

The ICT theme of the FP7 research programme

Perspectives for 2009-2010

Eric Badiqué

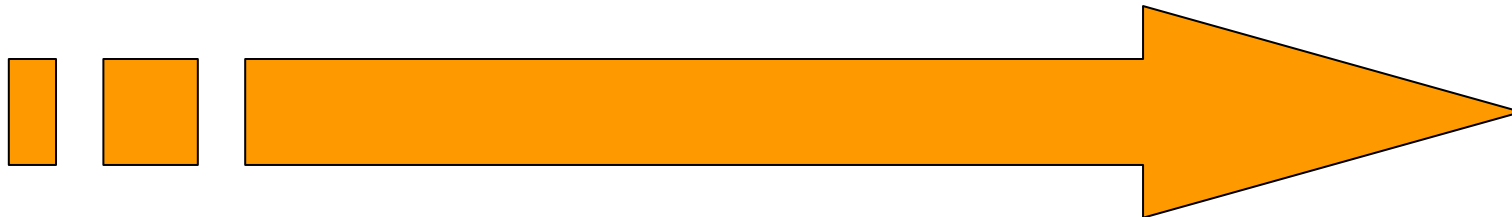
DG INFSO / Strategy for ICT Research and Innovation



Where do we stand?

Behind us:

- Three Calls for proposals in 2007-08
- 2.1 B€ of EU funding,
- ~ 500 projects launched (out of ~3000 received)



