The European Initiative on Dependability: towards a dependable Information Society

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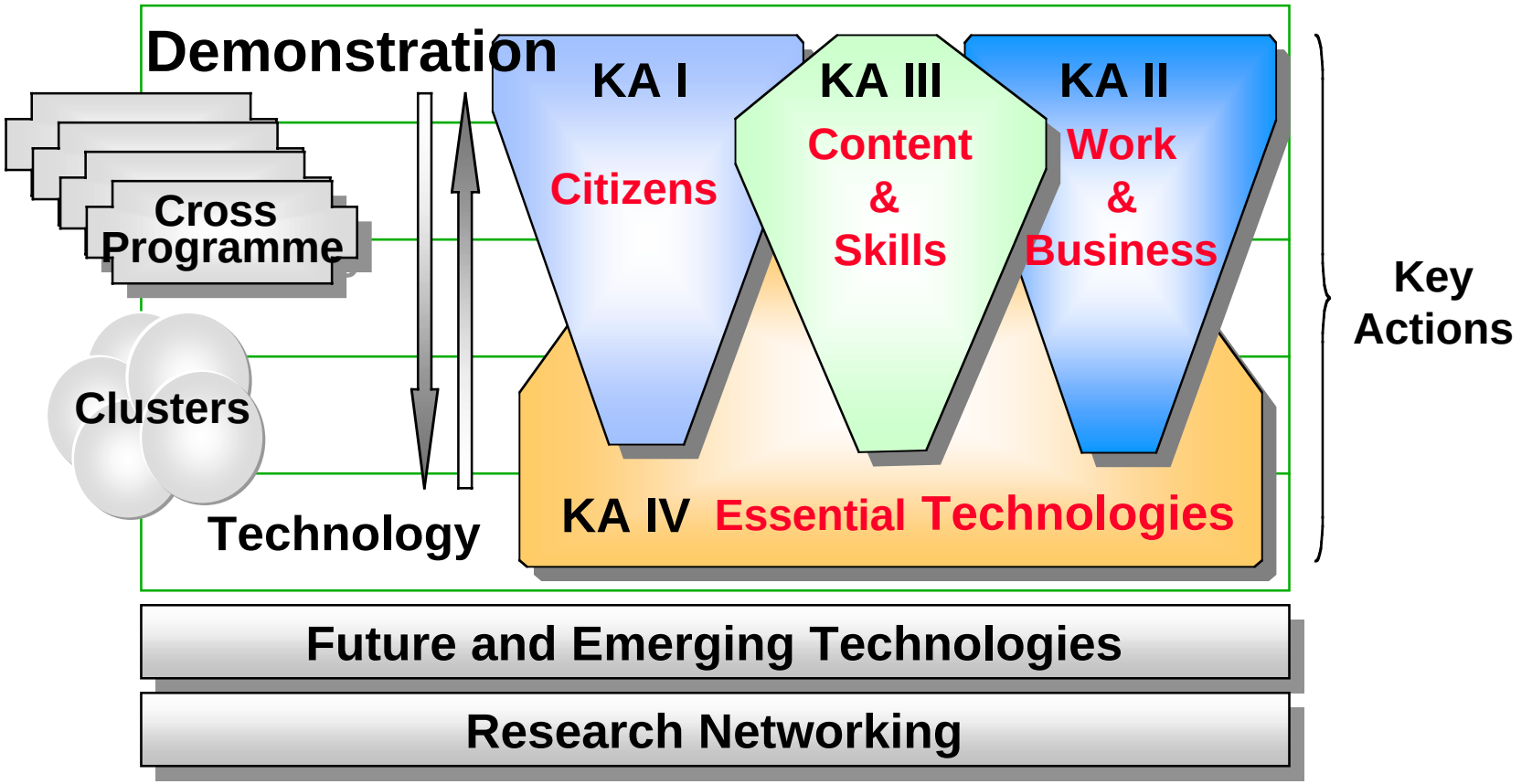
OUTLINE

- The IST Programme
- The European Dependability Initiative - DEPPY
- DEPPY numbers
- ERA & FP6
- Global Collaboration

