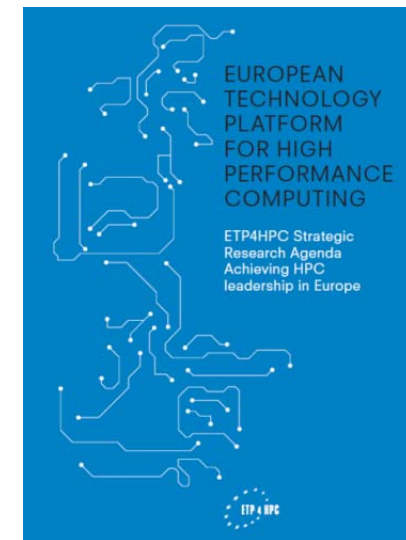
Achieve world-class extreme scale, power-efficient and highly resilient HPC platforms through a **strong co-design approach**

Be driven by ambitious applications

Achieve the full range of technological capabilities needed for delivering a broad spectrum of extreme scale HPC systems.

The designs of these systems must respond to critical demands of **energy efficiency, scale, resilience, programmability** and support for various classes of applications including extreme-data applications

- Co-design approach for selected ambitious application
- Balanced compute and data characteristics
- Extreme data
- Pre-exascale prototypes
- Demonstrated scalability properties towards exascale (analytical, simulation)



Opens: 14 APR 2016
Deadline: 27 SEP 2016

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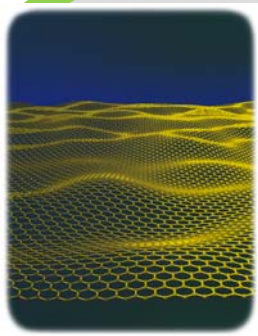


FET Flagships

FET Flagships: A joint effort with the MS

Flagships address ambitious S&T challenges: they are large-scale partnerships bringing together the leading researchers from research organisations (academia and industry)

Graphene



www.graphene-flagship.eu

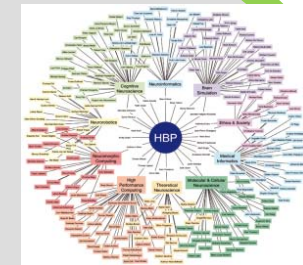
142 partners
from 23 countries



FET Flagships

10 years, 1B€ initiatives

Human Brain Project



www.humanbrainproject.eu/

112 partners
from 24 countries



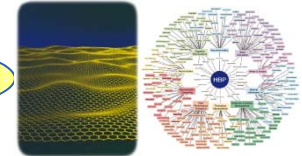
FP7 ERANET: www.flagera.eu
37 funding agencies from 26 countries

Call - FET FLAGSHIPS – Tackling grand interdisciplinary science and technology challenges

Support to the Flagships (2017)

Advancing the two Flagships (Graphene and the Human Brain Project – HBP) on the basis of their FPAs