Ahead of us

- Three calls for proposals in 2009-10
- 1.9 B€ funding



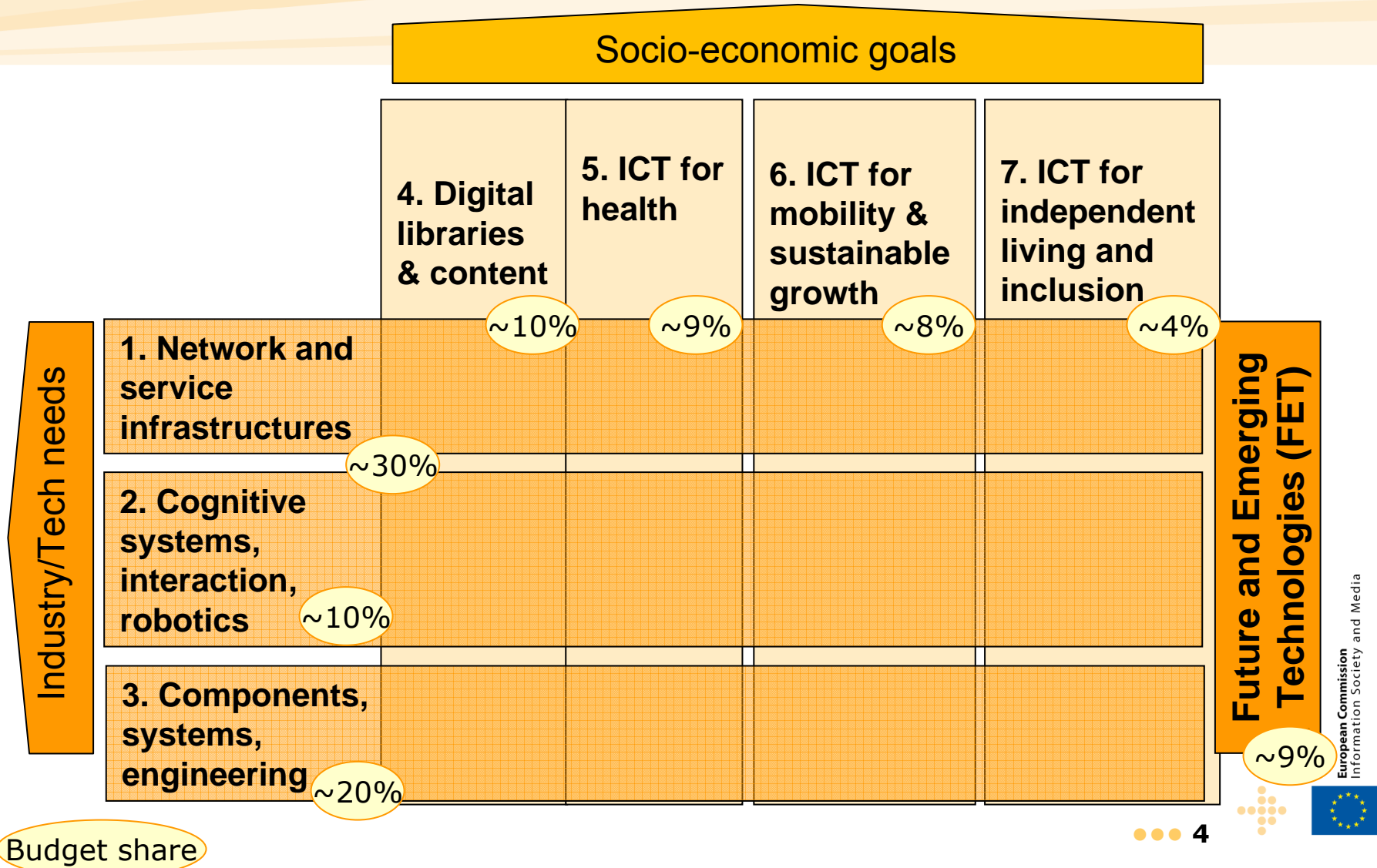
Positioning of the Programme

- Projects launched in 2009-10 to have impact in 2015-20
- By then, global ICT/knowledge infrastructure – market structures - value chains - business models: all will have significantly changed

Research challenges should:

- Encourage firms to explore more innovative options than they would otherwise pursue
- Focus on higher-risk ICT collaborative research in a medium to long-term agenda

ICT in FP7: 7 Challenges + FET



Challenge 1: Network and Service Infrastructures

Challenges

- Current Internet: severe limitations in terms of scalability, mobility, flexibility, security, trust and robustness of networks and services

Need to:

