FET 2011-2012

Wide Hogenhout
Future and Emerging Technologies Proactive
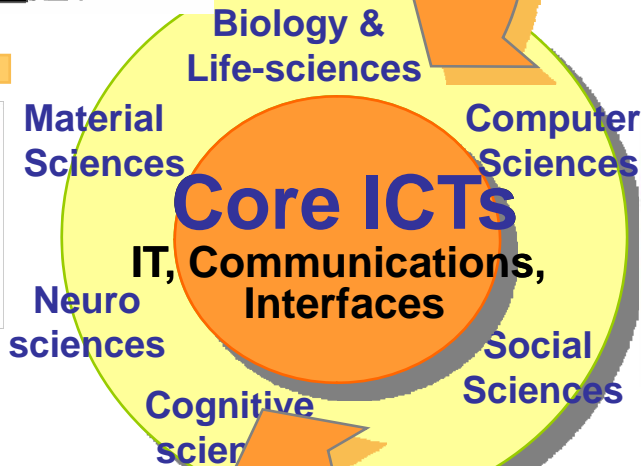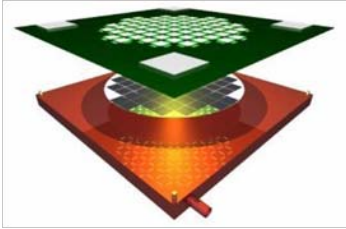
Outline

- The FET Mission
- FET projects in QI-FT and self-awareness
- Future FET Initiatives for 2011-2012
  - Call on CSAs including ERA-NETs
  - Call on Quantum ICT including ERA-NET+
- FET Flagships

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SEVENTH FRAMEWORK PROGRAMME

FET: multidisciplinary transformative research

Bringing new science into technology!

Components

Biology & Life-sciences

Material Sciences

Computer Sciences

Systems

Core ICTs

IT, Communications, Interfaces

Neuro sciences

Social Sciences

Cognitive scien
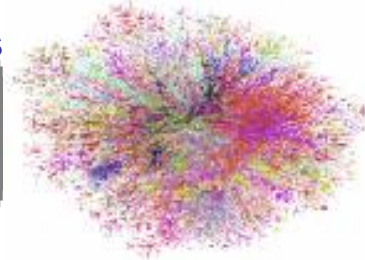
Co-evolution of societal and technological change

Intelligence

FET Mission
Supporting the emergence of new visionary ICT research

1. Pathfinder and Incubator for exploring new visionary ideas

2. Focusing on long term foundational research

3. Focusing on high risk/high pay-off multi- and inter- disciplinary research aiming at S&T breakthroughs

4. Maturing & structuring emerging research fields, research communities and research practices

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"Quantum Information Foundations and Technologies" (QI-FT) **in FET proactive**

realize an atomic, molecular and optical **(AMO)-based quantum-information processor** involving up to 10 quantum bits

AQUTE

SOLID

develop small **solid-state hybrid systems** performing elementary quantum information processing tasks

pursue **hybridization of quantum information media** to build quantum networks and measurement applications

Q-ESSENCE

SEVENTH FRAMEWORK PROGRAMME

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"Self-Awareness in Autonomic Systems"
Objective ICT-2009.8.5
FET proactive

	ASCENS	EPiCS	RECOGNITION	SAPERE
Aspect	*Theory*	*System*	*Human Cognition*	*Ecosystem*
Approach	**Autonomic Service Elements** • Behaviour • Knowledge & reasoning • Competition & cooperation	**Proprioception** • Modelling self-awares/expression • Self-aware hardware/software • self-aware middleware/ network	**Cognitive self-awareness for content management** • Based on human cognition models • Create Content-centric functionality	**Self-Aware service ecosystem** • innovative infrastructure for service execution • Situatedness and composition
Case Studies demonstrators	•Robot swarm •Science clouds •E-vehicles	•Pricing/trading •Person tracking •Hypermusic	Content management on internet driven by social links	Adaptive & Centralised pervasive services

