

HORIZON 2020

LE PROGRAMME DE RECHERCHE ET
D'INNOVATION DE L'UNION EUROPÉENNE



Technologies Futures et Emergentes
Future Emerging Technologies

FET

dans

Horizon 2020

Catherine Gilles-Pascaud, CEA



Technologies Futures et Emergentes

- FET dans le 7^{ème} PCRDT
- H2020 - Que devient FET ?
- Le programme de travail FET 2014-2015
 - Appels FET Open, FET Proactive, FET HPC, FET Flagships
 - Modalités de soumission, évaluation
- FET 2014-2015 - En résumé



FET DANS LE 7^{ÈME} PCRDT

Le programme FET ?

- ❑ Un programme initié il y a 24 ans
- ❑ Géré par la DG-CONNECT
- ❑ Historiquement la partie « amont » du programme TIC traditionnel :

Pathfinding Europe's technological future

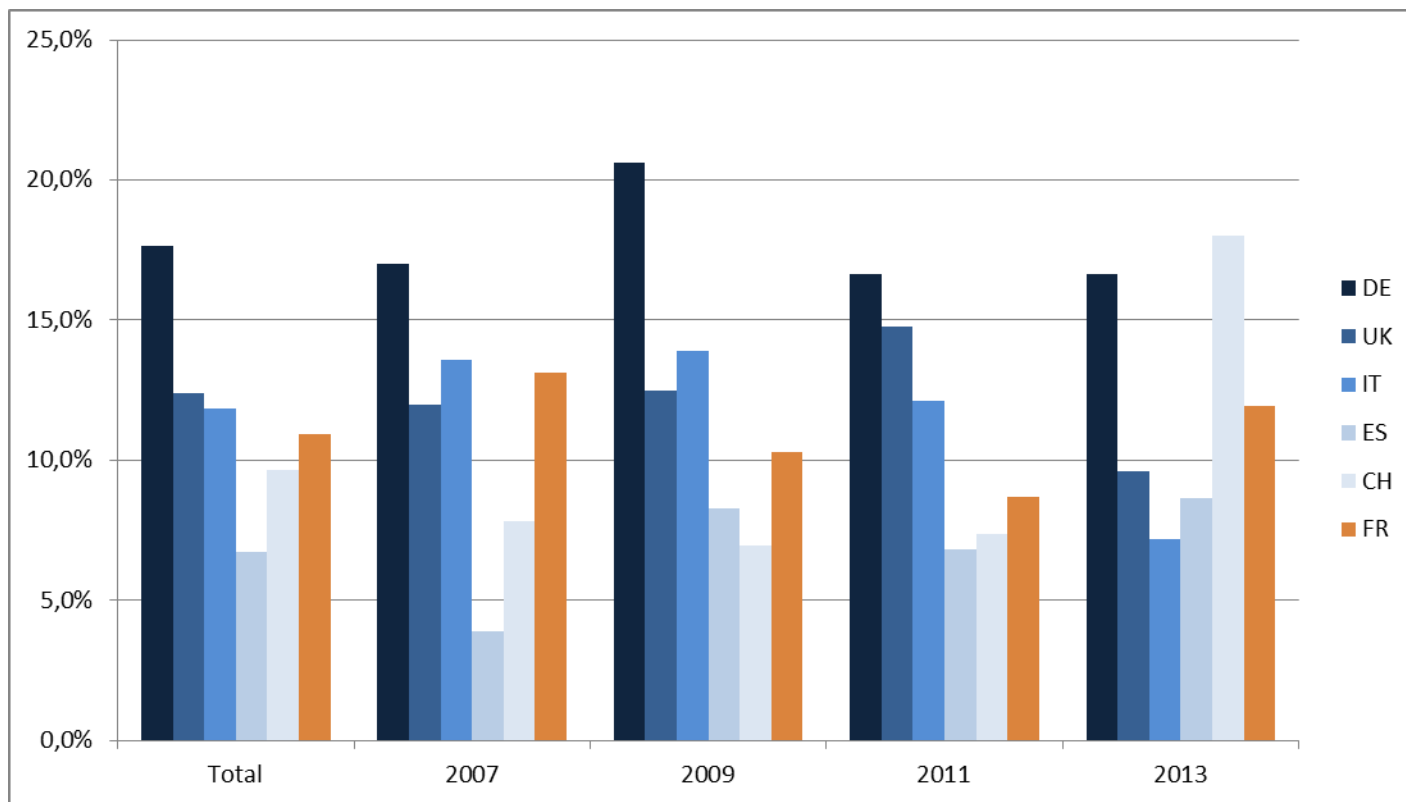
- ❑ Quelques mots-clés: *nursery of novel and emerging scientific ideas, high-risk, with potential significant societal or industrial impact, multidisciplinary, interdisciplinary*



