

ICT in 7th EU Framework Programme

ICT calls 2009-2010

**(additionaly: ICT contribution to
European Economic Recovery Plan)**

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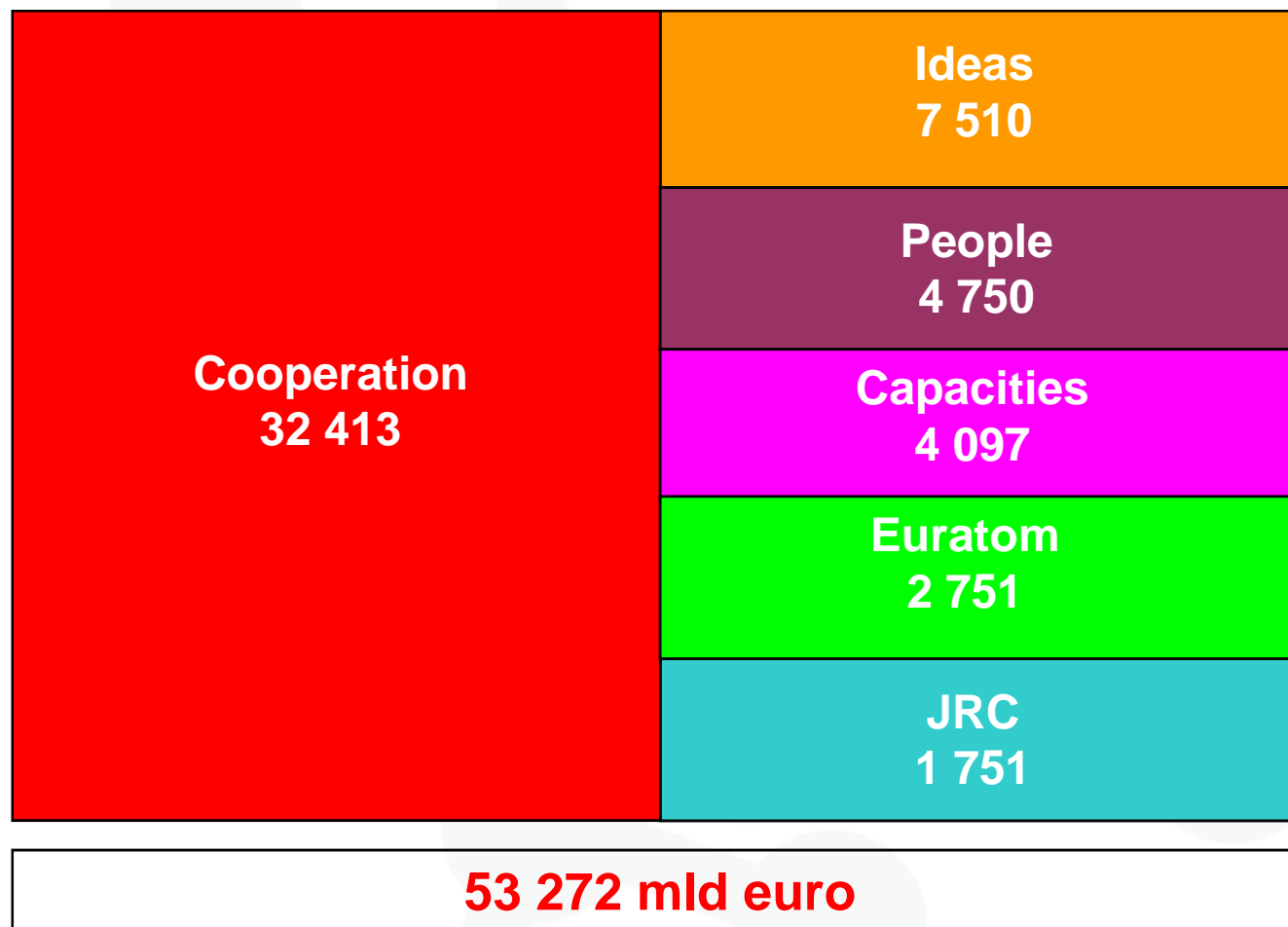
KAPITAŁ LUDZKI
NARODOWA STRATEGIA SPÓJNOŚCI

