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

HORIZON 2020
Future and Emerging Technologies
in work programme 2016-17

Thomas Skordas
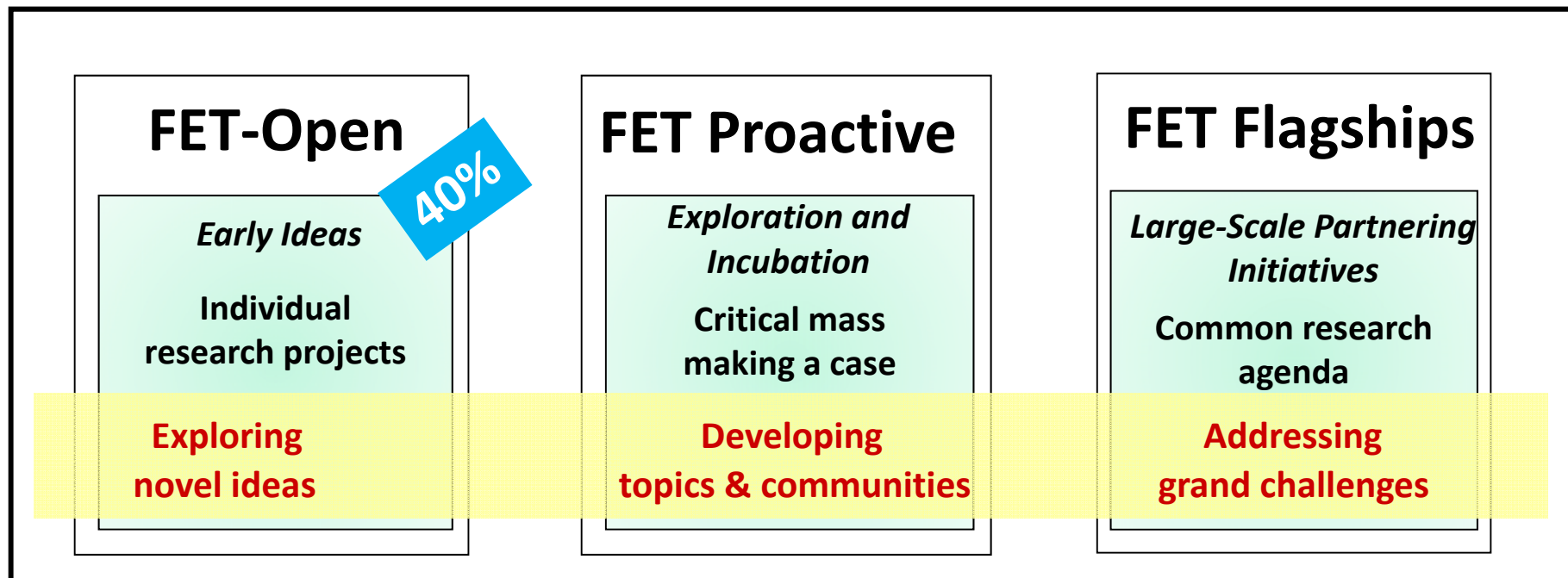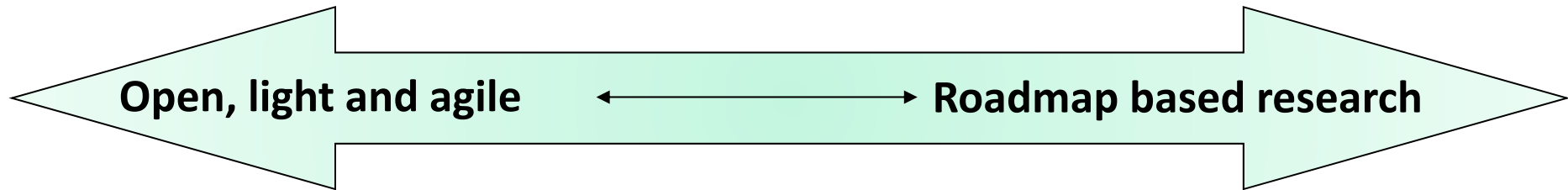**Head of the Flagships Unit**

DG CONNECT, European Commission

HORIZON 2020

Excellent science: 24.4 B€

Excellent science

Industrial leadership

Societal challenges

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

European Commission

The power of FET: Complementary schemes

European Commission

Open, light and agile ← → Roadmap based research

FET-Open
40%

Early Ideas

Individual research projects

Exploring novel ideas

FET Proactive

Exploration and Incubation

Critical mass making a case

Developing topics & communities

FET Flagships

Large-Scale Partnering Initiatives

Common research agenda

Addressing grand challenges

Research and Innovation

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€ Eranet Cofund + 1 M€ CSA**
- **Other Actions** `176 M€`
  - FET Flagship Core Projects (within FPAs) → 2 x 88 M€

