Future &
Emerging
Technologies
in the
Information
Society
Technologies
programme of
European
Commission

The Future and Emerging Technology Programme

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SEVENTH FRAMEWORK PROGRAMME

4+1 pillars for research funding in 7th framework programme 2007-2013

Cooperation(61%) - Collaborative research: Teams form to achieve common goals	**Ideas (16%)** -ERC - Excellence through Europe-wide competition -Principal investigator-based
Capacities (10%) - Research Infrastructure (EC Grid GEANT, Global Virtual Research communities)	**People (10%)** - Researcher mobility - In/outgoing grants

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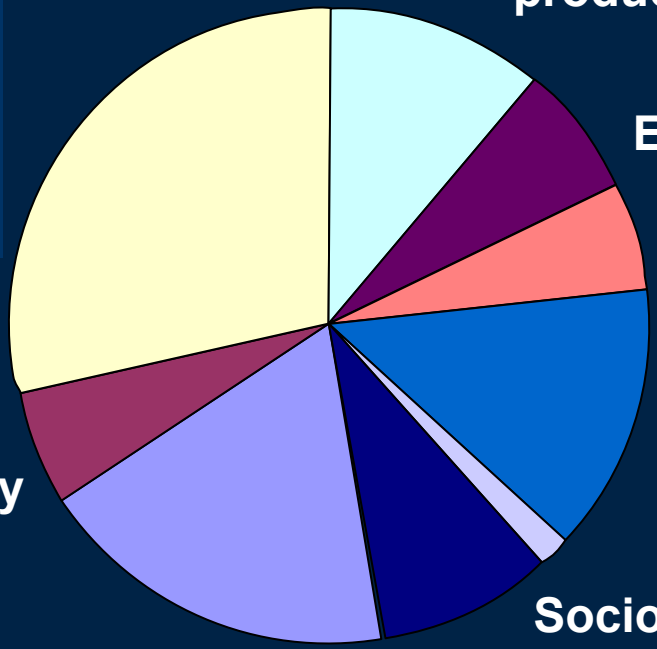
Nine themes in Cooperation Programme

FET (10% of ICT)

ICT
(28%)
(1.3 BE/year)



Nanotechnology, materials, production: (11%)

Energy: (7%)

Environment: (6%)

Transport: (13%)

Socio-economic research: (2%)

Space & security: (9%)

Health (18%)

Food Biotechnology (6%)

ICT is managed by Directorate for IT & Media
All other themes are managed by Directorate for Research

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Pasteur's Quadrant: Understanding – Needs - Innovation

	Inspired by social needs ? *No*	Inspired by social needs? *Yes*
Quest for fundamental understanding? *Yes*	Basic research driven by curiosity: Ernst Mach Erwin Schrödinger	Basic research inspired by real world challenges: Otto Wichterle Louis Pasteur
Quest for fundamental understanding? *No*	Zero Euros (hopefully?)	Applied Research: František Křižík Thomas Edison

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FET: Bridging between use and understanding

	Inspired by use ? *No*	Inspired by use? *Yes*
Quest for fundamental understanding ? *Yes*	Basic research driven by curiosity **Ideas programme European Research Council**	Basic research inspired by real world challenges **FET**
Quest for fundamental understanding ? *No*	Almost Zero Euros	Applied research **ICT**

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FET mission

- Pathfinder for radically new research ideas
- Builds bridges between science and engineering
- Incubator for emerging research domains
- Expands prospects and ambitions of ICT
  - Bridges IT with other disciplines: multi-disciplinarity
  - Beyond technology-push: ICT and the social sciences
  - ICT for science: Information in the centre of inquiry

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Two complementary schemes

FET Proactive

- Top-down approach
- predefined themes
- Builds momentum around novel themes
- Specified deadlines

FET Open

- Bottom-up approach
- Open to novel research ideas
- Creates momentum around alternative ideas
- Continuously open

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Specificity of FET-Open is defined by its spirit not by specific predefined themes

- **Open to new ideas**: No predefined programme
- **Open to new consortia:** No predefined constituency
- **Open disciplinary borders**: Multidisciplinarity
- **Open-ended in time**: No constraint on when vision should materialise; give time for ideas to flourish

Research proposed

- Has a clear long-term vision that could challenge current thinking and technologies
- Is based on radically new ideas and concepts
- Is grounded in innovative ideas how to make major steps towards achieving the long-term vision.