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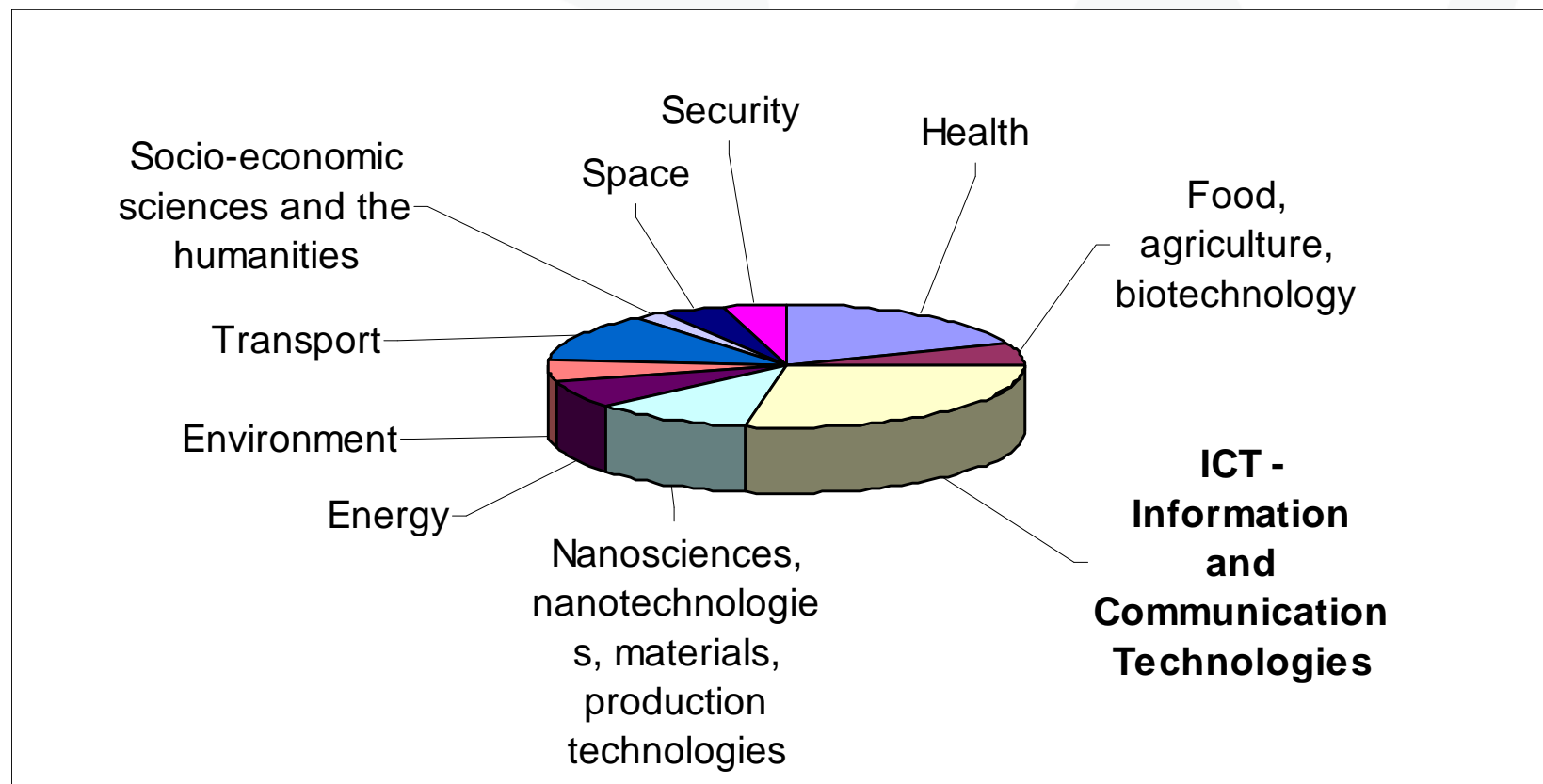