Research and Innovation

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*

Research and Innovation

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

2016-17: 3 x 84 M€

Dream 'Vision'
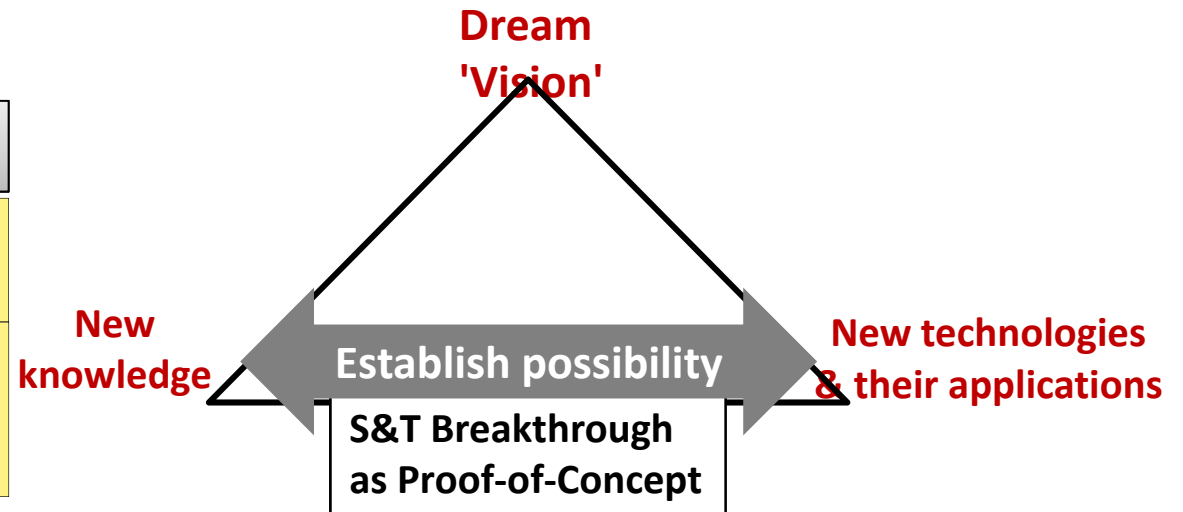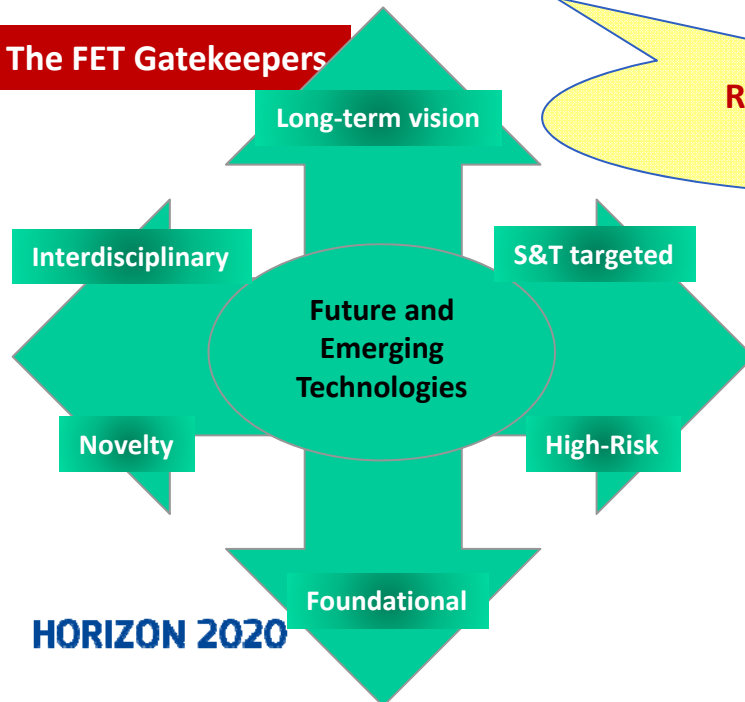
Scope

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')

New knowledge

Establish possibility

S&T Breakthrough as Proof-of-Concept

New technologies & their applications

The FET Gatekeepers

Long-term vision

Interdisciplinary

S&T targeted

Future and Emerging Technologies

Novelty

High-Risk

Foundational

HORIZON 2020

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

- 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 progammes

- **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€**

CSAs for a., b. and d.: 0.3 to 0.5 M€
CSAs for c. ≤ 1 M€
➔ Single step submission

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*

Opens: 08 DEC 2015
Deadline: 11 MAY 2016

European Commission

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

Opens: 01 MAR 2016
2016 budget: 1.2 M€ ➔ Deadline: 29 SEP 2016
2017 budget: 1.8 M€ ➔ Deadline: 27 SEP 2017

HORIZON 2020

European Commission

FET

FET-Proactive

FET Proactive: Boosting emerging technologies

European Commission

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*

Research and Innovation

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.