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FET-OPEN implementation

Specific Targeted Research Projects (STREP)

- Collaborative research projects: teams form around a common vision to achieve clear goals
- Typically: 1.5-2.5MEuros, 3-6 partners, 3 years
- FET OPEN Budget per year: approximately 60MEuros
- **Call for proposals continuously open!**

Coordination Actions (CA) and Support actions (SA)

- Help for research communities to mature (no research funded)
- Typically: 0.5-1MEuros, few partners ready to help organise a research community, 2-4 years
- **Support actions to tackle specific issues of interest to FET**
- **3 batches per year**

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FET-OPEN Implementation:

STREPS Evaluation in 2 stages

First Stage: SHORT proposal

- 5 pages, rather informal, can be submitted ANYTIME
-'What?' (vision, new ideas) and 'Why? (challenge current thinking)
- not 'Who' (anonymity!) only outline of 'how' (what are enabling new ideas)

Second stage: FULL proposal (if short proposal successful)

- More detailed (and more formal) **full proposal** submitted (40 pages)
- additionally 'How?' and 'Who?'
- For convenience FULL proposals are evaluated in 3 batches/year

Success rate

First stage: Approximately 1 out of 4

Second stage: Better than 1 out of 3

Overall: Approximately 1 out of 12

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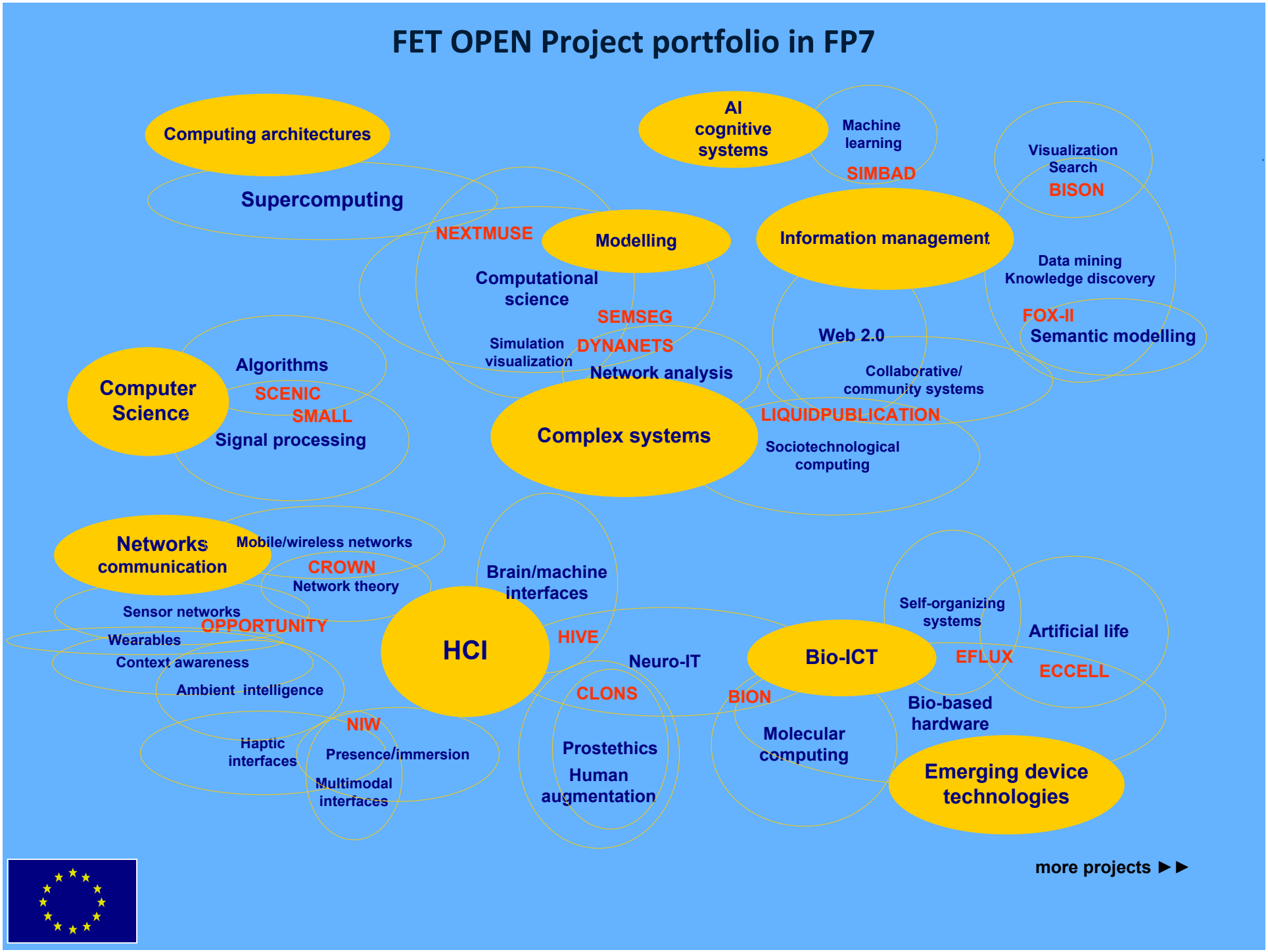
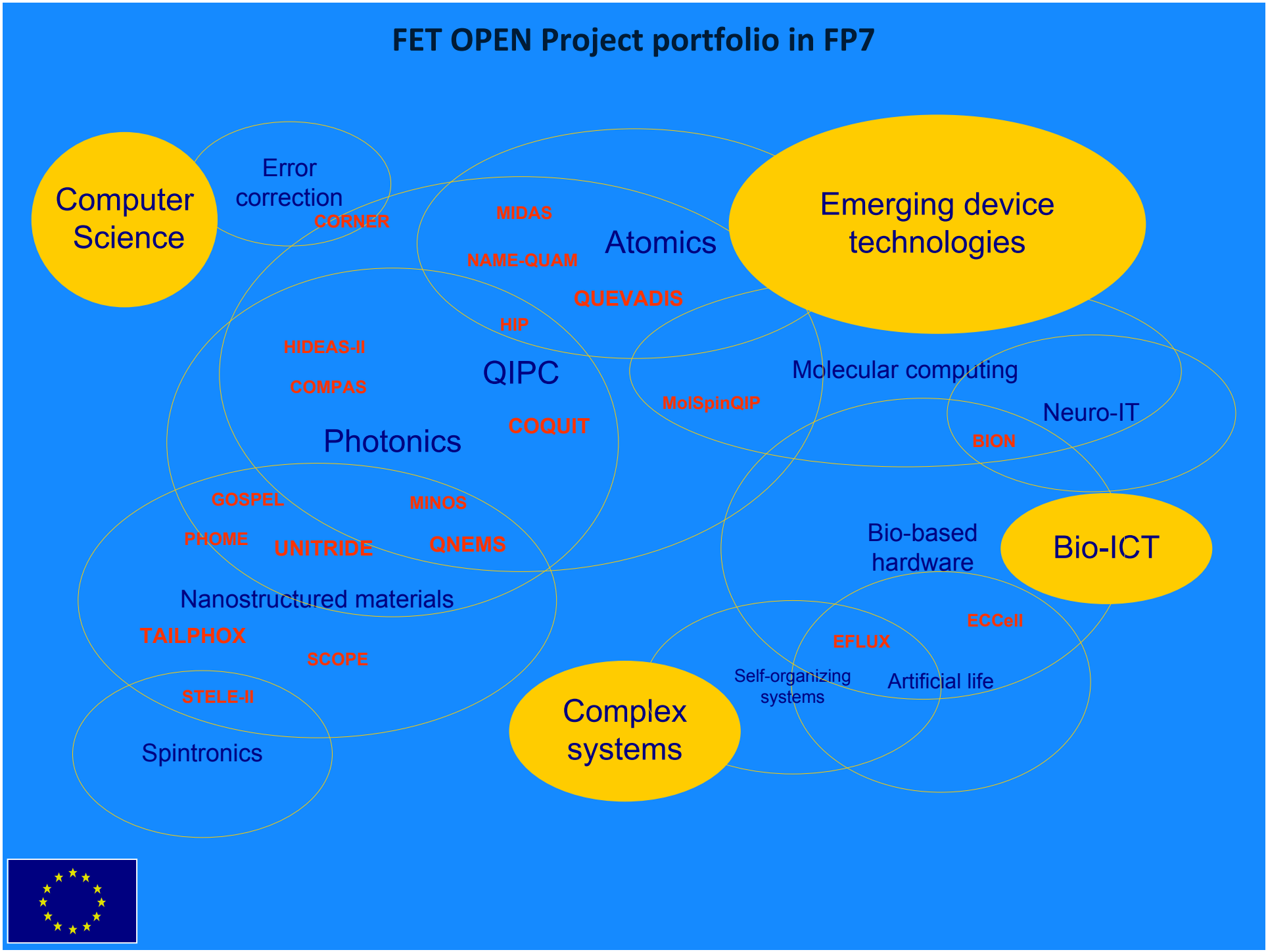
FET OPEN Project portfolio in FP7