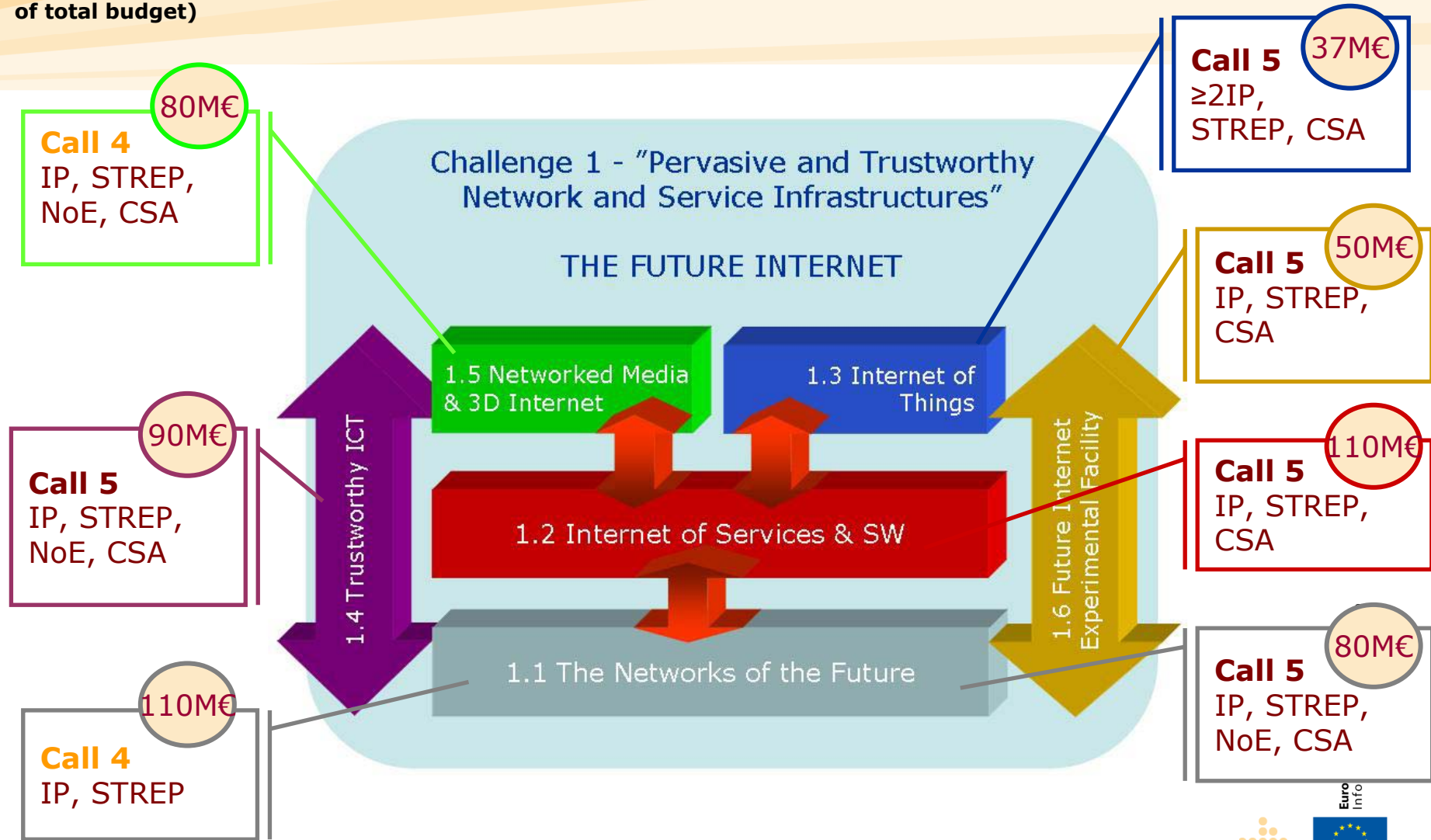
- rethink networking architectures
- support an “Internet of Services”
- support an “Internet of Things”
- be trustworthy
- support a “3D Media Internet”
- bridge the gap between long-term research and large-scale experimentation
- federate research activities across Europe

Expected Impact

- Strengthened position of European industry
- European leadership in supply of integrated business solutions
- Global standards, interoperability and European IPRs
- Wider market opportunities from new classes of applications taking advantage of convergence
- Integrated large scale Experimental Facility
- Improved coordination and integration of research activities in Europe

Pervasive and Trustworthy Network and Service Infrastructures

557 M€
(~30%
of total budget)



Challenge 2

Cognitive Systems, Interaction, Robotics

State of the Art & Challenges

- Robots operating in 'modelled', 'structured' and 'constrained' environments
- Basic understanding of computational representations of cognitive processes
- Human-robot interactions rather static/passive

- Machine translation of limited quality, human supervised
- Automatic translation in limited domains / language pairs
- Content / workflow management not automated

Expected Impact

- More competitive robotics industry + more innovation capacity in application domains
- Robots, machines and systems exhibiting advanced behaviour
- Machines and systems that understand their users / context
- Robotic systems with rich interaction

- Higher quality automatic translation
- Faster human translation
- Self-learning machine translation
- Progressive independence from topic and language pair
- Automated versioning and management of multilingual web sites

179 M€
(~10%)

2 Objectives: ICT-2009.2.1/2

73M€

Call 4

2.1 Cognitive Systems and Robotics

IP, STREP, NoE, CA

Call 6

80M€

Call 4

2.2 Language-Based Interaction

1 IP, STREP, NoE

26M€



Challenge 3: Components, systems, engineering

Challenges

Trends: miniaturisation, diversification, increasing software content and emphasis on systems approach

Challenges:

- Integrated hardware/software systems
- Heterogeneous micro-systems
- Widely distributed systems
- Multi-disciplinarity

Cross cutting issues:

- Efficient energy management
- Minimising environmental footprint of manufacturing

Opportunities:

New types of devices & intelligent system

Expected Impact

- Strengthened competitiveness of EU industry through risk sharing and pooling of resources in generic technology developments
- Higher attractiveness of EU to investments and skills
- Maintained leading position of EU in product innovation and design
- Wider use of smart devices and systems in various application sectors
- Exploration of alternative paths, fostering of new types of collaborations, emergence and growth of new companies
- Closer cooperation between Member States, and internationally
- Higher energy efficiency and lower environmental impact

375 M€ (~20%)
+ Artemis
+ Eniac

9 Objectives: ICT-2009.3.1 to 9

| | | |
|--------|---|------|
| Call 5 | 3.1 Nanoelectronics Technology ≥ 1 IP, STREP, NoE | 35M€ |
| Call 4 | 3.2 Design of semiconductor components ... ≥ 1 IP, STREP | 25M€ |
| Call 4 | 3.3 Flexible, organic and large area electronics IP, STREP, NoE | 60M€ |
| Call 4 | 3.4 Embedded Systems Design 2 IP, STREP | 28M€ |
| Call 5 | 3.5 Engineering of mon. & control systems 2 IP, STREP, NoE | 32M€ |
| Call 4 | 3.6 Computing systems STREP | 25M€ |
| | ERANETPlus: Call 4 | |
| Call 5 | 3.7 Photonics IP, STREP + ERANETPlus (10M€) | 60M€ |
| Call 4 | 3.8 Organic photonics... STREP, NoE | 30M€ |
| Call 5 | 3.9 Microsystems and smart miniaturised systems IP, STREP | 80M€ |

Coordination, roadmaps and networking

CSA

Challenge 4: Digital Libraries and Content

Challenges

- Data volumes growing faster than manageable
 - Interpreting data
 - Complex objects
 - Automating preservation
- Content and cultural experiences are not sufficiently immersive, adaptive
- Learning tools do not exploit creativity and independent experimentation



Expected Impact

- Increased competitiveness in effective information management systems
- Effective and reliable preservation and usability over time of digital objects
- New cultural experiences
- Personalised learning experiences



188 M€
(~10%)

3 Objectives: ICT-2009.4.1/2/3

CSA, NoE

Call 6

4.1 Digital Libraries
and digital preservation
IP, STREP

69 M€

Call 5

4.2 Technology-Enhanced Learning
IP, STREP

49M€

Call 5

4.3 Intelligent Information Management
IP, STREP

70M€

Coordination, roadmaps and networking

Challenge 5: ICT for Health

Challenges

- Sustainable delivery of quality health care at affordable cost
- Demographic changes
- Chronic diseases
- Inefficiencies, inadequate safety and control
- Demand for best-quality care
- Demand for prevention as well as treatment
- Demand for skilled specialists



Expected Impact

- Saving in lives and resources
- Improved productivity of healthcare systems
- Continuous and personalised care solutions
- +
- New ICT-based environments for biomedical research and predictive medicine
- Reinforced leadership of EU's eHealth and medical devices industries



161 M€
(~9%)

4 Objectives: ICT-2009.5.1/2/3/4

CSA

Call 4

5.1 Personal Health Systems
≥3 IP, STREP

63 M€

Call 4

5.2 ICT for Patient Safety
≥2 IP, STREP

30M€

Call 6

5.3 Virtual Physiological Human (VPH)
≥2 IP, STREP

63M€

Call 4

5.4 International Cooperation on VPH
(linking ongoing projects with non-EU projects in VPH)

5M€

Coordination, roadmaps and networking

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Challenge 6: ICT for mobility, environmental sustainability and energy efficiency