The sower, Vincent van Gogh

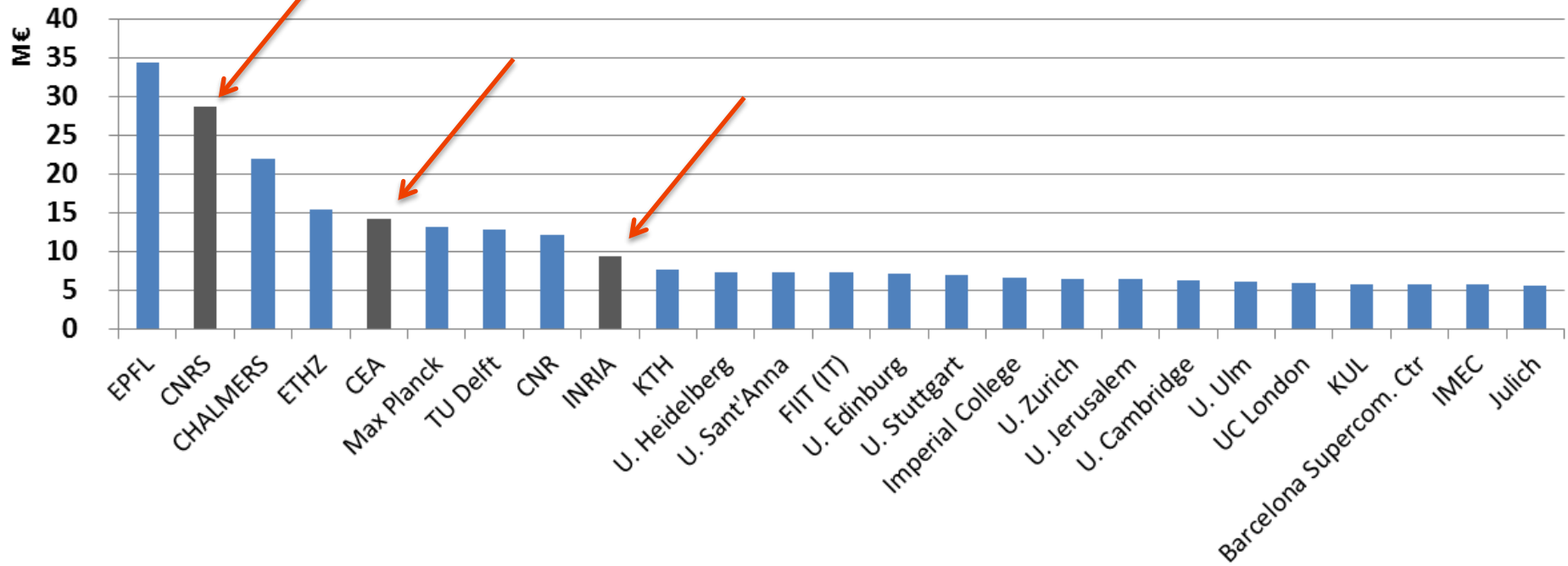
FET - Les principaux pays bénéficiaires

FR 4^{ème} bénéficiaire du programme derrière DE, UK, IT



Source: projets signés 06/13 et propositions retenues en cours de négociation

Principaux organismes bénéficiaires (UE)





QUE DEVIENT FET DANS HORIZON 2020 ?

H2020 : Le pilier Excellence



24,4 Md€

ERC
(13,1 Md€)

Actions Marie-Curie
(6,2 Md€)

FET
(2,7 Md€)

Infrastructures
(2,5 Md€)

FET in Horizon 2020

"**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."

COMMISSION PROPOSAL ON ESTABLISHING HORIZON 2020 - THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (2014-2020)

FET's missions



- *To promote and support the emergence of radically new technology areas that will renew the basis for future European competitiveness and growth and will make a difference for society in the decades to come.*
- *To initiate and shape the development of European research and innovation eco-systems around such future and emerging technologies, as seeds of future industrial leadership and potential solutions for societal challenges.*
- *To turn Europe into the best environment for responsible and dynamic multi-disciplinary collaborations on such future and emerging technologies, including facilitating the wider training of researchers in new areas.*



Le programme FET

Open, light and agile

Roadmap-based research

High-Performance Computing (HPC) Strategy

Future and Emerging Technologies

Un programme OUVERT

research
cts

Open research
clusters

Common research
agendas

Early Ideas

FET Open

Incubation

FET Proactive

Large-Scale Initiatives

FET Flagships

Exploring
Addressing

Developing



LE PROGRAMME DE TRAVAIL FET 2014-2015



Le projet de programme de travail 2014-2015

- Adopté le 12 novembre par les Etats Membres
- Mise en ligne sur le site Horizon2020