RIAs of 4-10 M€, up to 5 years

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**
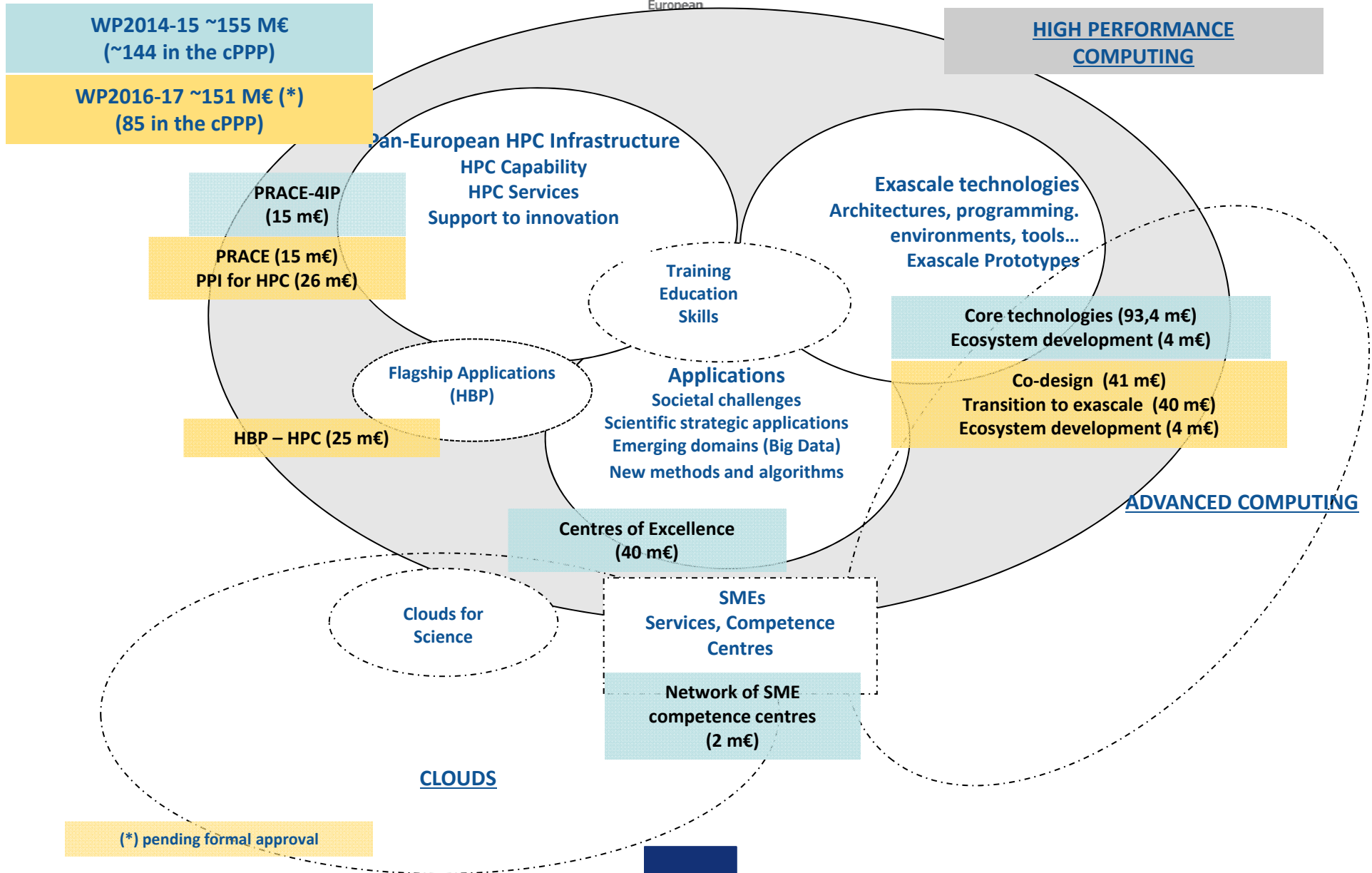
  20 M€ MAX

Opens: 08 DEC 2015
Deadline: 12 APR 2016

European Commission

HPC Overall strategy
Horizon 2020 – Calls 2014-2017

WP2014-15 ~155 M€
(~144 in the cPPP)

WP2016-17 ~151 M€ (*)
(85 in the cPPP)

HIGH PERFORMANCE COMPUTING

Pan-European HPC Infrastructure
HPC Capability
HPC Services
Support to innovation

PRACE-4IP
(15 m€)

PRACE (15 m€)
PPI for HPC (26 m€)

Exascale technologies
Architectures, programming.
environments, tools...
Exascale Prototypes

Training
Education
Skills

Core technologies (93,4 m€)
Ecosystem development (4 m€)

Flagship Applications
(HBP)

Applications
Societal challenges
Scientific strategic applications
Emerging domains (Big Data)
New methods and algorithms

Co-design (41 m€)
Transition to exascale (40 m€)
Ecosystem development (4 m€)

HBP – HPC (25 m€)

Centres of Excellence
(40 m€)

ADVANCED COMPUTING

Clouds for
Science

SMEs
Services, Competence
Centres

Network of SME
competence centres
(2 m€)

CLOUDS

(*) pending formal approval

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)

EUROPEAN TECHNOLOGY PLATFORM FOR HIGH PERFORMANCE COMPUTING

ETP4HPC Strategic Research Agenda Achieving HPC leadership in Europe
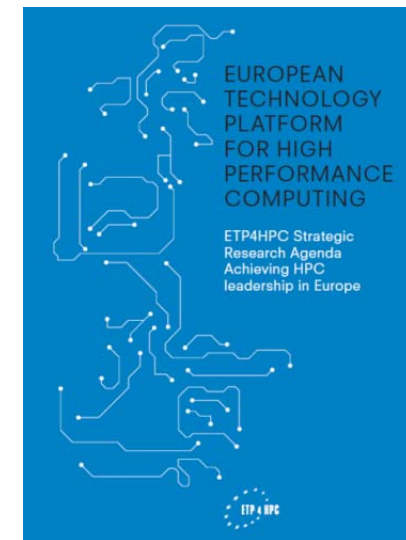
Opens: 14 APR 2016
Deadline: 27 SEP 2016

