Resilient Systems
Current Research and Future Directions

ReSIST workshop, Rome
October 18, 2007

ICT Programme
Security research

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Information Society and Media

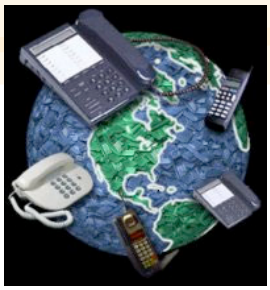
Outline

- Research in Resilience: from Research to Applied Research
  - (recent) past achievements
  - 1st FP7 Calls, ICT and SECURITY

- Future directions: Towards Resilient Infrastructures
  - Next call(s)

From Research to Applied Research

6th FP "Towards a global dependability and security framework"



Key Objectives & Breakthroughs

- build on EU technical and scientific excellence on security, dependability and resilience
- meet EU demands for privacy and trust
- strengthen the interplay between research and policy

Budget ~ 145 M€

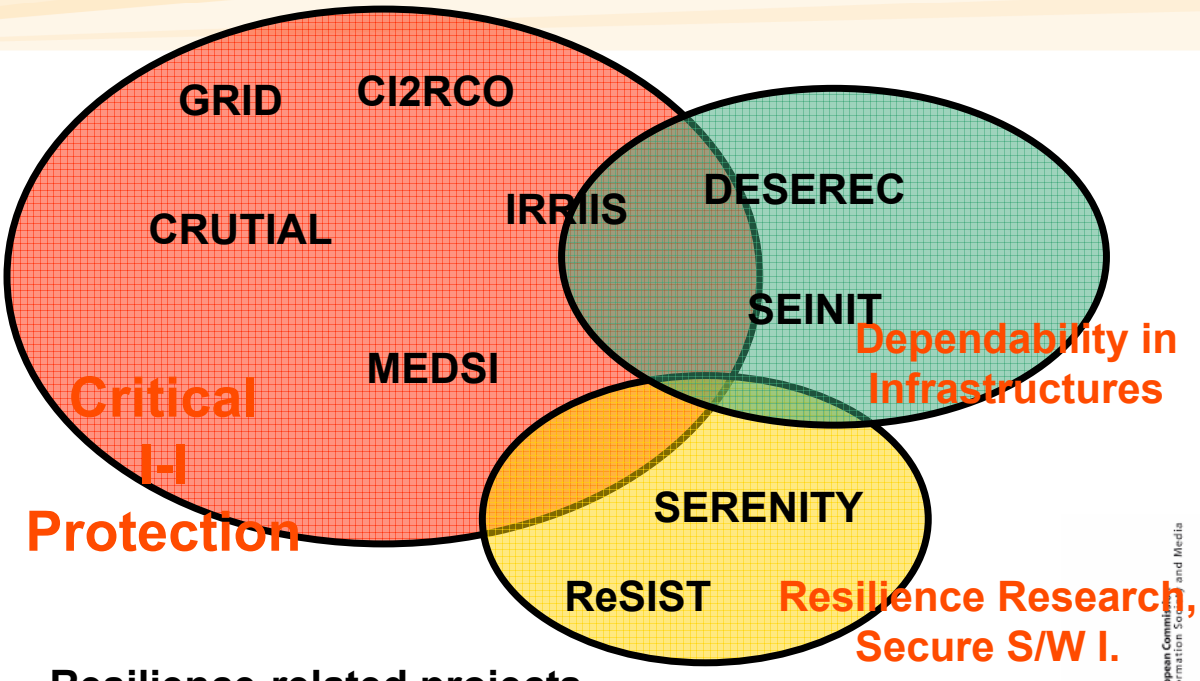
Research Focus:

- security and dependability challenges arising from complexity, ubiquity and autonomy
- resilience, self-healing, mobility, dynamic content and volatile environments
- Multi-modal and secure application of Biometrics
- Identification, authentication, privacy, Trusted Computing, digital asset management
- Trust in the net: malware, viruses, cyber crime

Choices
Security
Flexibility

European Commission Information Society and Media

From Research to Applied Research Past Achievements (FP6)