88 M€ for Graphene
88 M€ for the HBP



CSA Action in 2016

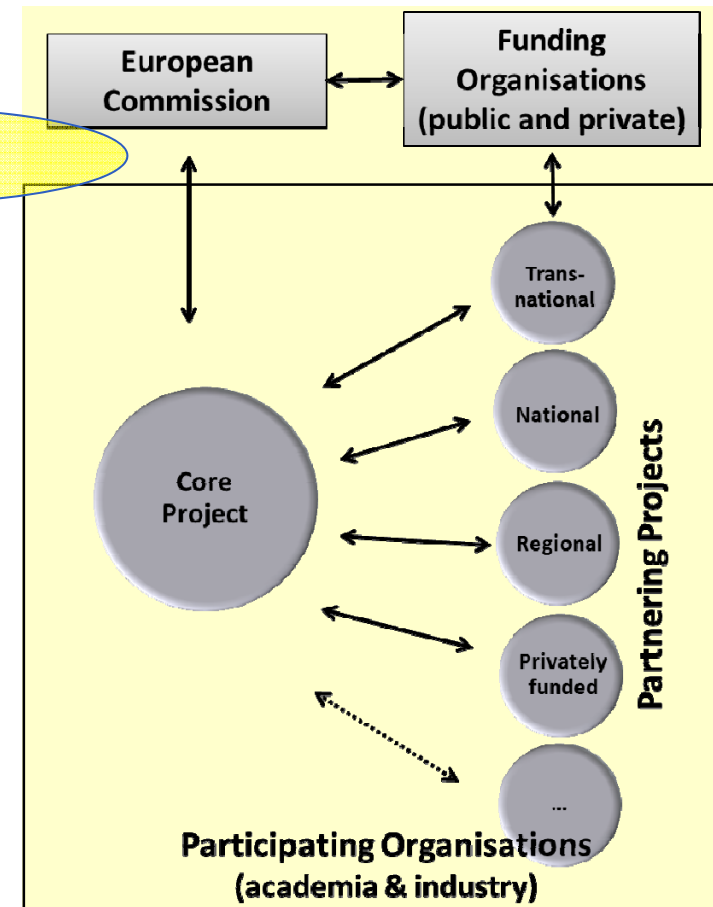
FETFLAG-01-2016: Partnering environment for FET Flagships

CSA for supporting the PPs in their networking, coordination and participation in Flagship activities
→ See Staff Working Document: SWD(2014) 283 final of 16.09.2014

CSA: 1 M€

Opens: 10 NOV 2015

Deadline: 01 MARCH 2016



FET WP2016-2017: 624.5 M€*



	FET-Open	259,5M*
FETOPEN-1-2016-2017	FET-Open Research and Innovation Actions	252M*
FETOPEN-2-2016	FET-Open Coordination and Support Actions	3M
FETOPEN-3-2017	FET-Open Coordination and Support Actions	1,5M
FETOPEN-4-2016-2017	FET Innovation Launchpad (CSA)	3M
	FET-Proactive – boosting emerging technologies	95M
FETPROACT-01-2016	Emerging themes and communities (RIA)	80M
FETPROACT-02-2017	FET ERANET Cofund	5M
FETPROACT-03-2016	FET ERANET Cofund on quantum technologies	10M
	FET Proactive – High Performance Computing	85M
FETHPC-01-2016	Co-design of HPC systems and applications (RIA)	41M
FETHPC-02-2017	Transition to Exascale Computing (RIA)	40M
FETHPC-03-2017	Exascale HPC ecosystem development (CSA)	4M
	FET-Flagships	185M
FETFLAG-01-2016	Partnering environment for FET Flagships	9M
[Other Actions 2017]	Core project funding	176M

*in part from 2018 budget

Find out more



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About FET <http://ec.europa.eu/digital-agenda/FET>

FET in H2020 (calls & projects) <http://ec.europa.eu/horizon2020/fet>



[@fet_eu](#) & [@FETFlagships](#)

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The Future & Emerging Technologies (FET) programme invests in transformative frontier research and innovation with a high potential impact on technology, to benefit our economy and society.

FET provides a unique combination of high risk, long term, multidisciplinary and collaborative frontier research, which lays the foundations for radically new, next generation technologies. It converts proofs of concept into industrial applications and systems.

In FP7, FET-supported research went beyond the conventional boundaries of ICT and ventures into uncharted territories, increasingly relying on convergence with

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FET through the keyhole

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In this issue - September 2015

"The best way to predict the future is to invent it." Alan Kay (computer scientist)

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Our vision

We would be happy to hear about what you expect from our research in the field of Excellent Science; what your experiences are; what your ideas are on FET, FET Flagships, Open Science and e-Infrastructures.

[Read more about our vision](#)

Take part

Share your experiences, present your ideas, engage with other researchers and with us, and help us design our future policies and work programmes.

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The #D4science hashtag is born!

Please use the #D4science hashtag for all your conversations linked to the Digital4Science platform. It will enable all of us to follow the streams. Thank you!

All WP texts available online (H2020 Participant Portal):

http://ec.europa.eu/research/participants/portal/desktop/en/funding/reference_docs.html#h2020-work-programmes-2016-17





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**Thank you
for your attention!**