Challenges

- Increasing demand for energy
- Need for energy efficiency in most energy-intensive sectors
- Need for climate change adaptation
- Need for environmental sustainability
- Need to increase safety
- Need to reduce CO2 emissions



Expected Impact

- Reduced energy intensity
- Reinforced competitiveness in ICT-enabled energy efficiency technologies
- New environmental services
- Increased capacity to mitigate impacts of disasters
- Improved safety, security and comfort of transport
- European leadership in clean and intelligent vehicle systems and in cooperative systems



154 M€
(~8%)

5 Objectives: ICT-2009.6.1/2/3/4/5

CSA

Call 4

**6.1 ICT for safety and energy efficiency
in mobility** IP, STREP

53 M€

Call 6

6.2 ICT for mobility of the future
≥ 2 IP, STREP

37 M€

Call 4

6.3 ICT for energy efficiency
STREP

30 M€

Call 4

**6.4 ICT for environmental services and
climate change adaptation** STREP

24 M€

Joint
Call
ICT/ENE

**6.5 Novel ICT solutions for smart
electricity distribution networks** STREP

20 M€

Coordination, roadmaps and networking

Information Society
Commission



Challenge 7: ICT for Independent Living, Inclusion and Governance

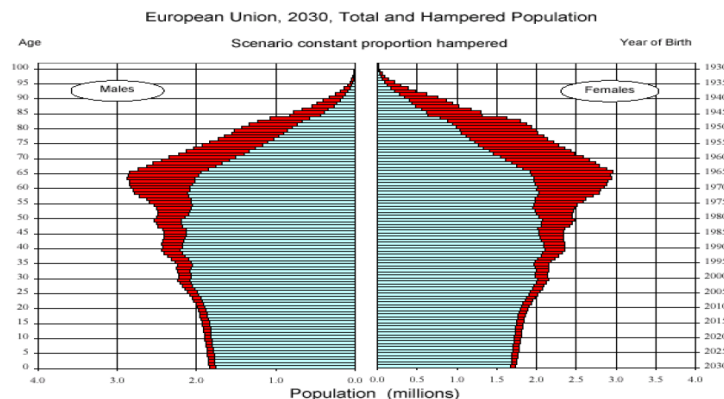
Challenges

- Ageing population
- Demand for inclusion
- Meeting eAccessibility requirements
- ICT-enabled governance and policy modelling: lack of models, process flows and analytical tools



Expected Impact

- Increased efficiency of care and prolonged independance of elderly and their carers
- Generalised accessibility support for people with special needs
- Empowerment of individuals, groups and communities and more efficient feedback in governance and policy making
- New markets and reinforced competitiveness



73 M€ (~4%)
+ AAL

3 Objectives: ICT-2009.7.1/2/3

CSA

Call 4

7.1 ICT & Ageing
1 IP, STREP, CSA

24 M€

Call 4

7.2 Accessible and Assistive ICT
1 IP, STREP, CA

34M€

Call 4

7.3 ICT for governance and policy modelling
STREP

15M€

Coordination, roadmaps and networking



Europ
Infor



171 M€
(~9%)

Future & Emerging Technologies – FET

An incubator and pathfinder for new ideas and themes for long-term research in the area of ICT

High risk research, offset by potential breakthrough with high technological and/or societal impact

Two complementary inter-linked schemes

FET Proactive

- Top-down approach
- Set of novel pre-defined themes

€ 110 M



FET Open

- Bottom-up approach
- Open to any research idea

€ 61 M

European Commission
Information Society and Media



ICT-2009.8.0: FET-Open



“FET-Open targets *foundational breakthroughs* that open the way towards radically new forms and uses of ICT”

- **STREP:** scientific foundations of future ICT that may be radically different from present day ICT
- **CSA:** catalyse lasting and transformative effect on communities and practises for high-risk and high-impact research
- **Continuously receivable**
 - two step submission for STREPs
 - specific eligibility and evaluation criteria
- **61M€**, committed following cut-off dates