FET

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)

European Commission

Graphene
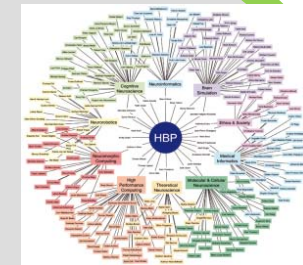
FET Flagships
10 years, 1B€ initiatives

Human Brain Project
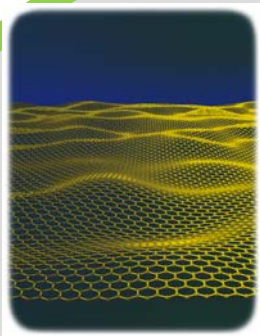
FLAG-ERA

www.graphene-flagship.eu
142 partners
from 23 countries

www.humanbrainproject.eu/
112 partners
from 24 countries

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

and
Innovation

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
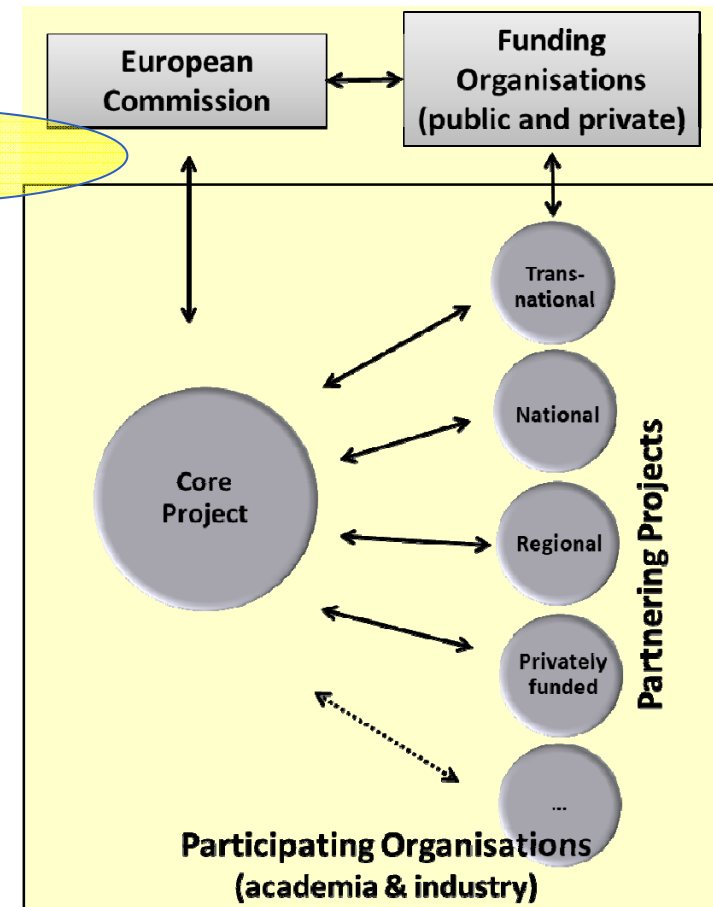**88 M€ for the HBP**

CSA: 1 M€
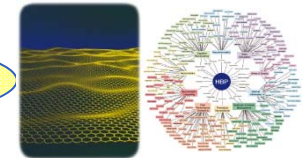
CSA Action in 2016

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

Opens: 10 NOV 2015
Deadline: 01 MARCH 2016

HORIZON 2020

European Commission ⟷ Funding Organisations (public and private)

Core Project

Trans-national
National
Regional
Privately funded
...

Partnering Projects

Participating Organisations (academia & industry)

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

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

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

@fet_eu & @FETFlagships

Subscribe to FET newsletter

Join our new platform to exchange ideas ec.europa.eu/d4science

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

HORIZON 2020

Thank you
for your attention!

HORIZON 2020

Future and Emerging Technologies
2016-17

- *FET Open* *(259,5 M€)*

  - Still **open to all radically new technologies in all areas**

  - Introduction of **FET Innovation Launchpad** (3 M€)

    ➔ stimulate innovation by initiating entrepreneurial activities around results from FET research projects

- *FET Proactive* *(180 M€)*

  - Boosting **emerging technologies** (95 M€)

    - Introduction of **FET ERA-Net cofund** actions (generic + specific on Quantum technologies)

  - **High Performance Computing** (85 M€)

    ➔ Part of **HPC PPP** / complementary to eInfra and LEIT-ICT activities

- **FET Flagships (185 M€)**

  - Continuation of **Graphene** and **Human Brain Project** flagships

  - Launch of an **ERA-Net cofund** for partnering projects in both flagships

FUTURE AND EMERGING TECHNOLOGIES (FET) in Horizon 2020

*"**Future and emerging technologies** shall support collaborative research in order to extend Europe's <u>capacity for advanced and paradigm-changing innovation</u>."*

HORIZON 2020 - THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (2014-2020)

Pathfinding Europe's technological future(s)

Future and Emerging Technologies (FET)

- **FET Open**: fostering novel ideas
- **FET Proactive**: nurturing emerging themes and communities
- **FET Flagships**: pursuing grand interdisciplinary science and technology challenges
 - **Graphene**
  - **Human Brain Project**

