



**EDCC-6**  
Coimbra, 19 October 2006

## **Security & Dependability Challenges and ICT-FP7**

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### **Outline**

- **Challenges for a Trustworthy Information Society**
- R&D in Security & Trust in IST-FP6
- FP7 & the ICT-FP7 Work-programme
- Preparing for ICT-FP7 Calls
- Concluding Remarks



## What's driving the Future?

- Further Technology Convergence
- Growing Inter-connectivity: Critical Infrastructure
- New Emerging Technologies

– “The Internet of Things”, RFIDs, Personal Area Networks, Wireless Sensor Networks, ...

- Service-centric Information Society?

– Multimedia & Mobile Web-services, Geo-spatial & location-based Services, ... over multi-purpose user terminals

• ...

### Ubiquitous Systems

Heterogeneity, Interoperability, Scalability, Evolvability, Complexity

**New Security, Dependability and Privacy Challenges**

## Challenges for a Trustworthy Information Society

### Build & Deploy Secure, Resilient and always available ICT infrastructures

... survive attacks or failures, guarantee data integrity and continuous provision of responsive and trustworthy services, support dynamically varying trust requirements ...

- Evaluating the security & dependability status of networked systems
  - Monitoring & Assessment Frameworks
- Engineering Evolvable Systems with built-in, scalable security and resilience
  - Scalable and Interoperable Secure and Resilient Architectures
  - Situational & Context Awareness; Self-\* properties; “Collective” Intelligence ...
  - Certification of trustworthiness; Provable resistance against failures & attacks
- Empowering the Users
  - Secure, authenticated access to network infrastructures
  - *User-friendly* and *trustworthy* systems with *configurable Privacy and Trust Services*
- Standardisation & Certification
- Privacy vs. accountability



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## Security & Trust in IST-FP6 (2002-2006)

### Key Objectives

- Build on S&T excellence on security, dependability and privacy
- Meet EU demands for trust and privacy
- Strengthen the interplay between research and policy



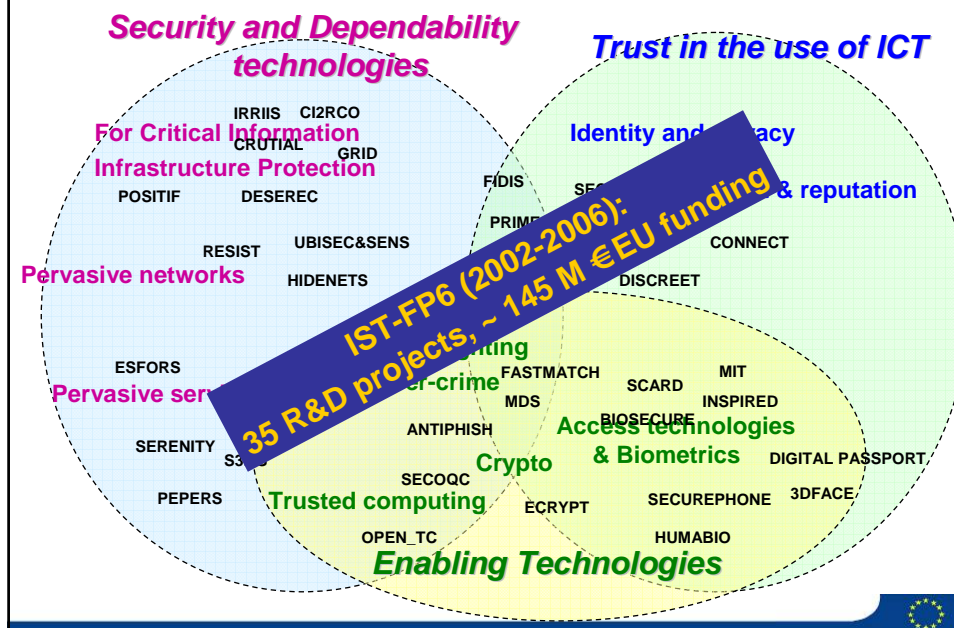
Choices  
Security  
Flexibility

### Research Focus:

- Dealing with the Resilience and Security of highly vulnerable, complex and interconnected infrastructures and utilities
- Trusted Computing
- Multi-modal and secure application of Biometrics
- Identification, authentication, privacy, digital asset management
- Trust in the Net: malware, viruses, cyber crime