FET Proactive

CSA

CSA

Call 4

8.1 Concurrent Tera-Device Computing (IP, STREP)

15M€

8.2 Quantum Information Foundations & Techn. (IP)

15M€

8.3 Bio-Chemistry based Information Techn. (STREP)

7M€

Call 5

8.4 Human-Computer Confluence (IP)

15M€

8.5 Self-Awareness in Autonomic Systems (IP, STREP)

15M€

8.6 Towards Zero-Power ICT (STREP)

7M€

Call 6

8.7 Molecular Scale Devices and Systems (IP, STREP)

15M€

8.8 Brain Inspired ICT (IP, STREP)

15M€

1,5M€

1,5M€

1,5M€

8.10 Identifying new research topics, Assessing emerging global S&T trends in ICT for future FET Proactive Initiatives

0,5M€

0,5M€

0,5M€

8.9 Coordinating Communities, Plans & Actions in FET Proactive Initiatives



Europea
Informa



International cooperation

- Jointly respond to major global technological challenges by developing interoperable solutions and standards
 - high income countries and/or emerging economies
- Jointly develop ICT solutions to major global societal challenges
 - establish long-term partnership with low-income countries
 - address development issues through ICT
 - develop new markets for European industry
- Improve scientific and technological cooperation for mutual benefit
 - establish strategic partnerships with emerging economies
 - promote cultural diversity and mutual understanding
- Support to information society policy dialogues
 - contribute to increasing the participation of third country organisations
 - facilitate the widest diffusion and local exploitation of ICT research results



International Cooperation

Targeted opening

- Challenge 1. Networks and services
 - Future Internet (Japan, USA)
 - Internet of Things / RFID (North America, China, Japan, Korea)
 - Trustworthy ICT (Developed countries, BRICs)
- Challenge 3. Components, Systems, Engineering
 - Semiconductors, components, nanoelectronic technologies (Russia, India, Japan, USA, Taiwan,)
 - Embedded systems (USA, India)
 - Photonics (Canada, Russia, USA, Australia)
- Challenge 5. ICT for Health
 - ICT for patient safety (USA, Canada, Japan)
 - – **Dedicated objective on VPH (USA, Japan)** 5M€ Call 4
- Challenge 6: ICT for mobility, environmental sustainability.
 - ICT for Mobility of the Future (Japan, USA)
- **Objective 9.2: Supplements to ongoing projects** 1.3M€ Calls 4, 5, 6
 - Trustworthy ICT, Nanoelectronics, Micro-nanosystems, Embedded Systems, ICT for Mobility (100K€/project)



Objective ICT-2009.9.1

Horizontal actions for international cooperation

9.1a) Support to Information Society policy dialogues and strengthening of international cooperation [CSA]

- Events, analysis of ICT policy and research priorities in third countries
- Synergies with activities launched under other Programmes

4M€

Call 4

9.1b) Support the uptake of EU ICT research results in developing economies [STREP/SICA]

- Diffusion and local exploitation of ICT research results
- Testing of solutions adapted to local requirements
- Networking of relevant technology developers with users

5M€

Call 6

9.1c) Identifying strategic partners and developing international market objectives and priorities [CSA]

- Extend the constituency of established European technology and innovation roadmaps to key partners in third countries, particularly in the fields of Future Internet and ICT components and systems
- Identification of centres of competence
- Exchange of best practice
- Comparative studies