	1st cut-off	2nd cut-off	Trend	
	deadline 30/9/2014	deadline 31/3/2015	Unit change	%
Proposals submitted	674	690	+ 16	+ 2,4%
Proposals eligible	669	682	+ 13	+ 1,9%
Indicative budget	80 M€	40 M€	- 40 M€	- 50%
Budget of above threshold proposals	816 M€	1084 M€	+ 268 M€	+ 32,9%
RIA - Proposals above threshold	244	326	+ 82	+ 33,6%
RIA - Proposals funded	24	11	- 13	- 54,2%
RIA - Success rate	3,70%	1,70%	- 2%	- 54%
CSA - Proposals above threshold	20	10	-10	- 50%
CSA - Proposals funded	4	3	- 1	- 25%
CSA - Success rate	13,30%	17,60%	+ 4,3%	+ 32.3%
Time-to-Inform	150 days (27/02/2015)	131 days (10/08/2015)	- 19 days	- 12,7%
Redress cases submitted	9 (1,4%)	5 (0,7%)	- 4	- 44,4%

Comparison of scores of RIA proposals submitted to 1st and 2nd cut-off
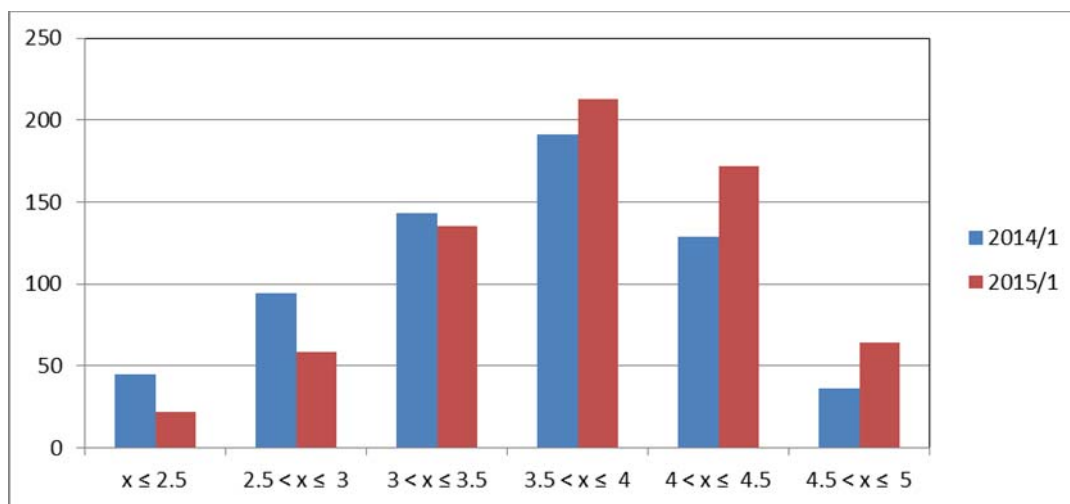
	1st cut-off	2nd cut-off
	deadline 30/9/2014	deadline 31/3/2015
Average score of all eligible proposals	3.57	3.77
Score needed for main list	4.65	4.90
Number of proposals with score higher than 4.5	36	64

A large amount of extremely high quality proposals could not be funded (e.g., 23 proposals with a score of "5" under Excellence) under the 2nd cut-off because of budgetary limitations

FET in H2020 a portfolio snapshot

BREAKBEN	Breaking the Nonuniqueness Barrier in Electromagnetic Neuroimaging	flora robotica	Flora Robotica: Societies of Symbiotic Robot-Plant Bio-Hybrids as Social Architectural Artifacts
DIACAT	Diamond materials for the photocatalytic conversion of CO_2 to fine chemicals and fuels using visible light		
		RECORD-IT	Reservoir Computing with Real-time Data for future IT
CHROMAVISION	Super-resolution visualisation and manipulation of metaphase chromosomes		
		LUMINOUS	Studying, Measuring and Altering Consciousness through information theory in the electrical brain
LIAR	Living Architecture		
		socSMCs	Socialising Sensori-Motor Contingencies
NEMF21	Noisy Electromagnetic Fields - A Technological Platform for Chip-to-Chip Communication in the 21st Century		
		Phoenix	Exploring the Unknown through Reincarnation and Co-evolution
MARA	Molecular Analytical Robotics Assays		
		CellViewer	A cell viewer: super-resolution systems microscopy to assess pluripotency and differentiation of stem
IBSEN	Bridging the gap: from Individual Behaviour to the Socio-tEchnical MaN		
		ABIOMATER	Magnetically actuated bio-inspired metamaterials
IBSEN	Bridging the gap: from Individual Behaviour to the Socio-tEchnical MaN	CONQUER	Contrast by Quadrupole Enhanced Relaxation
VOXEL	volumetric medical x-ray imaging at extremely low dose		
PROSEQO	PROtein SEQuencing using Optical single molecule real-time detection	HELENIC-REF	Hybrid Electric Energy Integrated Cluster concerning Renewable Fuels
		socSMCs	Socialising Sensori-Motor Contingencies
DREAM	Deferred Restructuring of Experience in Autonomous Machines		
		NanoSmell	NanoSmells: Artificial remote-controlled odorants
DEDALE	Data Learning on Manifolds and Future Challenges		
		FutureAgriculture	Transforming the future of agriculture through synthetic photorespiration

FET-Open Innovation Launchpad

The message is not that it is not possible or not desirable to have innovation within a FET project! Sometimes it does work (e.g., SME-driven projects).

