27 Μαΐου 2014 | ΕΙΕ

HORIZON 2020

THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION

FET >>>
Future & Emerging Technologies

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ΕΚΤ
ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΤΕΚΜΗΡΙΩΣΗΣ
NATIONAL DOCUMENTATION CENTRE

Excellent Science

- European Research Council
- Marie Skłodowska-Curie actions
- Future and Emerging Technologies
- Research infrastructures programme

€2,96bn

FET

Future & Emerging Technologies

- 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."

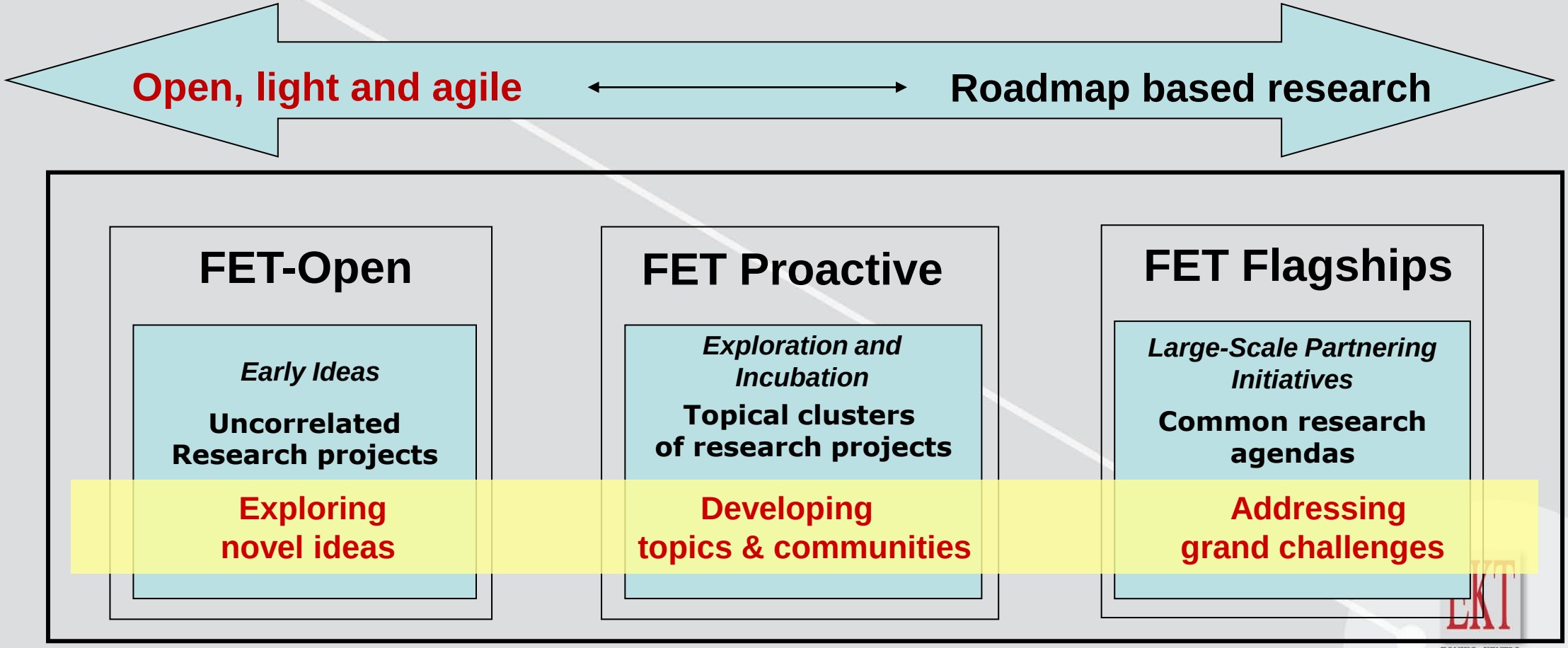
- **COMMISSION PROPOSAL ON ESTABLISHING HORIZON 2020 – THE FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION (2014-2020)**

http://ec.europa.eu/digital-agenda/en/fet

FET's missions

- To **uncover 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 **grasp European leadership** in research and innovation on the most promising such future and emerging technologies early on.
- To turn Europe into **the best environment** for responsible and dynamic multi-disciplinary collaborations on such future and emerging technologies.
- To **kick-start European research and innovation eco-systems** around such future and emerging technologies, as seeds of future industrial leadership and the tackling of grand societal challenges.