<http://www.horizon2020.gouv.fr/>

- Présenté lors de la Journée nationale d'information FET le mercredi 4 décembre au MESR et en régions en décembre et janvier
- **Lancé par la CE le 11 décembre**

Appel à projets (*comment lire le WP?*)

- Le contexte justifiant chaque appel
- Pour chaque appel sont décrits dans le détail
 - **"specific challenge"** : le défi spécifique auquel l'appel s'adresse
 - **"scope"** : le champ d'application du projet qui y répondrait
 - **"expected impact"** : l'impact du projet sur/dans le contexte du défi
 - le type d'instrument (**"action"**) à mettre en oeuvre
 - le **budget** qui lui est réservé...
 - les **conditions spécifiques**, d'éligibilité, de type de partenaires, des modalités d'évaluation, les dates de clôture...



Le programme de travail 2014-2015

- FET-Open – fostering novel ideas
- FET-Proactive - nurturing emerging themes and communities
- FET-Proactive - High-Performance Computing
- FET Flagships - tackling grand interdisciplinary science and technology challenges

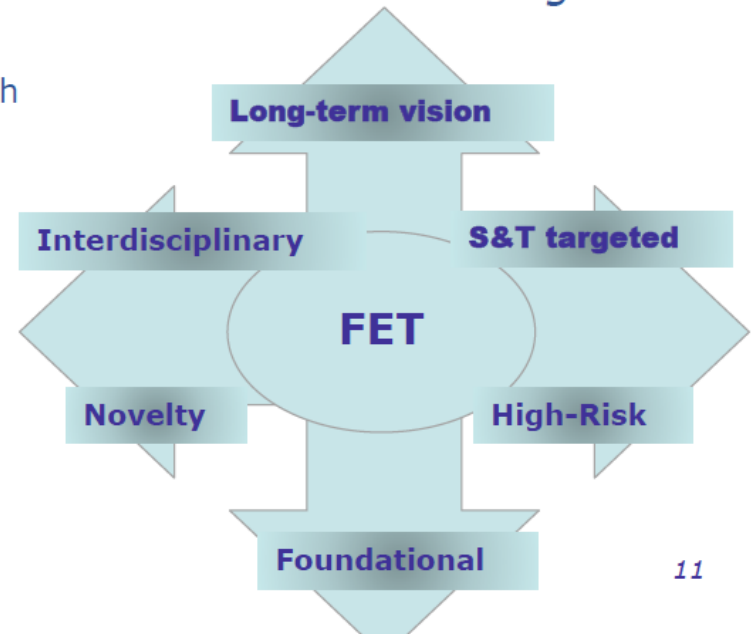


Call FET-Open : novel ideas for radically new technologies

- **'Open is open'**
- All technologies, no thematic restriction
- *FET gatekeepers define the kind of research that FET is looking for*
- Scope defined by the 6 gatekeepers
- Bottom-up, but targeted - not blue sky research
- Collaborative research

- *Total budget: 160M€ in 2014-15*

- *Instrument*
- Research and Innovation Action - 154M€
- Coordination and Support actions (CSA) – 6M€



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FET Open: fostering novel ideas

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€

- **1 step submission and evaluation of a 16 pages proposal**
- **Proposals are not anonymous**

Budget: 154M€

Deadlines	30/09/2014	31/03/2015	29/09/2015
Budget	77 M€	38,5 M€	38,5M€



FETOPEN 2: Coordination and Support Activities 2014

Specific challenge: The challenge is to make Europe the best place in the world for collaborative research on future and emerging technologies that will renew the basis for future European competitiveness and growth, and that will make a difference for society in the decades to come.

Scope: Proposals shall address one of the following topics:

***FET Observatory:** identifying new opportunities and directions for FET research*

***FET Communication:** communicating on FET projects and activities*

***FET Exchange:** structuring an emerging FET-relevant topic and communities*

***FET Conference:** supporting the organisation of the third FET Conference*

***FET Prizes:** identifying suitable areas for prizes and competitions in FET*

***FET Impact:** Assessing the impacts of the FET programme*

Project size: 0,3 to 0,5M€ per topic, up to 1M€ for FET Conference

Budget & deadline:

- 3M€ -> Deadline: 30/9/2014



FETOPEN 3 : Coordination and Support Activities 2015

Specific challenge: The challenge is to make Europe the best place in the world for collaborative research on future and emerging technologies that will renew the basis for future European competitiveness and growth, and that will make a difference for society in the decades to come.