Projekt współfinansowany przez Unię Europejską w ramach Europejskiego Funduszu Społecznego





7FP (Cooperation Programme)



- ❑ ICT collaborative research in Framework Programme 7
- ❑ Priority-setting for the ICT Work Programme - structure
- ❑ ICT Calls for Proposal in 2007
 - Priorities
 - Description
 - Targets
 - Challenge – Topics - Calls
 - Implementation details



ICT – The largest priority theme of FP7

ICT Technology Pillars

- pushing the performance and functionality of technology

Integration of Technologies

- integrating multi-technology sets that underlie new services

Applications Research

- providing the knowledge and the means to develop a wide range of innovative ICT applications

Future and Emerging Technologies

- supporting research at the frontier of knowledge



Priorities based on wide consultations

- Reinforce Europe's strongholds
 - Europe's industry and technology position
- Seize new opportunities for Europe
 - (r)evolutions and potential impacts:
industrial competitiveness, socio-economic goals
- Ensure that interventions are significant and that Europe has the capacities to implement
 - high-risk, medium-to-long term, trans-national collaborative research



Reinforce Europe's strongholds

- Network and service infrastructures
 - communication equipment and services, business software, security solutions ...
- Components and embedded systems
 - semiconductors, equipment, photonics, plastic electronics, integrated micro/nano systems ... embedded systems in vertical markets: cars, planes, medical, telecom ...
- A strong academic research community
 - in core ICT fields and in other disciplines relevant for ICT: biotech, materials, cognitive sciences ...