FET OPEN Project portfolio in FP7



Sample of FP6 projects

MAIA

Non-invasive technique for "mind reading" to detect intentions of the persons and to transmit them to a machine.

Social inclusion of paralyzed people. Driving a wheelchair, controlling prostheses, enhance communication, interacting with software, etc.

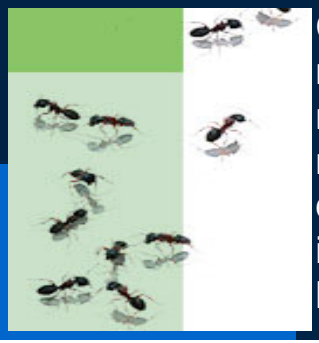
LEURRE

Building and controlling of mixed societies composed of animals and robots.

Robots can control and induce a new wanted behaviour in a group of living animals, e.g. pest control by luring insects into trap, control of collective panic of a large number of animals, control of the roosting behaviour of wild animals. Applications in bio-inspired robotics and micro-robotics.

SWARMANOID

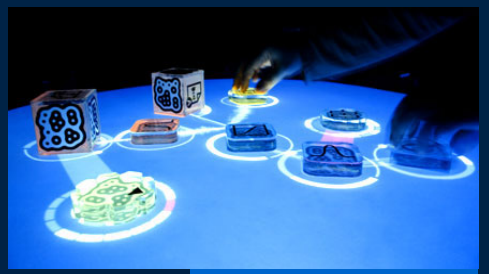
Inspiration from the observation of social insects: A group of simple cooperating robots following simple rules can perform complex tasks.



Construction, maintenance and repair in harsh environments; missions on other planets; rescue and defence operations; deployment of nano-robots inside the human body e.g. to kill cancer tumours, etc.