FET – three complementary funding schemes



1. FET Open

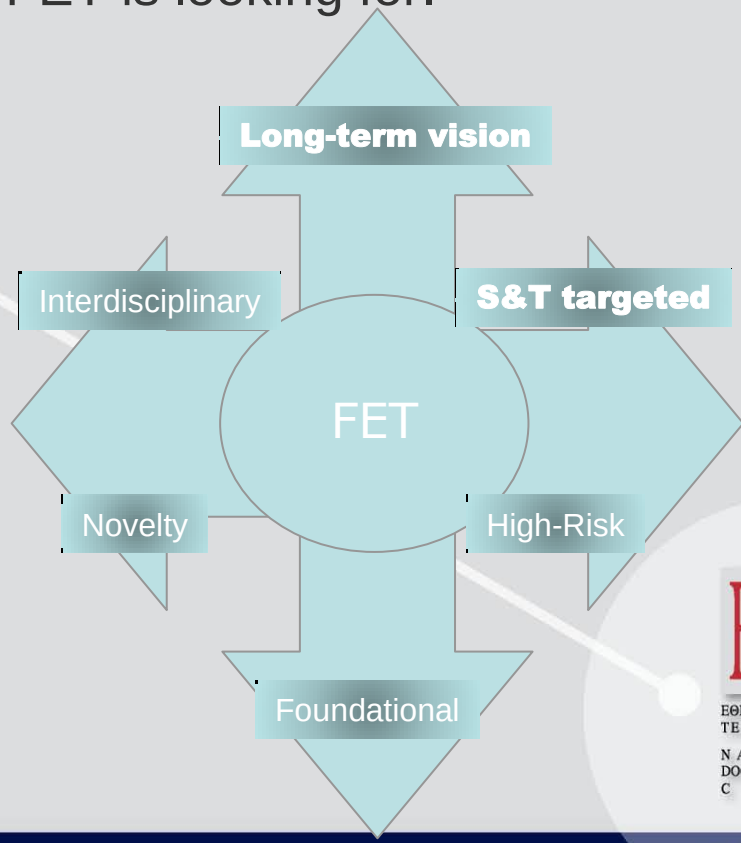
fostering novel ideas

Cut-off dates:
30/09 & 31/03

- 'Open is open': **all** technologies, no topical scope.
- **40%** of the FET budget in H2020 (>1B€).
- FET gatekeepers define the kind of research that FET is looking for.

- An end-to-end **light and fast** scheme:
  - Deadline free, open 24/7
  - 15 pages proposal
  - 1 step submission, 1 stage evaluation
  - FET specific evaluation criteria

- Instrument
  - Research and Innovation Action (RIA)
  - Coordination and Support actions (CSA)



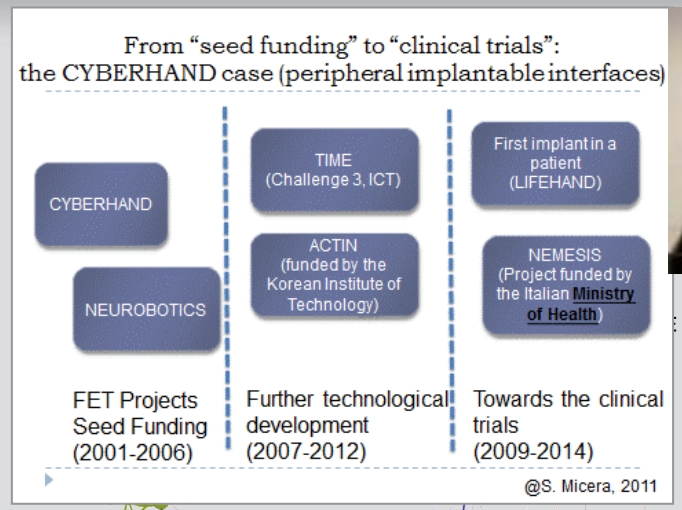
http://ec.europa.eu/digital-agenda/en/fet-open