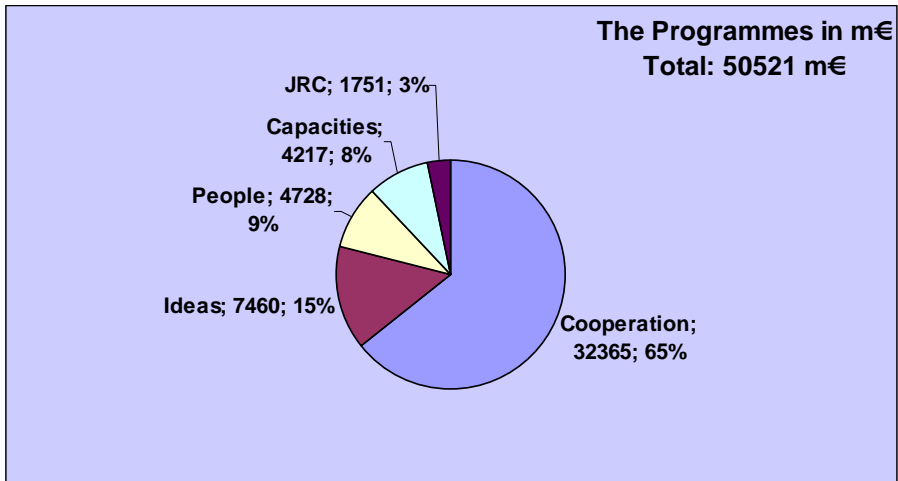
## R&D in Security & Trust in IST-FP6 (2002-2006)



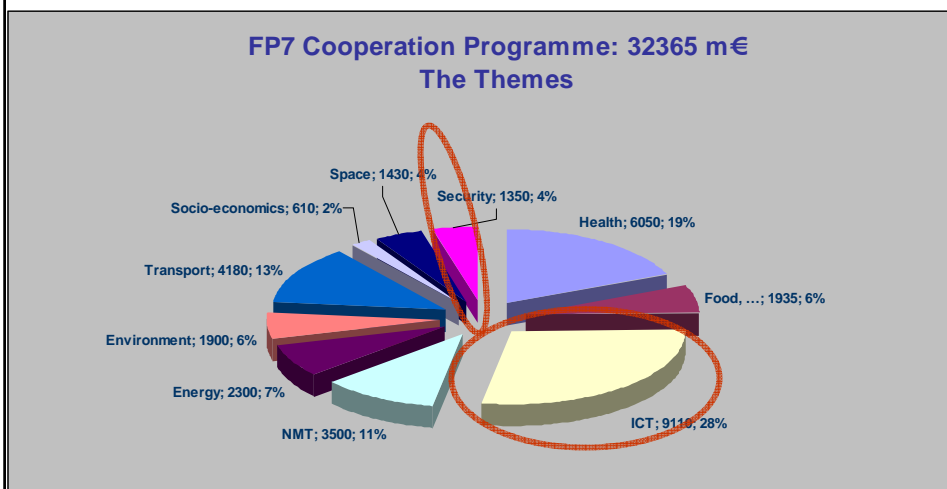
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**FP7 Proposal (2007-2013)**  
 (Competitiveness Council of 24 JUL 06)



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Strengthening Competitiveness through Co-operation



## ICT Work Programme 2007-08: Process

- **General orientations**
  - main objectives and structure → May 2006
- **Detailed objectives**
  - budgets and mechanisms within each priority research topic → June & July 2006
- **First Work Programme texts** → July & August 2006

- **Decision**
  - Opinion of the IST Programme Committee, interservice consultation and adoption by the Commission → September to December 2006
- **First Call(s) for proposals** → By January/February 2007
- **Closing date of 1<sup>st</sup> Call** → End April 2007?