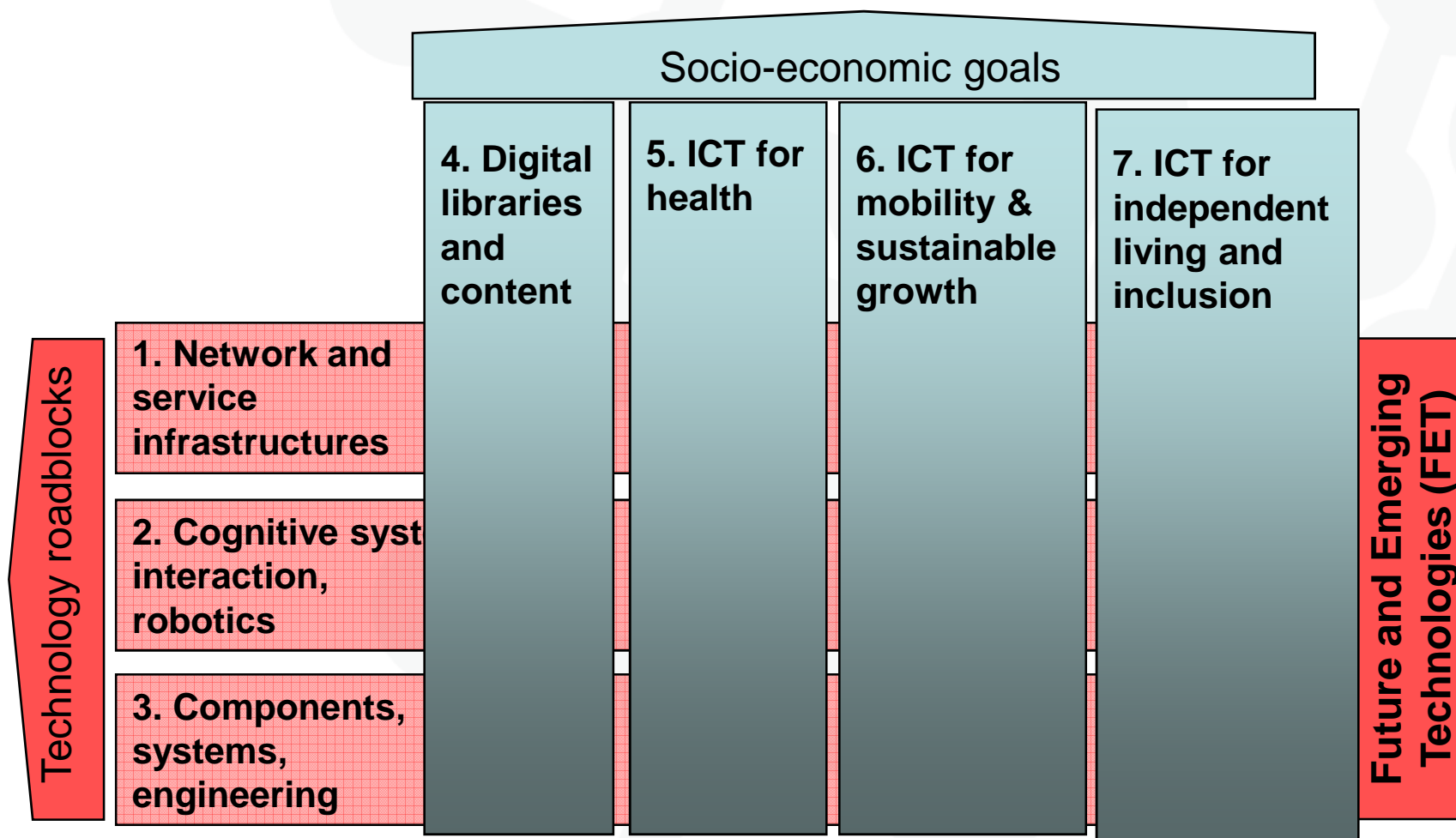


- **New technology paths**
 - more “intelligent” technology: ICT systems that learn & reason, that contextualise & adapt, that interact & act autonomously
 - driven by developments in cognitive systems, sensing and interaction and advanced robotics
- **Growing demand and new ways of using ICT**
 - digital content and knowledge creation and use
 - sustainable and personalised healthcare
 - intelligent and safe transport, sustainable development
 - independent living and inclusion



- A limited set of *Challenges* aiming at
 - overcoming technology roadblocks to achieve specific characteristics, and/or
 - end-to-end systems targeting specific socio-economic goals
- A *Challenge* is addressed through a limited set of Objectives that form the basis of Calls for Proposals
- An Objective is described in terms of
 - target outcome - in terms of characteristics
 - expected impact - in terms of industrial competitiveness, societal goal, technology progress etc.
- A total of 24 Objectives expressed within
7 Challenges





Challenge 1: Pervasive and trustworthy Network & Service Infrastructures

- Network and service infrastructures underpin economic progress and the development of our societies
 - 2 billion mobile terminals in commercial operation, 1 billion Internet users, 400 million internet enabled devices
- A growing and changing demand
 - for increasing user control of content/services for networking ‘things’ - TV/PC/phone/sensors/tags ...
 - for convergence: networks|devices|services - video/audio/data/voice/.
- Current technologies can be, and need to be improved significantly
 - for scaling up and more flexibility
 - for better security, dependability and robustness
 - for higher performance and more functionality
- Europe is well-positioned: industry, technology and use
 - networks equipment and services, business software, middleware, security, home systems ...



Today

5 – 10 years

- “Convergence” emerging but:
 - user handles separate networks
 - a multiplicity of devices
 - disparate services
- Billions of devices connected
- Security and trust are “added on”
- Robustness/dependability a key hurdle
- Difficulty to cope with the fragmentation of the value chain

- Anywhere, anytime, any device
 - seamless, ubiquitous
 - broadband, mobile
 - reconfigurable to load/use/context
- Trillions of devices connected
- “Built-in” security and trust
- Highly dependable software and systems
- Full support to distributed value chains