Scope: Proposals shall address one of the following topics:

***FET Exchange:** structuring an emerging FET-relevant topic and communities*

***FET Take-Up:** actions for stimulating take-up of FET research results towards impact and innovation*

Project size: 0,3 to 0,5M€ per topic

Budget & Deadline:

- 1,5M€ -> Deadline: 31/3/2015
- 1,5M€ -> Deadline: 29/9/2015



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FET Proactive - nurturing emerging themes and communities

A set of thematic initiatives on promising emerging research themes.

Building up a European pool of knowledge and new interdisciplinary communities.

Joint exploration or consolidation of promising future technologies.

Topics defined bottom-up (FET Observatory):

- FET-Open portfolio analysis
- Consultations
- Participatory engagement with industry and society
- Coordination and support actions

FET Proactives - emerging themes and communities

Three topics are selected for funding in WP2014-15:

- **Global Systems Science (GSS)**
- **Knowing, doing and being: cognition beyond problem solving**
- **Quantum Simulation**

Total budget: 35M€ in WP 2014-15



FETPROACT 1 : Global Systems Science (GSS) - 2014

Specific challenge: The ambition is to improve the way scientific knowledge can help inform and evaluate policy and societal responses to global challenges like climate change, global financial crises, global pandemics, and growth of cities – urbanisation and migration patterns. These challenges entangle actions across different sectors of policy and society and must be addressed by radically novel ideas and thinking for producing, delivering, and embedding scientific evidence into the policy and societal processes.

GSS will put to full use the abundance of data on social, economic, financial, technological, and ecological systems available today. GSS emphasises systems thinking and the need to integrate/link data, models, and policies across all policy sectors with all societal actors. GSS will build on results from, among others, Complex Systems Science, Network Science, Mathematics of Big Data, the life sciences, social sciences and humanities, behavioural sciences, statistics, econophysics, etc.

Project size: 2 to 3M€

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



FETPROACT 2 : Knowing, doing, being: cognition beyond problem solving - 2014

Specific challenge: This initiative addresses the interdisciplinary fundamentals of knowing, thinking, doing and being, in close synergy with foundational research on future artificial cognitive systems, robots, smart artefacts and large scale cyber-physical systems. It aims at renewing ties between the different disciplines studying knowledge (especially beyond the 'declarative' and static action oriented kind of knowledge), cognition (e.g., perception, understanding, learning, action) and related issues (e.g., embodiment, thinking, development, insight, knowledge as a social construct, identity, responsibility, culture...) from various perspectives (e.g., physical, biological, neuronal, behavioural, social, epistemological, ecological). The aim is to enable new synergies with engineering disciplines on smart and self-organising materials, embedded systems, robotics, hybrid systems or smart infrastructures and cities to take artificial cognitive systems beyond the level of dull task execution or repetitive problem solving.

Project size: 2 to 4M€

Budget & Deadline: 15M€ -> Deadline: 1/4/2014



FETPROACT 3 : Quantum simulation - 2014

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.

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.

Project size: 2 to 4M€

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



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 (1 page)
 - Section 1: S&T Excellence
 - Section 2: Impact
 - Section 3: Implementation
- **Additional information**
 - Operational capacity
 - E.g. legal entity, CV, subcontract, third party
 - Ethics section



Critères d'évaluation – Actions de Recherche et d'Innovation

- **S/T quality** weight 60%, threshold 4/5
 - Clarity of targeted breakthrough and its relevance towards a long-term vision.
 - Novelty and foundational character.
 - Specific contribution to progress in science and technology.
 - Quality and effectiveness of the S/T methodology and workplan.
- **Impact** weight 20%, threshold 3,5/5
 - Appropriateness of measures envisaged towards getting a transformational impact of the results on science, technology and/or society.
 - Appropriateness of measures envisaged for the dissemination and/or use of project results.
- **Implementation** weight 20%, threshold 3/5
 - Quality of management.
 - Quality of the participants and of the consortium as a whole.
 - Appropriate allocation and justification of resources (person-months, equipment, budget).