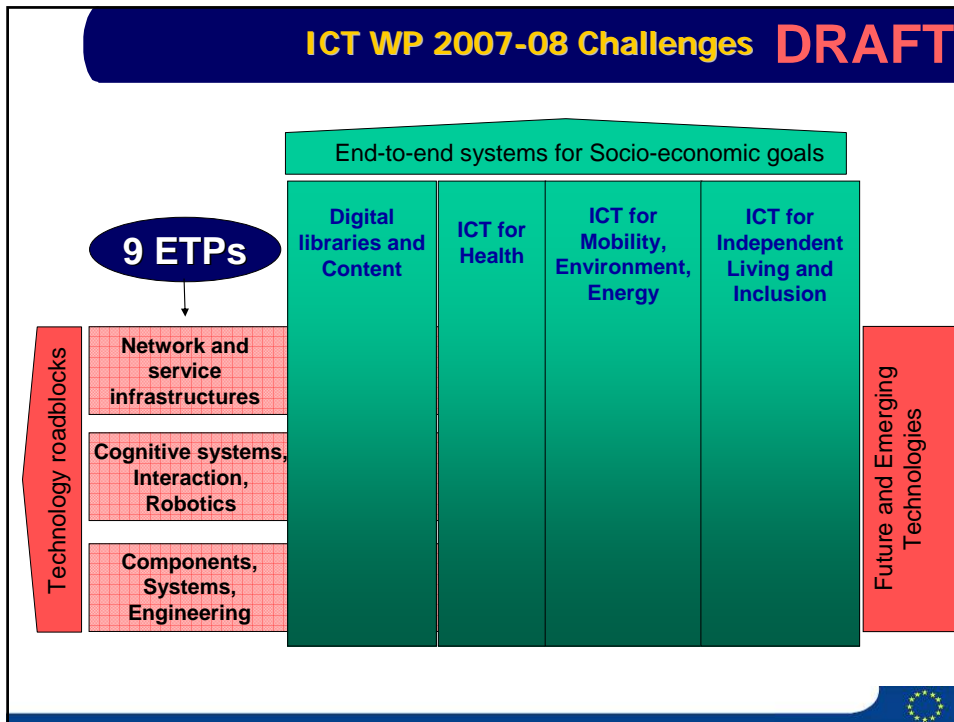


## WP Input & Consultations

- **Framework Programme, Specific Programmes (SP) and Rules for Participation**
  - Policy and research priorities
- **Detailed Consultations/Workshops**
  - Part of Units permanent activities
- **Strategic Research Agendas from European Technology Platforms (ETPs)**
  - Important inputs for parts of SP
- **ISTAG reports**
  - General orientations



## ICT WP 2007-08 Challenges **DRAFT**



### Challenge 1: Pervasive and Trusted Network & Service Infrastructures

- The Network of the Future
- Service and Software Architectures, Infrastructures and Engineering
- **Secure, Dependable and Trusted Infrastructures**
- Networked Media
- New Paradigms and Experimental Facilities
  - Advanced networking approaches to architectures and protocols (incl. security & resilience of the future Internet) & validation in large scale testing environments
  - Interconnected test beds
    - security, trust and ID management architectures and technologies;
    - for trusted access to e-services for users having no security skills
- **Critical Infrastructure Protection**
  - Joint initiative with Security Theme

Cross-cutting large projects

**Call 1**  
Early 2007

**Call 2**  
2nd half of 2007



## Secure, Dependable and Trusted Infrastructures

- **Security and resilience in network infrastructures**
  - Scalable, context-aware, secure and resilient architectures and technologies
  - Real-time detection and recovery against intrusions and failures
- **Security and trust in dynamic and reconfigurable service architectures**
  - Supporting secure & scale-free composition of service coalitions
- **Trusted computing infrastructures**
  - Interoperability, end-to-end security of data and services
  - Security & Dependability in the Engineering of SW and Service Systems for designing and developing trustworthy applications and services
- **Identity Management and Privacy enhancing tools**
  - Configurable, context dependent, user controlled attributes, trust policies for ID management in static and dynamic environments
- **Coordination & Support Activities**
  - Research Roadmaps, Metrics, Support of standardisation, IN-CO, Coordination of security RTD projects