FET Prospects for 2011-2012

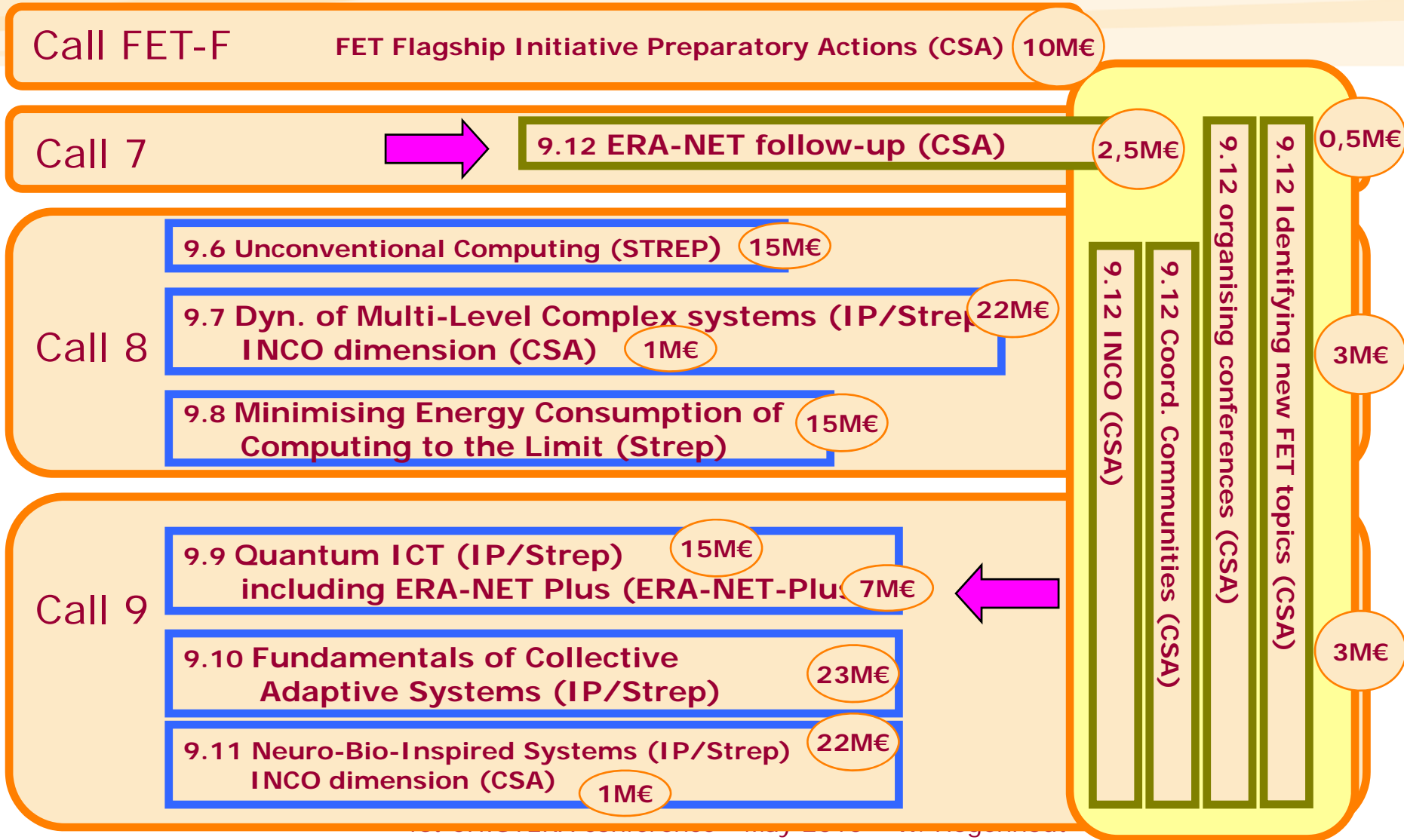## Timetable for Workprogramme 2011-2012

- Sept.-Nov. 2009: Consultation Workshops
- Jan.-Feb. 2010: Online consultation
- end Feb. 2010: 1st Draft Detailed WP
- Mar.-June 2010: Consultation with Member States

- July 2010: Adoption of WP 2011-2012

- 30 July - 9 Nov 2010: FET Flagship call

- 28 Sept 2010 - 18 Jan 2011: call 7

- 26 July 2011 – 17 Jan 2012: call 8

- 18 Nov 2011 – 17 April 2012: call 9

FET Proactive – WP 2011-2012
transformative and foundational research

Call FET-F — **FET Flagship Initiative Preparatory Actions (CSA)** — 10M€

Call 7 — 9.12 ERA-NET follow-up (CSA) — 2,5M€

0,5M€

Call 8
- 9.6 Unconventional Computing (STREP) — 15M€
- 9.7 Dyn. of Multi-Level Complex systems (IP/Strep) — 22M€
  INCO dimension (CSA) — 1M€
- 9.8 Minimising Energy Consumption of Computing to the Limit (Strep) — 15M€