Innovation Launchpad is definitely not the only way to get more innovation out of FET projects.

The important thing is not what happens in the Launchpad CSA, but what happens afterwards! A launchpad supports the launch.

If the FET Innovation Launchpad leads to a change of mindset, a few spin-offs, commercial successes or gazelles, then it is a success!

AREA 1: Future technologies for societal change

- **Being human in a technological world**

Understanding and harnessing effects (adverse or desired) of future and emerging technologies as vector of societal change, as influencing self- or social perception, or impacting human development or evolution. This includes personal, environmental, societal and long-term effects of, for instance, hyperconnectivity, human augmentation, real/virtual blending, private/public permeability, on space-time perception, self...

- **New science for a globalised world**

Tools and methods for the collaborative study, projection and engineering of large scale socio-technological and –ecological systems characterised by complexity and inherent uncertainty due to, among others, the participation of irrational actors. This includes forms of Global System Science as a new integrative science approach, big-data, global solutions as patchworks of local ones, non-rationality, various innovation enablers including art...

AREA 2: Biotech for better life

- **Intra- and inter-cell bio-technologies**

new approaches to enable the study and the engineering of processes within biological cells, as well as their interactions with purposes such as sensing, signalling, imaging, regulating, curing or for engineering the in- and inter-cell physics and processes. This can include natural cells, synthetic ones or combinations of these. Multiscale modelling and simulation of in-cell physical and chemical processes are included.

- **Bio-electronic medicines and therapies**

using adaptive nerve stimulation for precise regulatory control of organs or other biological processes inside the human body, in order to restore or maintain healthy conditions. This includes bio-electronic medicines, medicine-free therapies, closed-loop BCI or more invasive stimulation, all within a setting of personalised medicine and theragnostics.

- **Cognitive neuro-technologies**

Integrated approaches combining theory and technology-based experiments for understanding the circuits and pathways of cognitive functions (e.g., navigation, perceptually guided goal-oriented behaviour, motivation and reward, memory, knowledge and belief formation, reasoning and decision making, emotion, interaction, communication) and the related principles of neural coding and operation within and between brain regions. Proposals should focus on non-validated, leading-edge technologies that could be specifically relevant to cognitive neuroscience. Applications could include adaptive brain interfaces and neuro-prosthetics to restore or support cognitive functions, exploiting the better understanding of brain activity, neuronal encoding and organisation of cognitive processes.

AREA 3: Disruptive information technologies

- ### New computing paradigms and their technologies

new foundations for computing, including bio-, nature- and socio-inspired ones that can encompass also aspects of communication and interaction, as well as non-technological aspects like organisation of physical/virtual space, and tailored to future and emerging challenges and requirements in highly interdisciplinary settings.

- ### Quantum engineering

reproducible, economical and scaleable approaches, strategies and techniques for realising devices and systems that exploit quantum phenomena, such as superposition and entanglement, for achieving specific functionalities (for instance sensing, precision measurement, transduction, communication, control, simulation and computation) and possibly in the context of specific application areas (for example in the biological, medical, materials, process, energy or standards domain).

- ### Hybrid opto-electro-mechanical devices at the nano-scale

new working principles and their first-time validation in nano-, molecular- or atomic-scale devices based on the interaction and mutual control of multiple physical degrees of freedom to achieve new or radically improved functionalities and application scenarios under plausible operating conditions. The interacting degrees of freedom are those involved in e.g. nano-optics, nano-scale electromagnetism, nano-mechanics and phonons and fluctuations.

AREA 4: New technologies for energy and functional materials

- **Ecosystem engineering**

new models, materials and processes for extreme resource efficiency into artificial ecosystems (energy, raw materials, waste, water,...). New approaches and technologies for extremely efficient energy generation (e.g., artificial photosynthesis), transfer, conversion and storage. First time validation and assessment of these results in the context of integrated circular economy solutions or other quasi self-sufficient systems.

- **Complex bottom-up construction**

self-organisation, assembly and adaptation of materials and physical systems with complex functionality, composition and/or spanning a range of scales (nano, meso).

European Commission

Call - FET Proactive – High Performance Computing

*The **FET-Proactive call on HPC** aims at the next steps for leveraging the existing European strengths for building the next generation of extreme performance computing and taking advantage of the new opportunities created from the transition from peta to exascale computing. The ultimate goal is to achieve world-class extreme scale computing capabilities in platforms, technologies and applications.*

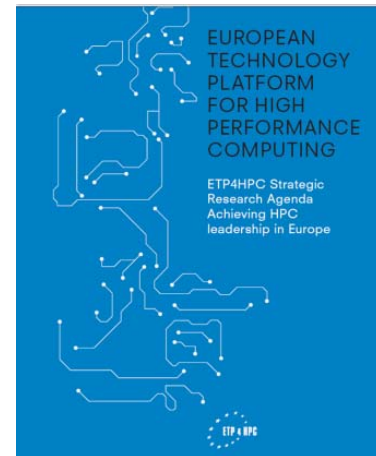|	FET Proactive – High Performance Computing	85M
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FETHPC-02-2017	Transition to Exascale Computing (RIA)	40M
FETHPC-03-2017	Exascale HPC ecosystem development (CSA)	4M