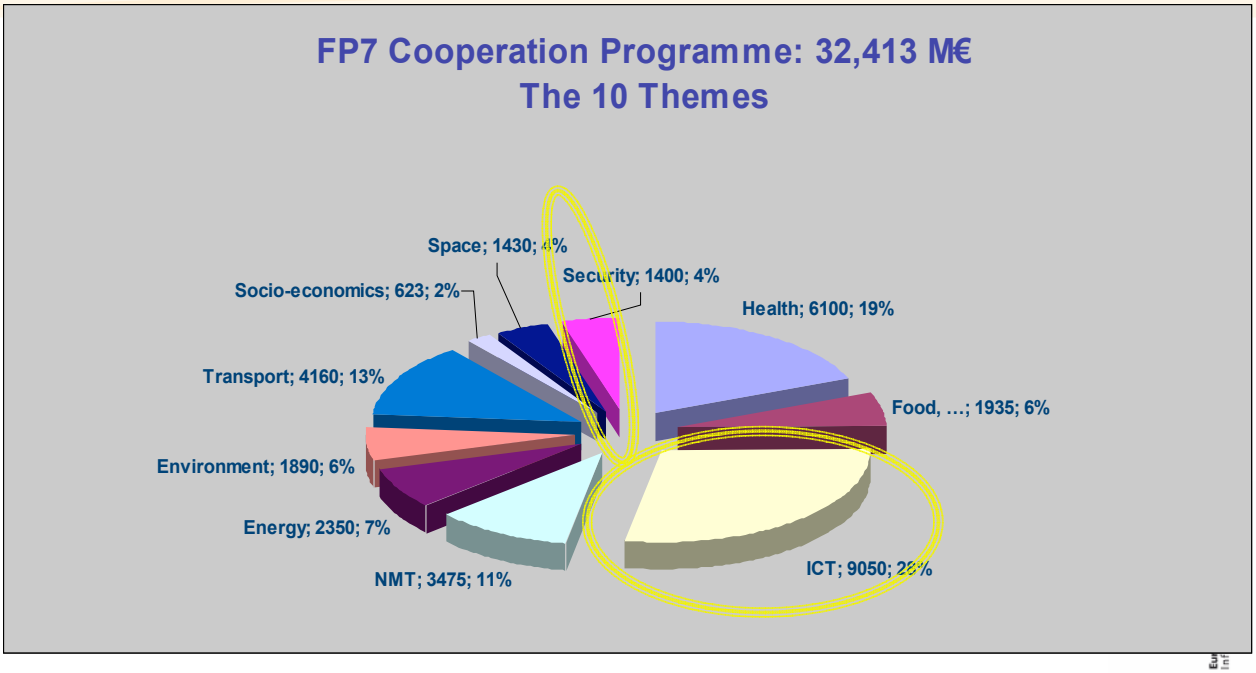


Resilience-related projects

European Commission Information Society and Media

7th EU Framework Programme for RTD 2007-2013

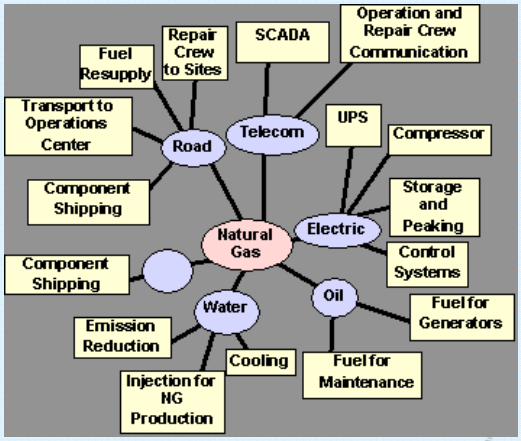
Total 50,521 M€



Strengthening Competitiveness through Co-operation

Towards Resilient Critical Infrastructures Challenges Ahead

- Technology development
- Liberalisation, Deregulation
- Global, Cross border CI's
  - → Different policy & regulatory frameworks
  - → Different protection measures and technologies
- Openness & Interconnection
  - → Interdependencies
  - → Large scale, multi layer systems
  - → Complexity, Chaotic Behavior
  - → New Vulnerabilities, Cyber-threats
- Law enforcement, Crisis Management
- Not designed as integrated systems, as they are operating today