**Funding Schemes:** Collaborative Projects, NoEs, CSAs  
**Indicative Budget:** 90 m€ Call 1



## Critical Infrastructure Protection (joint initiative between ICT & Security Themes)

**Focus of ICT-part:** Building secure, resilient, responsive and always available information infrastructures linking critical infrastructures (CI's)

- a) **Manage complex interconnected and interdependent CI's;**
  - Master vulnerabilities & cascading effects;
  - Recovery and continuity in critical scenarios (incl. self\* systems)
  - Metrics & assurance methods for quantifying interdependencies
- b) **Build secure and resilient networked and distributed information and process control (e.g., SCADA) systems;**  
Systemic risk analysis and security configuration & management of critical information infrastructures and dynamic assurance frameworks for interconnecting them with CI's; Security forensics

**Funding Schemes:** Collaborative Projects, CSAs  
**Indicative Budget:** 20 m€(ICT Theme) + 20 m€(Security Theme)





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## Funding Schemes

- **Collaborative projects**
  - RTD projects carried out by consortia
  - aiming at developing new knowledge, new technology, ...
- **Two types**
  - Small or medium-scale focused research actions (STREPs)
    - Research, demonstration, management activities
  - Large-scale integrating projects (IP)
    - Research, demonstration, management, innovation, training, project management
- **Networks of Excellence (NoE)**
- **Coordination and support actions (CSA)**
  - Coordination Actions (CAs); Specific Support Actions (SSAs)



## Preparing for ICT-FP7 Calls



- IST 2006 event in Helsinki (21-23 November 2006)  
[http://ec.europa.eu/information\\_society/istevent/2006/index\\_en.htm](http://ec.europa.eu/information_society/istevent/2006/index_en.htm)  
Six networking sessions on ICT for Security & Trust
- Info Days & FP7 events  
[http://cordis.europa.eu/fetch?CALLER=FP7\\_EVENTS](http://cordis.europa.eu/fetch?CALLER=FP7_EVENTS)
- FP7 Sessions in Conferences



## Preparing for ICT-FP7 Calls

- Stimulate discussions for Consortia Building
- 5 ETPs related to security & dependability:
  - *NESSI* ([www.nessi-europe.com](http://www.nessi-europe.com)) software and trusted services
  - *eMobility* ([www.emobility.eu.org](http://www.emobility.eu.org)) terrestrial mobile & wireless communications
  - *ARTEMIS* ([www.artemis-office.org](http://www.artemis-office.org)) embedded systems
  - *NEM* ([www.nem-initiative.org](http://www.nem-initiative.org)) networked and electronic media
  - *ISI* ([www.isi-initiative.eu.org](http://www.isi-initiative.eu.org)) satellite communications
- NoE Resist → (<http://www2.laas.fr/RESIST/>) scalable resilience technologies
- Coordination Actions
  - *SecurIST*: ([www.ist-securist.org](http://www.ist-securist.org)) security projects cluster
  - *ESFORS*: ([www.esfors.org](http://www.esfors.org)) security forum for SW, services
  - *CI2RCO* ([www.ci2rco.org](http://www.ci2rco.org)) critical information infrastructure protection



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## Concluding Remarks

- **Multidisciplinary & Integrated Research**
  - Connection to ETPs (NESSI, eMobility, ...)
  - A Science of Services
- **Integrated Research Agenda in Resilience & Dependability R&D**
- **Education & Training**
  - New discipline & skills: “A Science of Services”
  - Research Masters, Mobility



**IST Programme**  
<http://cordis.europa.eu/ist/>



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**ICT for Trust & Security**  
<http://cordis.europa.eu/ist/trust-security/index.html>