Key EU developments in HPC

Communication from the EC
"High-Performance Computing:
Europe's place in a global race" (2012)

Council Conclusions on High-Performance
Computing (Competitiveness Council – 2013)

Establishment of the European Technology Platform
on High-Performance Computing (ETP4HPC - 2012)
and Strategic Research Agenda on HPC (2013)

Horizon 2020 programme including
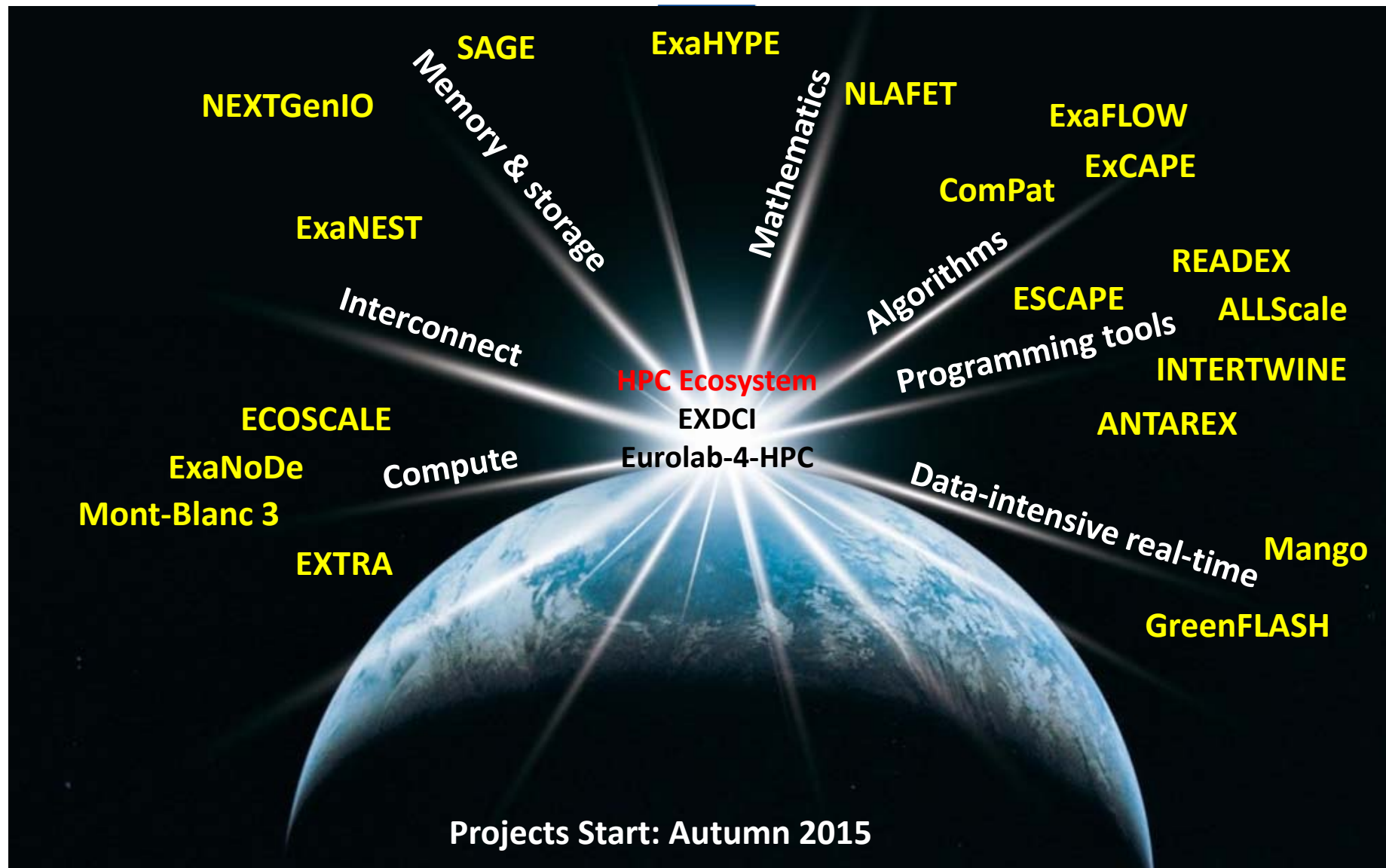**HPC Calls adopted (end of 2013)**

Public-Private Partnership with ETP4HPC (1st January 2014)

European Commission

EUROPEAN COMMISSION - PRESS RELEASE

Digital Agenda: Plan to make EU the world leader in High-Performance Computing

EUROPEAN TECHNOLOGY PLATFORM FOR HIGH PERFORMANCE COMPUTING

ETP4HPC Strategic Research Agenda Achieving HPC leadership in Europe

ETP 4 HPC

COUNCIL OF THE EUROPEAN UNION

EN

Conclusions on 'High Performance Computing: Europe's place in a Global Race'

3242nd COMPETITIVENESS (Internal Market, Industry, Research and Space) Council meeting
Brussels, 29 and 30 May 2013

The EU Framework Programme for Research and Innovation

HORIZON 2020

Excellent Science
Competitive Industries
Better Society

European Commission

High Performance Computing PPP: Mastering the next generation of computing technologies for innovative products and scientific discovery