Resilient Critical Infrastructures
The EC Context

Policy

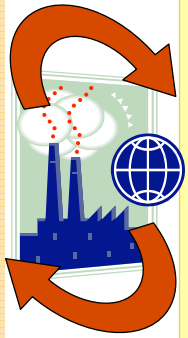
2004: EU program on CIP (EPCIP) and CI Warning Info Network (CIWIN)

2006: Communication and Directive on EPCIP – sectoral approach

2007: Communication on Protecting Europe's Critical Energy and Transport Infrastructure

2007: INFSO consultation process for policy initiative in ICT CIIP sector

ARECI study on Electronic Infrastructures



Research

IST-FP6 (2002-2006)
9 RTD projects, 36M€ EU funding

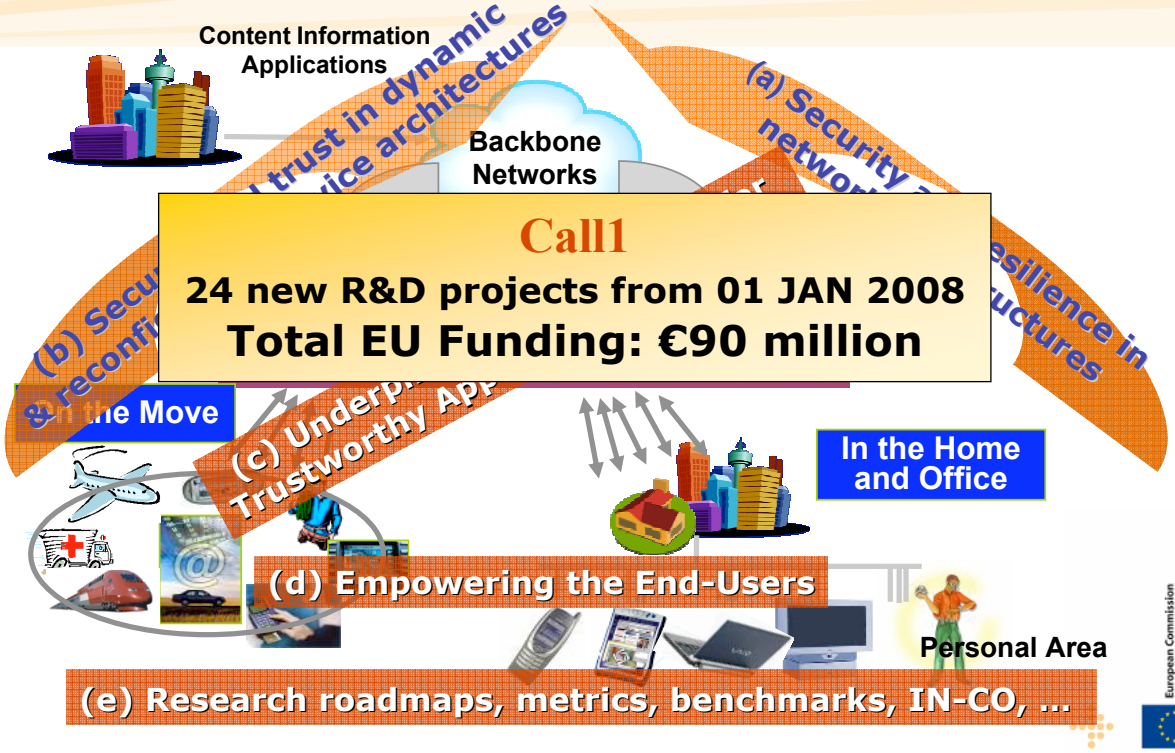
PASR (2004-2006)
5 projects for about 11,5M€ – total cost

FP7 ICT Call 1 (Apr 2007)
Focused on security and trust in Networks and Services, and underpinning technologies