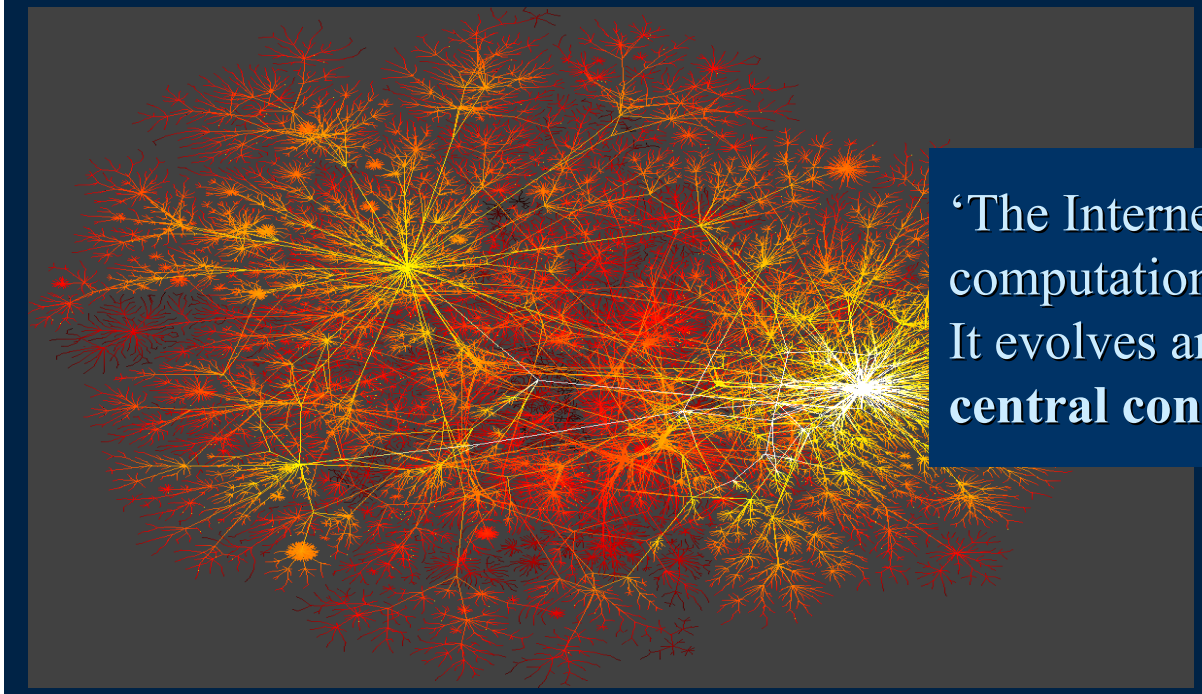
S2S^2

From Sound to Sense, from Sense to Sound: bridging the two senses.



Address European leadership in sound and music computing. Applications in electronic music industry, improving human interaction with sound and music, address social cohesion.

Examples of drivers of FET type research: Measuring and controlling the Internet



'The Internet is the most complex artificial computational artefact ever created by man. It evolves and grows in **absence of any central control**' (Papadimitriou 2001)

The Internet - unbounded world of information

Graph theory: Understand Internet topology
Game Theory: optimise the Internet throughput
Social Science2.0: The Internet as a social laboratory

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Examples of drivers of FET type research: Towards an information science for biology

- Graph theory
- Pi calculus
- Multi-scale modelling
- Cellular automata
- Concurrency Theory

System biology

Biology is the next frontier of computer science'

'Biology is mathematics' next physics' (J. Cohen)

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Additional info

-FET unit

http://cordis.europa.eu/fp7/ict/programme/fet_en.html

-Continuously open submission of proposals to the FET OPEN)

http://cordis.europa.eu/fp7/ict/fet-open/home_en.html

- Project portfolio of FET OPEN

http://cordis.europa.eu/fp7/ict/fet-open/projects_en.html

-7th European Framework programme: How to get started?

http://cordis.europa.eu/fp7/home_en.html

http://ec.europa.eu/fet09