Critères d'évaluation – Actions de Coordination

- **Excellence** weight 40%, threshold 3/5
- **Impact** weight 40%, threshold 3/5
- **Implementation** weight 20%, threshold 3/5



Le programme de travail 2014-2015

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- HPC is an important asset for the EU's innovation capacity of strategic importance to the EU's industrial and scientific capabilities as well as its citizens:
 - developing innovative industrial products and services,
 - increasing competitiveness,
 - addressing societal and scientific grand challenges more effectively.
- Europe has the technology, knowledge and human skills to develop capabilities covering the whole technological spectrum of the next HPC generation (exascale computing)
- Importance of developing state-of-the-art HPC technologies, systems, software, applications and services in Europe
- All relevant actors, public and private, need to work in partnership
- Invites the EC to elaborate its plans for HPC to support academic and industrial research and innovation under H2020

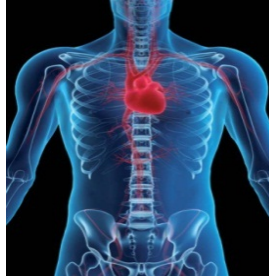
HPC in FET: Critical technologies



Addressing Societal Challenges

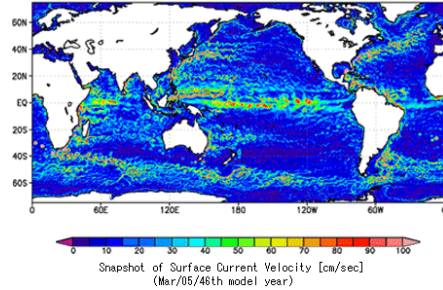
Health, demographic change and well-being

(Personalised medicine, pharma/bio-medical simulations, Virtual Physiological Human, Human Brain Project)



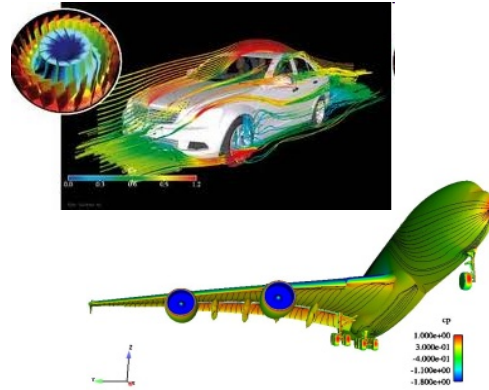
Climate action, resource efficiency and raw materials

(Simulators for Climate & Earth Sciences, Gas&Oil)



Smart, green and integrated transport Engineering

(performance, sustainability, energy efficiency)



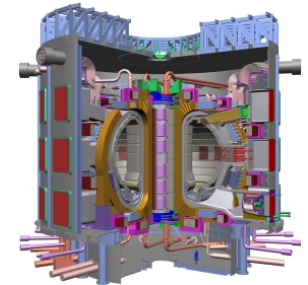
Inclusive, innovative and secure societies

(Smart Cities, multivariable decision/analytics support)



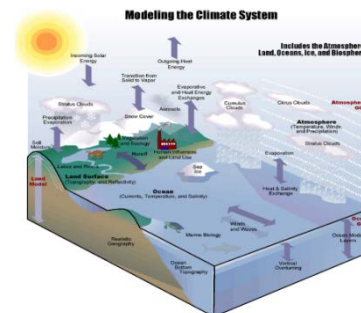
Secure, clean and efficient energy

(Fusion, nuclear plant simulations)



Food security, sustainable agriculture, marine research and the bio-economy

(simulation of sustainability factors (e.g. weather forecast, stock plagues and diseases control, etc))





- HPC strategy combining three elements:
 - (a) Computer Science: towards **exascale** HPC; *A special FET initiative focussing on the next generations of exascale computing as a key horizontal enabler for advanced modelling, simulation and big-data applications [HPC in FET]*
 - (b) achieving excellence in HPC **applications**; *Centres of Excellence for scientific/industrial HPC applications in (new) domains that are most important for Europe [e-infrastructures]*
 - (c) providing **access** to the best supercomputing facilities and services for both industry and academia; *PRACE - world-class HPC infrastructure for the best research [e-infrastructures]*
- complemented with training, education and skills development in HPC

HPC- Exascale Challenges in FET



- **Energy:** Extrapolation of current power consumption (e.g. Top system Tianhe-2) would need ~1 GW for sustained exaflops: breakthroughs and advances in circuits, architecture and software are needed to achieve the ~20 MW exaflop computing
- **Memory and I/O:** Handling of memory, latency and locality at all levels, from processor, to network and storage
- **Programmability and algorithms:** Programmers face the challenge of handling billions of computing threads. Only very few applications using HPC really take advantage of current petaflop system.
- **Resilience:** Innovative ideas are needed to cope with a very unstable and complex environment of millions of cores with frequent fault rates
- **Co-design:** Technology development must be associated to users requirements to get the right systems to satisfy the needs of applications.
 - engaging a European-wide effort to develop technology to build exascale systems within ~10 years



FETHPC 1: HPC core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications - 2014

*Specific challenge: Addressing the exascale challenges to achieve, by 2020, the full range of technological capabilities for **exascale-class HPC systems** which are balanced at all levels and validated with significant application drivers*