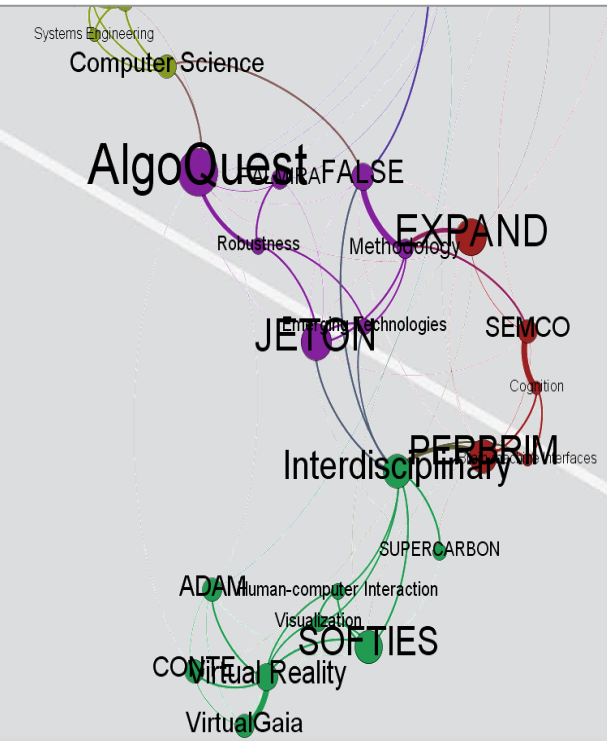
FET Open in FP7 a portfolio snapshot

http://cordis.europa.eu/fp7/ict/fet-open/docs/2010-06-fetopen-project-portfolio.pdf

FET Open

- Popular FET-hallmark scheme
- Attracts new disciplines and actors, including many young ones and SMEs
- Numerous success stories
- A source of new directions and early signals
- **Largely academic,** with some high-tech industry and SME participation
- Highly competitive!
  - **3.112** short proposals in FP7





2. 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**

http://ec.europa.eu/digital-agenda/en/fet-proactive

FET Proactive Initiatives in FP7

Foundations of Computing & Communication

- Nano-Scale ICT Devices and Systems
- Science of Complex Systems for Socially Intelligent ICT
- Unconventional computation
- Dynamics of Multi-Level Complex Systems
- Concurrent Tera-Device Computing
- Quantum Information Foundations & Technologies
- Quantum ICT
- Molecular Scale Devices and Systems
- Towards Zero-Power ICT
- Minimising Energy Consumption of Computing to the Limit
- Atomic and molecular scale devices and systems

Intelligence and interaction

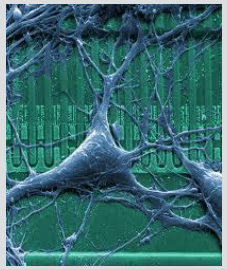
- Embodied Intelligence
- Pervasive adaptation
- Science of complex systems for Socially Intelligent ICT
- ICT Forever Yours
- Human-Computer Confluence
- Self-Aware Autonomous Systems
- Fundamentals of Collective Adaptive Systems
- Fundamentals of Creativity

Convergence and symbiosis

- Bio-ICT Convergence
- Bio-Chemistry based ICT
- Brain-Inspired ICT
- Neuro-Bio-Inspired Systems
- Evolving Living Technologies
- Symbiotic human-machine interaction

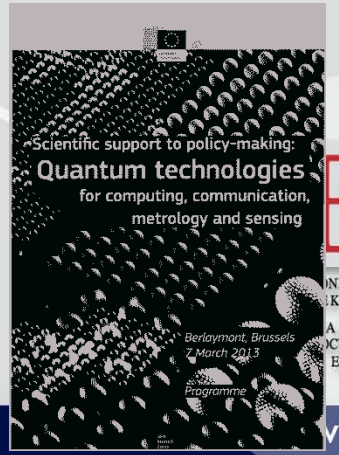
FET Proactive

- Balance between continuity and new directions
  - It can take time to mature an avenue
- Creation of communities
  - for instance in, Bio-ICT, quantum technologies, Neuro-IT, complex systems
- Successful transfers
  - for instance in quantum cryptography, cognition, nano-tech, robotics, bio-ICT



ETP 4 HPC

SECOQC



FET Proactives: 2014-2015

- **Global Systems Science (GSS)** (10 M€)
  - Improve the way in which scientific knowledge can stimulate, guide, and help evaluate policy and societal responses to global challenges
- **Knowing, doing, being: cognition beyond problem solving** (15 M€)
  - New approaches to cognitive systems
- **Quantum simulation** (10 M€)
  - Quantum technologies to ultimately address real world problems
- **Towards exascale high performance computing** (97,4 M€)
  - → **HPC PPP**: To be coordinated with complementary work in LEIT and RI

Closed for 2014-15

25/11/2014

High Performance Computing PPP

- The EC Communication "**High-Performance Computing: Europe's place in a global race**", adopted 15 Feb 2012, describes an ambitious strategy for HPC, combining three elements:

FET

a) Computer Science: towards exascale High Performance Computing;

RI

b) providing access to the best supercomputing facilities and services for both industry and academia;

FET +RI

c) achieving excellence in HPC applications;