3M€

Call 9
- 9.9 Quantum ICT (IP/Strep) — 15M€
  including ERA-NET Plus (ERA-NET-Plus) — 7M€
- 9.10 Fundamentals of Collective Adaptive Systems (IP/Strep) — 23M€
- 9.11 Neuro-Bio-Inspired Systems (IP/Strep) — 22M€
  INCO dimension (CSA) — 1M€

3M€

9.12 INCO (CSA)
9.12 Coord. Communities (CSA)
9.12 organising conferences (CSA)
9.12 Identifying new FET topics (CSA)

FET (Continuous and joint calls) – WP 2011-2012

transformative and foundational research

Continuous Call

67,5M€   7,5M€

9.1 Challenging Current Thinking (STREP+CSA)

9.2 High-Tech Research Intensive SMEs (STREP)   9M€

9.3 FET Young Explorers (STREP)   6M€

9.4 International Cooperation on FET research (additional funding)   3M€

Call 8

9.14 Joint call ICT-SSH on Science of Global Systems   3,5M€

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New Perspectives for FET
by the communication from the Commission to Parliament and Council adopted on 20 April 2009

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

Moving the ICT frontiers –
a strategy for research on future and emerging technologies in Europe

- **20% annual budget increase (2011-13); European target: doubling by 2015**
- **Flagship initiatives**
- **ERA-NETs**
- **International collaboration**
- **Young researchers**
- **SMEs**

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Policy background

2009 / 04   COM (2009) 184 'Moving the ICT frontiers'
"Launch at least two FET flagship initiatives by 2013"

2009 / 07   ISTAG report
on „European Challenges and Flagships - 2020 and beyond"

2009 / 12   The COMP Council „invites the Commission to propose Europe-wide flagship initiatives in FET to tackle specific science and technology challenges at the crossover between ICT and other scientific disciplines"

Rationale

- **Unifying efforts around an ambitious long-term scientific goal is indispensible in building up critical mass to meet key scientific challenges of the 21st Century**

- **There are a number of areas where foundational research is strong in Europe, but fragmented and needs to be brought together to accomplish such challenges**

- **A need for large-scale, focused and sustained support**

Concept

Driven by unifying goal • Multidisciplinary • Long-term Foundational • Collaborative

research initiatives
Targeting a visionary S&T breakthrough

- Able to **generate waves of technological innovation**, with significant impacts on economy and society
- Due to size and level of ambition, **possible only via federated effort** of the European Framework and National research programmes
- Flagships may become a new instrument for shaping ERA

Criteria*:
Ambition, Impact, Integration, Plausibility

Based on recommendations of the ISTAG report, and currently under refinement

Key Milestones of FET Flagships

2010 Q2   **Setup of FET Flagship Science Forum and the National ICT Directors' WG**

2010 / 06   **First joint scientific / policy event (9/10 June)**

2010 / 07   **Launch of a competitive call** to support comprehensive FET Flagship Initiative Preparatory Actions

> 10M€ to support 5-7 flagship Preparatory Actions

2010-2012   **Preparation of implementation framework**

2011   **FET Flagship Preperatory Actions:** design & feasibility; establishing high-potential candidates

2012   **Selection of FET Flagships**

2013   **Launch of first FET Flagships**

Science & Policy Forum
9/10 June 2010

Science Forum

• **Discuss and refine Flagship concept**

• **Discuss and consolidate ideas for Flagship Initiatives**

• **Build synergies and networks with stakeholders**

MS Group

Funding Agencies

• **Provide input and feedback on Flagship concept**

• **Map the FET Flagship ideas against the national programs**

• **Advise on legal / operational frameworks**

st CHISTERA conference Ma

Call for FET Flagship ideas

Ideas requested are to address a number of specific criteria:

- **Mission**: the **unifying goal** should be a clearly formulated and broadly accepted long term vision involving major challenges in science and technology, requiring a **large federated effort**, and justified via comparison with existing activities and state of the art

- **Impact**: a clear **leverage effect**, substantial progress and **major innovation** in science and technology; affecting competitiveness of European industry, society, governance and sustainability, considering potential ethical and legal implications

- **Integration**: an operational framework describing how relevant **disciplines, stakeholders and resources** will be brought together at European or larger scale, and how they can be efficiently coordinated under strong scientific leadership along a **cohesive roadmap** with reasonable **milestones** that mark valuable interim results

http://cordis.europa.eu/fp7/ict/fet-proactive/flagshipconsult2009_en.html

Conclusions

- FET scheme has been reinforced

- FET has an extended mandate and role

- FET Communication endorsed by the European Council

- Commission developing implementation modalities (WP2011-12)