Scope :

- **a. Core technologies and architectures** (e.g. processors, memory, interconnect and storage) and their optimal integration into HPC systems, platforms and prototypes
- **b. Programming methodologies, environments languages and tools**: new programming models for extreme parallelism and extreme data applications
- **c. APIs and system software** for future extreme scale systems
- **d. New mathematical and algorithmic approaches** (e.g. ultra-scalable algorithms for extreme scale systems with quantifiable performance for existing or visionary applications)

Project size : 2 to 4M€, up to 8M€ for topic a)

Budget & Deadline : 93,4M€ -> Deadline: 25/11/2014

- with a minimum of 60% to be allocated to research under part a) of the scope



FETHPC 2: HPC Ecosystem Development - 2014

Specific challenge: To develop a sustainable European HPC Ecosystem

Scope:

- **Coordination of the HPC strategy** : coordination of the activities of stakeholders such as ETP4HPC, PRACE, application owners and users (including emerging HPC applications), the European exascale computing research community, the open source HPC community, etc.
- **Excellence in High Performance Computing Systems** : boost European research excellence on the key challenges towards the next generations of high-performance computing systems; cutting across all levels – hardware, architectures, programming, applications; ensure a durable integration of the relevant European research teams; self-sustainability of the research integration on the longer-term

Budget & Deadline: 4M€ -> Deadline: 25/11/2014



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FET Flagships – salient features

FET Flagships are highly ambitious, large-scale, long-term, science-driven, goal-oriented, roadmap-based research initiatives, which will:

- provide strong scientific, technological and IPR basis for establishing areas of European leadership and bringing substantial benefits for society
- help overcome fragmentation and increase the impact of European research and innovation efforts

and which will require:

- cooperation among a range of scientific communities/disciplines, with industries and with the involvement of representatives from the civil society
- a long-term commitment of all key stakeholders sharing a common scientific vision and under a strong leadership
- a joint effort of EU and national programmes to provide a large financial support (~ 100 M€/year) over a long period (~10 years)

Graphene & Human Brain Project selected



Stimulating ideas & structuring the scientific community
2009 - 2010

Call for Preparatory Actions
21 → 6
July 2010

Preparatory Phase Pilots
05/2011 - 04/2012

Flagship selection
6 → 2
end 2012

FP7 ramp-up phase
10/2013- 03/2016

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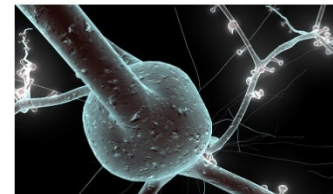
Brain Simulation and Graphene Research Receive Billion Euro Each

0 Comments  7  3  Share  E-mail  Print

Mark Hoffman

First Posted: Jan 28, 2013 09:57 AM EST

The result of the highly anticipated decision of which two research projects will receive a one billion Euro research grant, the largest single research award ever, from the European Commission were announced by the European Commission's Vice-President Neelie Kroes today.



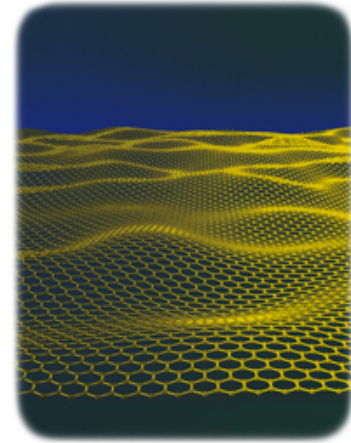
The first project is the [Human Brain Project](#), led by neuroscientist Henry Markram at the Swiss Federal Institute of Technology (EPFL) in Lausanne, which aims to simulate the human brain in a supercomputer, in order to aid medical advancement in brain disorders.

Like Us on [Facebook](#)  

The second, called [Graphene Project](#), is led by theoretical physicist Jari Kinaret at Chalmers University of Technology in Gothenburg, Sweden. It's goal is to develop the awesome

FET Flagship: Graphene

GRAPHENE FLAGSHIP



*Artistic impression of a corrugated graphene sheet
Credit: Jannik Meyer*

- **Graphene, is a 2D material , a single layer of carbon atoms, stronger than diamond, yet lightweight and flexible and an exceptional electricity conductor.**
- The Graphene Flagship will bring graphene, and related 2D materials, **from academic labs to industry, manufacturing and society.**
- Examples of products:
 - ✓ electronic paper
 - ✓ bendable smartphones
 - ✓ enhanced solar cells and batteries
 - ✓ lighter and more energy efficient airplanes
- On the longer term, graphene is expected to give rise to new computers and revolutionary medical
- applications such as artificial retinas.