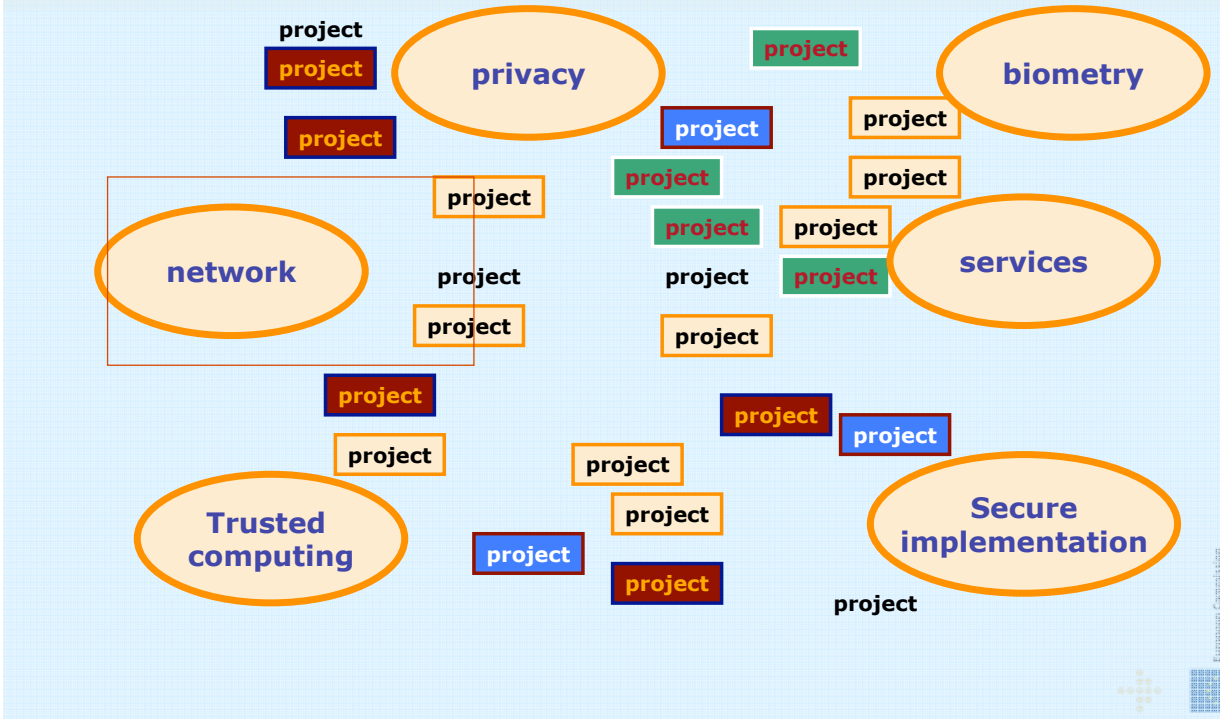
FP7 ICT-SEC (Nov 2007)
ICT-Security Research Joint Call on Critical Infrastructure Protection

7th EU Research Framework Programme (2007-2013)

"Secure, dependable & trusted infrastructures"



Research in FP7, call 1
Projects under negotiation, funding: 90 M€
PROVISIONAL



Critical Infrastructures Protection
Ongoing PASR work

- Vital Infrastructures Threats and Assurance
- Transport Infrastructures Protection System
- Open Robust Infrastructures
- Protection of Air Transportation and Infrastructure
- On-line monitoring of drinking water

Work in DG RTD: ETP SmartGrids

… the role of ICT (Information and Communication Technology) in adapting electricity networks to real time actions and managing distributed control in the network will be a critical contribution

Development will be taken beyond systems to determine integrated ICT solutions for both transmission and distribution networks.

… new solutions will be developed for data access, transfer and management between all parties in the liberalised sector ...