Challenge 1: Objectives in Calls for Proposals

Objective: ICT-2009.1.2: Internet of Services, Software and Virtualisation

- ICT: call 5 (IP, STREP, CSA)

Objective: ICT-2009.1.3: Internet of Things and Enterprise Environments

- ICT: call 5 (IP, STREP, CSA)

Objective: ICT-2009.1.4: Trustworthy ICT

- ICT: call 5 (IP, STREP, NoE, CSA)

Objective: ICT-2009.1.5: Networked Media and 3D Internet

- ICT: call 4 (IP, STREP, NoE, CSA)

Objective: ICT-2009.1.6: Future Internet experimental facility and experimentally-driven research

- ICT: call 5 (IP, STREP, CSA)



Challenge 3: Components, Systems, Engineering

- Electronic systems underpin trillion Euro ICT markets
- Electronic systems are embedded in all artefacts of life
 - 20-40% of the value of new products comes from embedded electronics
 - increasing demand for lower cost, higher performance components
- Europe is currently leading in embedded electronics in a number of industries
 - car safety, engine control, fly-by-wire avionics, telecom equipment, medical equipment, industrial automation ...
- European firms also among top semiconductor manufacturers and equipment companies
- Europe enjoys leading positions in emerging fields
 - photonics, plastic electronics, flexible displays, integrated micro/nanosystems ...





Challenge 3 Targets

Today

- 45 nanometer node
 - 300 mm wafers
- Conventional CMOS Silicon dominate
 - 'homogeneous' integration
- Photonics applications emerging
- Design gap for embedded software
- Unable to analyse aggregate behaviours, predict and control systems

5 – 10 years

- Below the 32 nanometer node
 - 450 mm wafers
 - manufacturing, processes, devices, wafers, materials
- New materials, higher levels of integration
 - more heterogeneous (SoC, SiP)
- Wider use of advanced photonics
- Higher productivity in the design of embedded systems / software
- Higher control capacity of large-scale real time embedded systems



Challenge 3: Objectives in Calls for Proposals (1)

Objective: ICT-2009.3.1: Nanoelectronics Technology

- ICT: call 5 (IP, STREP, NoE, CSA)

Objective: ICT-2009.3.5: Emerging of Networked Monitoring and Control Systems

ICT: call 5 (IP, STREP, NoE, CSA)

Objective: ICT-2009.3.7: Photonics

- ICT: call 5 (IP, STREP, CSA, *ERA-NET*)

Objective: ICT-2009.3.9: Microsystems and Smart Miniaturised Systems

- ICT: call 5 (IP, STREP, CSA)



Challenge 4: Digital libraries and content

- Growing load of information and content and increasing demands for knowledge and skills
 - in less than 10 years, the average person will be managing terabytes of videos, music, photos, and documents every day
 - digital content production | consumption:
from “few-to-many” to “many-to-many” models
- Today’s technology provides limited tools for access/interaction, development/creation, delivery/diffusion and preservation of content & knowledge
- Europe, with its unique cultural heritage and creative potential, is well placed to take advantage of technology developments and their use



Today

- Limited access and usability
 - content not efficiently exploited
 - interactivity limited to smart menus
- Tools for capturing and editing still in their infancy
- Content is not personalised
- Learning tools primarily focus on the delivery of content

5 – 10 years

- “Digital libraries” widely available
 - easy to create, interpret, use and preserve resources
 - cost-effective, reliable, multilingual
- Advanced authoring tools
- Effective semantic-based systems and knowledge management
- Mass-individualisation of learning experiences with ICT (mid-term); adaptive and intuitive learning systems (longer term).