Le projet en l'état actuel

- Cofinancement Union Européenne et états membres (100 M€ / an pendant 10 ans)
 - volet entièrement financé par l'UE: 'Core Project'
 - volet cofinancé UE et états membres: ERANET +
- 1° Phase: Phase de lancement @ FP7 (30 mois = octobre 2013 – mars 2016)
 - **Core Project = Collaborative project – coordinated support action' CP-CSA**
 - **ERANET + = Flag ERA**
- 2° Phase: Phase de maturité @ H2020 avec une nouvelle gouvernance (> 2016)
 - élargissement du consortium du 'Core Project'
 - projets satellites
 - montée en puissance des financements
 - négociation en cours

- Première extension du Core Project dans la première phase
- Réserve de 9.2M€ pour de nouveaux partenaires soit 18 – 24 consortia d'équipes
- 11 thèmes orientés vers des recherches applicatives + 1 thème blanc
- 1 à 2 projets seront sélectionnés par thème (350 ou 700 k€ / projet)
- Projets portés par des consortia de 2 - 4 équipes, partenaire industriel souvent requis
- Intégrabilité et complémentarité vis-à-vis des WP existants doit être démontrée
- Institutions déjà partenaires non éligibles (CNRS, CEA...)
- Ouverture: 25 novembre 2013 - date limite de soumission: 5 février 2014
<http://www.graphenecall.esf.org/>
- Evaluation et sélection par un comité d'experts extérieurs au Flagship

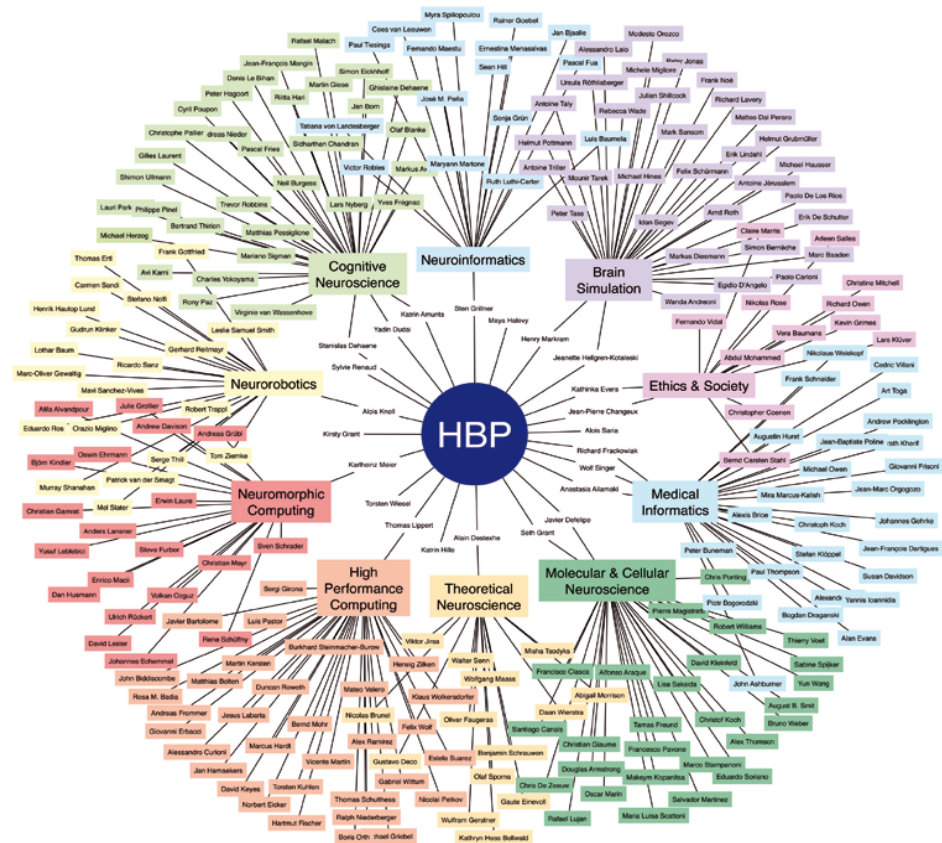


The Human Brain Project (HBP)

HBP will create the world's largest **experimental facility for developing the most detailed models of the brain** (from genes to mind), for studying how the human brain works and ultimately for simulating and developing personalised treatment of brain diseases.

This research lays the scientific and **technical foundation for medical progress**: identifying new drug targets and treatment, in response to the urgent need to combat brain diseases and their associated costs to society.

HBP will also produce brain-inspired **'neuromorphic' computing** systems that could drastically reduce power-consumption for super-computers and enhance robots.