Complemented with training, education and skills development in HPC

http://www.etp4hpc.eu/

FET Proactives: 2016-2017

- **Knowing, doing and being; cognition beyond problem solving**
- **Global Systems Science (GSS)**
- **Quantum simulation and networking**
- Adaptive Bottom-up Construction
- New possibilities at the nano-bio-chemistry interface
- Symbiosis between artificial and natural systems
- Understanding time for new technologies
- Ecological ubiquitous technologies
- Nanoscale Opto-mechanical devices

Proactive Consultation

15/06/2014

https://ec.europa.eu/digital-agenda/en/content/consultation-new-fet-proactive-topics

3. FET Flagships

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

- provide a strong S&T basis for future technological innovation and substantial benefits for society
- help overcome fragmentation and increase the impact of European research and innovation efforts

and which will require:

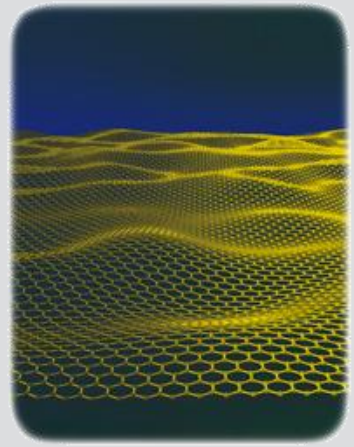
- cooperation among a range of scientific communities/disciplines, with industries and with the involvement of representatives from the civil society
- **a long-term commitment** of all key stakeholders sharing a common scientific vision and under a strong leadership
- a joint effort of EU and national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

http://ec.europa.eu/digital-agenda/en/fet-flagships

FPA: **10/06/2014**
Calls: **Q2 2015**

FET Flagship: Graphene

- **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.