Towards the Joint Call on CIP

Holistic view on
security and resilience of CI's,
including non-technical aspects

System technology, organisation and management, governance, business, users, legal, regulatory

→ **Overall resilience and security**

Towards the Joint Call on CIP

- Two perspectives
  - Technology building blocks for resilient critical networks, communication and control
  - Capability building for security of citizens

Joint Call between Security and ICT Themes on Protection of Critical Infrastructures

Objectives

- Create more secure and dependable Critical Infrastructures (CI's)
  - ➔Protect CI's against deliberate acts of terrorism, natural disasters, negligence, mismanagements, accidents, computer hacking, criminal activity and malicious behaviour
- Develop new technical solutions that support and refine the EPCIP policy options and legislative processes

Joint Call between Security and ICT Themes
Critical Infrastructure Protection (3)

Focus of the ICT Theme – Budget: 20 m€

Technology building blocks for creating secure, resilient, responsive and always available information infrastructures linking critical infrastructures (CI's)

a) mastering interactions and complexity of LCCI; preventing against cascading effects; providing recovery and continuity (self-adapted and self-healing); quantifying dependability and resilience of interdependencies

b) Designing and developing distributed information and process control systems; systemic risk analysis and security configuration; dynamic assurance frameworks; security forensics

c) Longer term visions and roadmaps; metrics and benchmarks -> certification and standardisation; international cooperation; coordination with other programmes or initiatives

Joint Call between Security and ICT Themes
Protection of Critical Infrastructures (4)

Focus of the Security Theme – Budget: 20 m€

Technology building blocks for secure, resilient and always available transport & energy infrastructures that survive malicious attacks or accidental failures and guarantee continuous provision of services

a) ICT-SEC-2007-1.0-01: integrated frameworks/methodologies for global analysis of risks; contingency management based on emergency plans

b) ICT-SEC-2007-1.0-02: Modelling & simulation including scenario building to support training of crisis managers

c) ICT-SEC-2007-1.0-03: Tools for the integration of smart surveillance to build high-level situation awareness

d) ICT-SEC-2007-1.0-04: Novel technologies for personal digital support systems as part of emergency management; first responders in crisis

Joint Call between Security and ICT Themes on the Protection of Critical Infrastructures Expected Impact

- Improving significantly the security, performance, dependability and resilience of CI's (while considering also organizational, human, societal and legal aspects)
- Reinforcing European industry's potential for leadership
- Increasing and preserving trust in the use of technologies for the protection of CI's
- More effective protection trough enhanced co-operation, coordination and focus
- Contribution to the development and promotion of metrics, standards, evaluation & certification methods and best practice in security of CI's

Budget Joint Call and Information

- Indicative Call Budget: 40 m€
  - Collaborative Projects: Up to 36 m€
  - Coordination and Support Actions: Up to 4 m€
- Information Day in Brussels on 27 SEP 2007
  - Information on Presentations and participants available from http://cordis.europa.eu/fp7/ict/security/events-20070927-ag_en.html
- Web Site on the Joint Call

http://cordis.europa.eu/fp7/dc/index.cfm?fuseaction=UserSite.CooperationDetailsCallPage&call_id=70

Further Information & Contact

- *Call information*
  - → CORDIS call page and work programme, evaluation forms: http://cordis.europa.eu/fp7/calls/

- *General sources of help:*
  - → The Commission's FP7 Enquiry service : http://ec.europa.eu/research/enquiries
  - → National Contact Points : http://cordis.europa.eu/fp7/ncp_en.html

- *Specialised and technical assistance:*
  - → CORDIS help desk : http://cordis.europa.eu/guidance/helpdesk/home_en.html
  - → CORDIS FP7 service : cordis.europa.eu/fp7/participate_en.html
  - → Risk sharing financing facility (European Investment Bank): http://www.eib.org/rsff
  - → EPSS Help desk e-mail: support@epss-fp7.org
  - → IPR helpdesk http://www.ipr-helpdesk.org
  - → ICT Information Desk email: ict@ec.europa.eu
  - → Security Information Desk e-mail: entr-security-research@ec.europa.eu

- Contacts for the Joint Call:
  - → [ICT Theme] Angelo.Marino AT ec.europa.eu,
  - → [Security Theme] Laurent.Cabirol AT ec.europa.eu

Working as an expert on EU projects

Registering as an expert for evaluations and reviews of EU projects:

https://cordis.europa.eu/emmfp7/

Thank you for your attention