3M€

Call 4

European Commission
Information Society



Call 4: Open 19 Nov 2008, Close 1 Apr 2009; ~800 M€

| Challenge | Objectives |
|--|--|
| Challenge 1: Pervasive and Trusted Network and Service Infrastructures | ICT 2009.1.1 The Network of the Future ICT 2009.1.5 Networked Media & 3D Internet |
| Challenge 2: Cognitive systems, interaction, robotics | ICT 2009.2.1 Cognitive Systems and Robotics ICT 2009.2.2. Language-Based Interaction |
| Challenge 3: Components, systems, engineering | ICT 2009.3.2 Design of Semiconductor Components & Electronic-based Miniaturised Systems ICT 2009.3.3 Flexible, Organic and Large Area Electronics ICT 2009.3.4 Embedded Systems Design ICT 2009.3.6 Computing Systems ICT 2009.3.7 Photonics ICT 2009.3.8 Organic Photonics and other Disruptive Photonics Technologies |
| Challenge 5: Towards sustainable and personalised healthcare | ICT 2009.5.1 Personal Health Systems ICT 2009.5.2 ICT for Patient Safety ICT 2009.5.4: International Cooperation on Virtual Physiological Human |
| Challenge 6: ICT for mobility, environmental sustainability and energy efficiency | ICT 2009.6.1 ICT for Safety and Energy Efficiency in Mobility ICT 2009.6.3 ICT for Energy Efficiency ICT 2009.6.4 ICT for Environmental Services & Climate Change Adaptation ICT 2009.6.5: Novel ICT solutions for Smart Electricity Distribution Networks |
| Challenge 7: ICT for independent living, inclusion and participatory governance | ICT 2009.7.1 ICT and Ageing ICT 2009.7.2 Accessible and Assistive ICT ICT 2009.7.3 ICT for Governance and Policy Modelling |
| Future and emerging technologies | ICT 2009.8.0 FET-Open (Batch 5-6-7-8) ICT 2009.8.1,2,3,9,10 FET-Proactive |
| Horizontal support actions | ICT 2009.9.1 International Cooperation ICT 2009.9.2 Supplements to support International Cooperation, ongoing projects ICT 2009.9.3 Other Horizontal Actions ICT 2009.9.4 : Strengthening cooperation in ICT R&D in an enlarged Europe |

Call 5: Open 31 Jul 2009, Close 3 Nov 2009, ~720 M€

| Challenge | Objectives |
|---|---|
| Challenge 1: Pervasive and Trusted Network and Service Infrastructures | ICT 2009.1.1 The Network of the Future (call 5) ICT 2009.1.2 Internet of Services, Software & virtualisation ICT 2009.1.3 Internet of Things and enterprise environments ICT 2009.1.4 Trustworthy ICT ICT 2009.1.6 Future Internet Experimental Facility and Experimentally-driven Research |
| Challenge 3: Components, systems, engineering | ICT 2009.3.1 Nanoelectronics Technology ICT 2009.3.5 Engineering of Networked Monitoring and Control Systems ICT 2009.3.7 Photonics ICT 2009.3.9 Microsystems and Smart Miniaturised Systems |
| Challenge 4: Digital Libraries and Content | ICT 2009.4.2 Technology-Enhanced Learning ICT 2009.4.3 Intelligent information management |
| Future and emerging technologies | ICT 2009.8.4,5,6,9,10 FET-Proactive |
| Horizontal support actions | ICT 2009.9.2 Supplements to support International Cooperation, ongoing projects |



Call 6: Open 24 Nov 2009, Close 13 April 2010; ~ 285M€

| Challenge | Objectives |
|--|--|
| Challenge 2: Cognitive systems, interaction, robotics | ICT 2009.2.1 Cognitive Systems and Robotics |
| Challenge 4: Digital Libraries and Content | ICT 2009.4.1 Digital Libraries and Digital Preservation |
| Challenge 5: Towards sustainable and personalised healthcare | ICT 2009.5.3 Virtual Physiological Human |
| Challenge 6: ICT for mobility, environmental sustainability and energy efficiency | ICT 2009.6.2 ICT for Mobility of the Future |
| Future and emerging technologies | ICT 2009.8.7,8,9,10 FET-Proactive |
| Horizontal support actions | ICT 2009.9.1 International Cooperation ICT 2009.9.2 Supplements to support International Cooperation between ongoing projects |



More Information

- FP7: <http://ec.europa.eu/fp7/ict>
- FP6: <http://cordis.europa.eu/ist>