Artistic impression of a corrugated graphene sheet
Credit: Jannik Meyer

Nokia Morph concept - Credit: Nokia Research Center

http://www.graphene-flagship.eu/

FPA: **10/06/2014**
Calls: **Q2 2015**

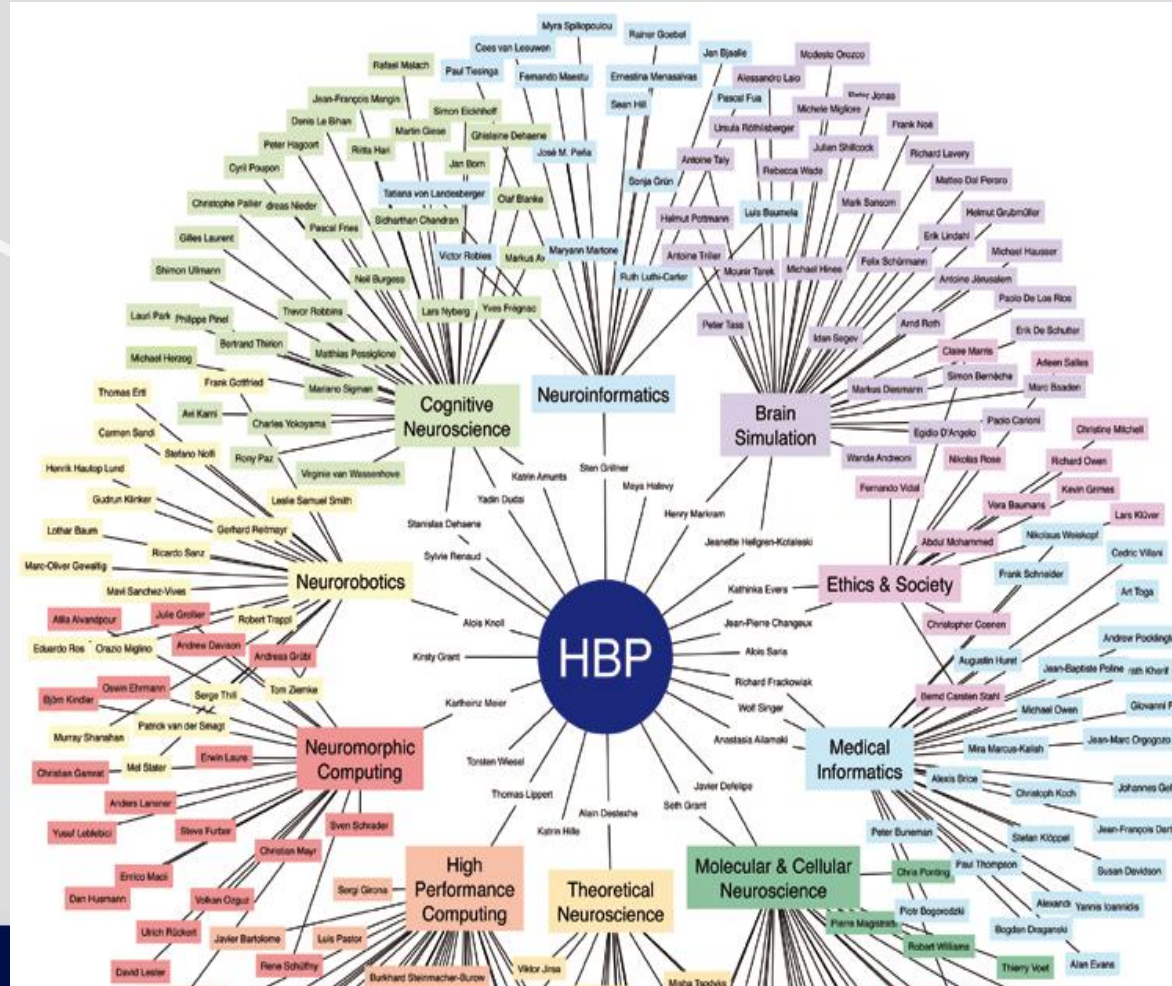
FET Flagship: Human Brain Project

HBP will create the wold'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.

http://www.humanbrainproject.eu



Applies to:
FET-Open
+
FET-Proactive

Evaluation score

Excellence	Impact	Implementation
60%	20%	20%
4/5	3.5/5	3.5/5

Time

Results	Grant agreement
Max 5 months	+3 months

Project size estimation

Minimum budget	Maximum budget
2M€	4M€

Η ελληνική συμμετοχή στο FP7

- Συμμετοχή σε **25 έργα FET**
- Συντονισμός **5 έργων FET**

- Ποσοστό επιτυχίας από την Ελλάδα: **8,89%**
- Συνολικό ποσοστό επιτυχίας: **5,11%**

**Η επεξεργασία των στοιχείων είναι σε εξέλιξη*
Περισσότερες πληροφορίες: κ. Γεωργία Μαζιώτη, gmazio@ekt.gr

http://metrics.ekt.gr/

Έργα με Έλληνες συντονιστές

Συνολικός π/υ: 8,9M€
Κοινοτική συγχ/ση:2,3M€

Call	Acronym	Title	Co-ordinator
FP7-ICT-2007-C	PHOME	Photonic Metamaterials	Ίδρυμα Τεχνολογίας και Έρευνας (ΙΤΕ)
FP7-ICT-2009-C	STAMINA	Statistical Mechanics Inspired Methods for Green Autonomous Networking	Εθνικό Κέντρο Έρευνας και Τεχνολογικής Ανάπτυξης (Ε.Κ.Ε.Τ.Α.)
FP7-ICT-2009-C	2D-NANOLATTICES	Strongly anisotropic Graphite-like semiconductor/dielectric 2D nanolattices	Εθνικού Κέντρου Έρευνας Φυσικών Επιστημών «Δημόκριτος»
FP7-ICT-2009-C	RAMPLAS	100 Gb/s Optical RAM on-chip: Silicon-based, integrated Optical RAM enabling High-Speed Applications in Computing and Communications	Εθνικό Κέντρο Έρευνας και Τεχνολογικής Ανάπτυξης (Ε.Κ.Ε.Τ.Α.)
FP7-ICT-2013-C	SCORPIO	Significance-Based Computing for Reliability and Power Optimization	Εθνικό Κέντρο Έρευνας και Τεχνολογικής Ανάπτυξης (Ε.Κ.Ε.Τ.Α.)

FET

http://ec.europa.eu/digital-agenda/en/fet

Work Programme

http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/main/h2020-wp1415-fet_en.pdf

Project Portfolio

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

Ημερίδα στο ΕΙΕ 19.11.2013

http://helios-eie.ekt.gr/EIE/handle/10442/13639

Εθνικό Κέντρο Τεκμηρίωσης | www.ekt.gr

Helpdesk για το Horizon 2020 | Τηλ.: **210 7273925**

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Εθνικό Σημείο Επαφής για το πρόγραμμα ICT & FET στον Ορίζοντα 2020

- 7ο Πρόγραμμα Πλαίσιο (ΕΚΤ): www.ekt.gr/fp7
- Ορίζοντας 2020: www.ekt.gr/horizon2020
- Enterprise Europe Network-Hellas: www.enterprise-hellas.gr
- OpenAire: www.openaire.eu
- Δείκτες Έρευνας & Καινοτομίας: http://metrics.ekt.gr/
- Research Infrastructures Observatory: http://observatory.euroris-net.eu

ΕΚΤ
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