- HPC to tackle major scientific, societal and competitiveness challenges
- Innovative world-class industrial products and services in a cost effective way
- Underpinning scientific discovery through modelling and simulation

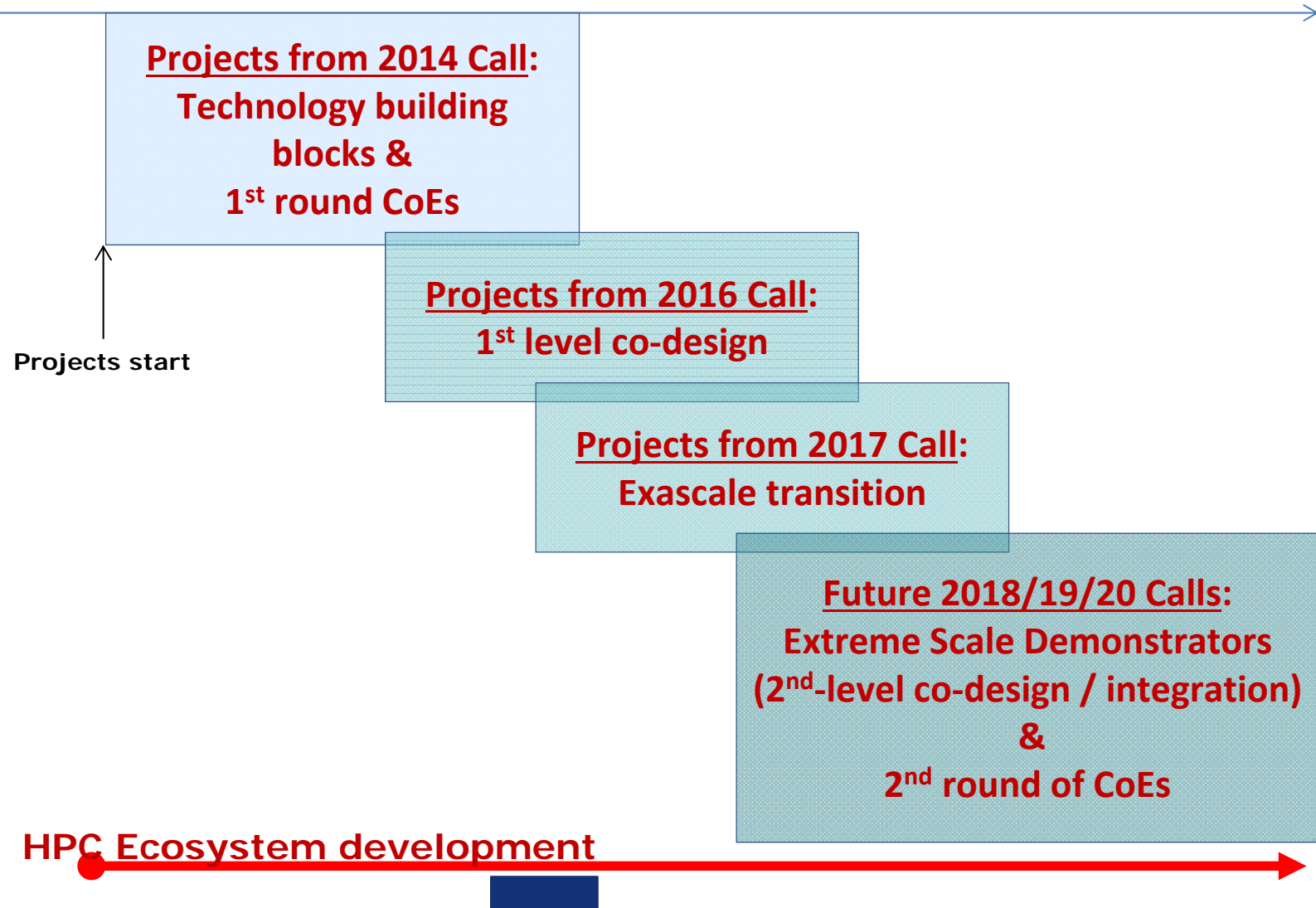# Retained proposals FETHPC - Exascale Technologies 2014 FET Call

European Commission

SAGE
ExaHYPE
NEXTGenIO
Memory & storage
Mathematics
NLAFET
ExaFLOW
ExCAPE
ComPat
ExaNEST
READEX
Algorithms
ESCAPE
ALLScale
Interconnect
Programming tools
INTERTWINE
HPC Ecosystem
EXDCI
Eurolab-4-HPC
ANTAREX
ECOSCALE
ExaNoDe
Compute
Mont-Blanc 3
Data-intensive real-time
Mango
EXTRA
GreenFLASH

Projects Start: Autumn 2015

European
Commission

Co-design of HPC systems and applications

Expected Impact:

Contribution to the realisation of the ETP4HPC Strategic Research Agenda, thus strengthened European research and industrial leadership in HPC technologies.

Proof-of-concept through integrated pre-exascale prototypes for future energy-efficient exascale-class HPC systems and optimal co-design driven by ambitious applications.

Covering important segments of the broader and/or emerging HPC markets, especially extreme-scale HPC systems.

Impact on standards bodies and other relevant international research programmes and frameworks.