Challenge 4: Objectives in Calls for Proposals

Objective: ICT-2009.4.1: Digital Libraries and Digital Preservation

- ICT: call 6 (IP, STREP, NoE, CSA)

Objective: ICT-2009.4.2: Technology-enhanced Learning

- ICT: call 5 (IP, STREP, NoE, CSA)

Objective: ICT-2009.4.3: Intelligent Information Management

- ICT: call 5 (IP, STREP, NoE, CSA)



Challenge 5: Towards Sustainable and Personalised Healthcare

- Rising demands on healthcare
 - by 2050 close to 40% of the Union's population will be over 65 years
 - growing expectations of citizens for better care
 - increasing mobility of patients and health professionals
 - need to respond to risks for emerging diseases
- By 2010, ICT for Health spending may account for up to 5% of the EU's total health budget, up from just 1% in 2000
 - need to access, understand and securely manage huge amounts of health information
- ICT is also supporting progress in medical research and a shift towards evidence-based medicine
- European businesses have every opportunity to become leading global players in the new ICT for Health industry



Challenge 5 Targets

Today

- Citizens, healthy or under treatment, cannot monitor their health
 - no access to comprehensive and secure Electronic Health Records
- Health professionals do not have fast and easy access to patient-specific data @ point-of-need
 - to support diagnosis or plan clinical interventions
- Health authorities do not make sufficient use of information processing systems

5 – 10 years

- Innovative systems and services for personalised health monitoring.
 - e.g. wearable/portable ICT systems
- Efficient systems for point-of-care diagnostics
 - e.g. alert and management support
- ICT-based prediction, detection and monitoring of adverse effects
 - e.g. data mining
- Tools for patient-specific computational modelling & simulation of organs or systems (longer term)



Challenge 5: Objectives in Calls for Proposals

Objective: ICT-2009.5.3: Virtual Physiological Human
- ICT: call 6 (IP, STREP, CSA)



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

- Growing demand for transport services
 - more congestion, higher energy consumption, pollutant emissions
- Accidents causing fatalities and injuries
 - over 40.000 fatalities on the EU roads every year
- Increasing demand for natural resources
 - 1-2% per year for energy and growing water consumption
- Natural and industrial disasters has doubled in one decade
 - killing 500.000 people and causing 700 billion of damage
- Europe's industry is one of the most competitive
 - automotive, transportation, civil protection, equipment supply ...



Today

- Safety of vehicles and their energy efficiency have improved, but
 - the “zero-accident scenario” is still a distant goal
 - current vehicle active safety (driver warning, hazard detection ...) is still limited to stand-alone systems
- Risk management systems provide isolated solutions
 - no co-ordinated ICT-triggered alert of rescue and security forces
- Infrastructures are not sufficiently energy efficient
 - transport, buildings, production plants ...

5 – 10 years

- Intelligent Vehicle Systems
 - secure and reliable vehicle-to-vehicle and vehicle-to-infrastructure comm systems
 - optimised traffic management at large scale + mobility services
- Fully integrated management systems / shared data to monitor, warn and react to environmental and other risks
- Intelligent monitoring of energy production, distribution, trading and use



Challenge 6: Objectives in Calls for Proposals

Objective: ICT-2009.6.2: ICT for Mobility of the Future
- ICT: call 6 (IP, STREP, CSA)



ICT contribution to Public Private Partnership for R&D in the **European Economic Recovery Plan**

Three initiatives:

1. **Factories of the Future**
2. **Energy –Efficient Buildings**
3. **„Green Cars”**

Additionally :

4. **Supplement s to Strengthen Cooperation in ICT R&D in an Enlarged Europe**



(Call 5) Topic 10.1

Smart Factories : ICT for agile and environmentally-friendly manufacturing

- a) Integrated process automation and optimisation
- b) Real-time monitoring of energy use and material flow
- c) Robotics-enabled production processes
- d) Laser applications
- e) Coordination action



(Call 5) Topic 10.2

ICT for energy-efficient buildings and spaces for public use

- a) Integrated ICT-based management and control systems
 - Governing light/heat exchange/air treatment subsystems
 - Deployed in spaces for public use
 - Interoperating with security/safety/comfort subsystems

- b) Coordination action



(Call 5) Topic 10.13

ICT for the Fully Electric Vehicles (FEV)