HBP – Appel terminé



- ~9 M€
- Clôture le 6 novembre 2013
- Résultats en février 2014
- Contenu
 1. *Human and mouse neural channelomics and receptomics (937 k€)*
 2. *Genotype to phenotype mapping of the mouse brain (937 k€)*
 3. *Identifying, gathering and organizing multimodal human and nonhuman neuroscience data (937 k€)*
 4. *Cognitive architectures (750 k€)*
 5. *Novel methods for rule-based clustering of medical data (937 k€)*
 6. *Neural configurations for neuromorphic computing systems (581 k€)*
 7. *Virtual robotic environments, agents, sensory & motor systems (2,5 M€)*
 8. *Theory of multiscale circuits (768 k€)*



FET 2014-2015 – EN RÉSUMÉ



FET WP2014-15

Budget 479,2M€

Call FET-Open - fostering novel ideas


160M€

- FETOPEN1: FET-Open research projects
 - 77M€ 30/9/2014
 - 38,5M€ 31/3/2015
 - 38,5M€ 29/9/2015
- FETOPEN2: Coordination and Support Activities 2014
 - 3M€ 30/9/2014
- FETOPEN3: Coordination and Support Activities 2015
 - 1,5M€ 31/3/2015
 - 1,5M€ 29/9/2015

Call FET-Proactive - nurturing emerging themes and communities

35M€

- FETPROACT1: Global Systems Science (GSS)
 - 10M€ 01/4/2014
- FETPROACT2 : Knowing, doing and being; cognition beyond problem solving
 - 15M€ 01/4/2014
- FETPROACT3 : Quantum simulation
 - 10M€ 01/4/2014



FET WP2014-15

Budget 479,2M€

▪ **Call FET Proactive - towards exascale High Performance Computing 97,4M€**

- FET HPC1: HPC Core Technologies, Programming Environments and Algorithms for Extreme Parallelism and Extreme Data Applications
 - 93,4M€ 25/11/2014
- FET HPC2: HPC Ecosystem Development
 - 4M€ 25/11/2014

Call FET-Flagships - tackling grand interdisciplinary science and technology challenges 179,6M€

- FETFLAG1: Framework Partnership Agreement (FPA)
 - na 10/4/2014
- FETFLAG2: Policy environment for FET Flagships
 - 1,6M€ 10/4/2014
- Graphene & Human Brain Project FET Flagship Core Projects (under FPA)
 - 2x89M€ Q2/2015
- **Other (study, experts, communication) 7,2M€**



HORIZON *2020*

LE PROGRAMME DE RECHERCHE ET
D'INNOVATION DE L'UNION EUROPÉENNE

PCN – Technologies Futures et Emergentes (FET)

Frédéric Laurent, représentant Comité de programme, MESR
Fabienne Ragache, experte Comité de programme, DGCIS



Coordination – Martine Garnier-Rizet, responsable scientifique



Martine Knibiehler, mission interdisciplinarité



Subbarao Bassava, responsable des relations internationales

Muriel Maurice, chargé de projets Europe et ANR

Nicolas Lecompte, chargé d'affaires Europe



Catherine Gilles-Pascaud, chargée de mission



Institut national
de la santé et de la recherche médicale

Nacer Boubenna, chargé de mission pôle relations européennes





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> Recherche avancée multicritères

AGENDA

05 DÉC
Espace : session nationale d'information Horizon 2020
PARIS

17 DÉC
Energie : session nationale d'information Horizon 2020
PARIS

17 DÉC
Environnement : session nationale d'information Horizon 2020
PARIS

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POUR VOUS AIDER

Un réseau de personnes capables de vous conseiller, de vous orienter et de vous assister à chaque étape de votre projet de recherche

[Points de contact nationaux](#)

> [Contacts en région](#)

ANTICIPER LES PROCHAINS APPELS

> [Le dispositif national](#)

Actualités

18.11.2013
Adoption du programme de travail FET dans le pilier "Excellence Scientifique" d'Horizon 2020
Le projet de programme de travail relatif aux Technologies Futures et Émergentes (FET) dans le cadre du futur programme européen Horizon 2020 (pilier Excellence Scientifique) a été adopté le 12 novembre 2013 et est désormais disponible...
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28.11.2013
Réunions d'information du P.C.N. Technologies Futures et Emergentes (FET) en région
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Appel à projets du consortium FET Flagship Human Brain Project (HBP)
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ÉVÈNEMENT

> [Session nationale d'information le 4.12.2013 à Paris](#)

Événements

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Technologies Futures et Emergentes : session nationale d'information Horizon 2020
Paris





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Merci de votre attention !