Highly energy-efficient ICT components and solutions for FEV

- a) Solutions for overall efficiency gains in electric vehicle
- b) Safe and robust subsystems
- c) Fail-safe systems and electrical architectures, vehicle-to-road infrastructure integration
- d) Coordination action



Objective

- To lay foundations of the ICT innovations of tomorrow
- To foster trans-disciplinary research excellence in emerging ICT-related research domains
- To help emerging research communities to organise and structure their research agenda

Impact

- Pathfinder role: prepare for future ICT directions in the WP
- Create new long-term competitive options for ICT
- Avoid 'tunnel vision' in FP7, by exploring unconventional 'minority' options and opportunities off the beaten track



FET Open

- Open to any foundational ICT-related research
- High-risk / high-potential impact
- To shape emerging research communities and agendas
- Coordination and international cooperation
- Continuous submission, CP (STREP only), CSA (CA only)

FET pro-active

- Fundamental cross-cutting long-term challenges in ICT:
 1. Nano-scale ICT devices and systems
 2. Pervasive adaptation
 3. Bio-ICT convergence
 4. Science of complex systems for socially intelligent ICT
 5. Embodied Intelligence
 6. ICT forever yours



Objective: ICT-2009.8.0: FET-Open: Challenging Current Thinking
- ICT: Continuously open Call (until 31 Dec 2010), (STREP, CSA)



Objective: ICT-2009.8.4: Human-Computer Confluence

- ICT: call 5 (IP)

Objective: ICT-2009.8.5: Self-Awareness in Automatic Systems

- ICT: call 5 (IP, STREP)

Objective: ICT-2009.8.6: Towards Zero-Power ICT

- ICT: call 5 (STREP)

Objective: ICT-2009.8.7: Molecular-Scale Devices and Systems

- ICT: call 6 (IP, STREP)



Objective: ICT-2009.8.8: Brain-Inspired ICT
- ICT: call 6 (IP, STREP)

Objective: ICT-2009.8.9 Coordinating Communities, Plans and Actions in FET Proactive Initiatives
- ICT: call 4,5,6 (CSA)

Objective: ICT-2009.8.10: Identifying New Research Topics, Accessing Emerging Global S&T Trends for Future FET Proactive Initiatives
- ICT: call 4,5,6 (CSA)



International cooperation

- to pave the way for strategic partnerships in view of developing global standards and interoperable solutions and strengthening EU competitiveness
- to widen the diffusion of the information society, especially in developing countries and strengthened the EU policy for development

Trans-national co-operation among National Contact Points

- one proposal including officially appointed NCPs
- to improve NCP service across Europe
- to help to simplify access to FP7 calls
- to lower the entry barriers for newcomers
- to raise the quality of submitted proposals

Objective: ICT-2009.9.1: International Cooperation
- call 6 (CSA, STREP, SICA)



- **Collaborative projects (CP)**
 - to develop new knowledge, new technology, products, demonstration activities
 - Two types: Small or medium-scale focused research actions (**STREP**), Large-scale integrating projects (**IP**)
- **Networks of Excellence (NoE)**
 - to strengthen S&T excellence and to increase efficiency in the use of resources by restructuring/integration of capacities
- **Coordination and support actions (CSA)**
 - aimed at coordinating or supporting research activities and policies (networking, exchanges, coordination of funded projects, studies, conferences, etc)
 - Two types: Coordination Actions (**CA**), Support Actions (**SA**)



7FP ICT Calls - Planned Dates

- **ICT call 5:**
 - Date of publication: June/July 2009
 - Deadline: 2 November 2009
- **ICT call 6:**
 - Date of publication: November 2009
 - Deadline: April 2010



Partner Search System:

Ideal-ist
www.ideal-ist.net

National Contact Points network:
http://cordis.europa.eu/fp7/ict/ncps_en.html

Information:

7th Framework Programme:
http://cordis.europa.eu/fp7/home_en.html

Europa – Web Service
<http://ec.europa.eu/research/fp7>



Thank you for your attention !



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