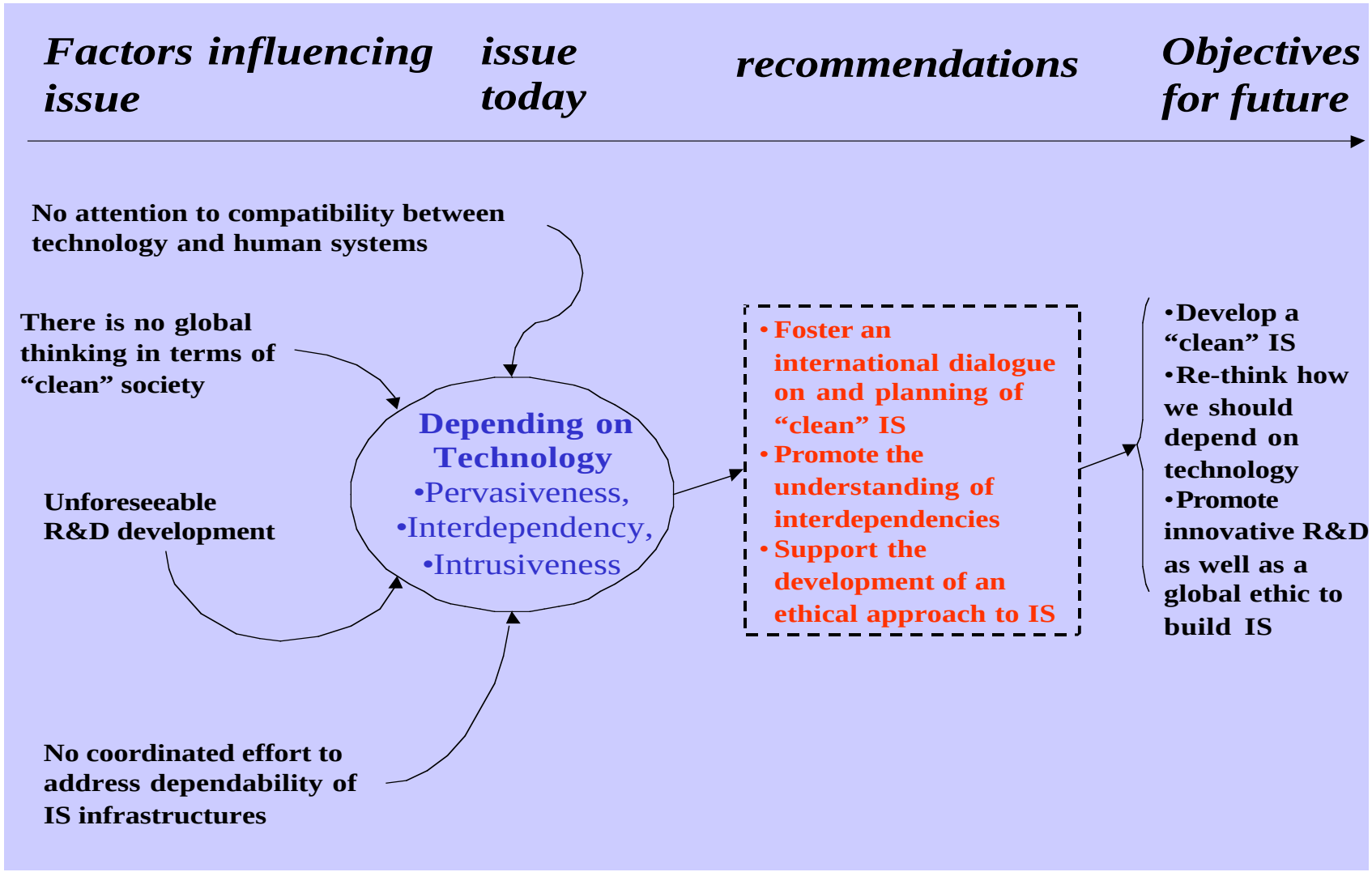
The IST programme



Dependability in the IST Programme

- Focussing on dependability we pursued the convergence of different technical communities:
  - **correctness & safety**
  - **fault tolerance**
  - **reliability**
  - **information and network security**
  - **survivability**
  - **..**
- The dependability focus was instrumental to trigger a more far reaching policy reflection on how we depend on technology ...

Depending on technology



Drivers for DEPPY - Business

- **Deregulation in telecomm** leads to new players, services and applications - ***blurring sector and jurisdictional boundaries***;
- **The convergence** of communication infrastructures boosts the deployment of ***unbounded network computing environments***;
- **Information is an asset** - from manufacturing-centered to an ***information management model***;
- **Globalization** of services, companies and integration of business processes;
- **New threats** and vulnerabilities.

Drivers for DEPPY - Technological

- From **monolithic proprietary systems to open systems-of- systems** with greater **interconnectivity** and **complexity**;
- The pressure to produce **cost effective systems** places increasing reliance on COTS, reuse and the evolution of legacy systems;
- Convergence is increasing the **sophistication** (e.g. multiple technologies) and the **complexity** of systems;
- Rapid **evolution of standards**;
- Urgent **need to establish an interoperable infrastructure of trustworthy services**.

Drivers for DEPPY - Societal & Cultural

- The traditional **chain of trust is affected** by the blurring of geographical borders and boundaries;
- The **perception of benefits and risks** related to IT application and Internet is diverse;
- Mass **market volume for embedded systems** presupposes that
  * ***users are not experts;***
  * ***operating and environmental conditions vary*** *hugely*.

The European Dependability Initiative - The goals

Five goals:

- ***Foster a dependability-aware culture***, leveraging on
  * **education** in dependability that embraces multi-disciplinary approaches;
  * raising dependability **awareness** in society;
  * **joining** the somewhat separate **technical communities** dealing with safety, security, reliability and survivability, and promoting combined approaches to dependability;
  * promotion of and training in **best practice**.

The European Dependability Initiative - The goals

- ***To provide a workable characterization of affordable dependability***, focussing on:
  - * **Dependability frameworks**;
  - * **Dependability characterization**, especially to support certification;
  - * **Characterization of quality of information**.

The European Dependability Initiative - The goals

- ***To facilitate global interoperable trust frameworks***, focussing on:
  - * supporting mediation and negotiation along the **chains of trust;**
  - * providing clear guidance on **liability issues**;
  - * **securing information** sharing;
  - * pursuing the harmonization of **certification practice and standards for networked services**.

The European Dependability Initiative - The goals

- ***To provide the capability to master heterogeneous environments***, addressing:
  * the use and integration of **COTS/Legacy** systems by appropriate and scalable means;
  * the establishment of **global mechanisms** available for rapid **recovery strategies**;
  * architectural models for systems **composability** and to support predictable design;
  * **technical heterogeneity** of systems and development processes as well as the **evolutionary aspects** of systems and the need to seamless support them.

The European Dependability Initiative - The goals

- ***To provide capability to manage dependability in largely distributed environments***, developing
  * practice to construct **adequately dependable systems** from **components with varying level of dependability**;
  * **united frameworks for modeling and validation**;
  * cost-effective, application specific, fault-tolerant strategies for **varying level of dependability**;
  * **business driven models to manage dependability in a risk management perspective** relevant for the business environment.

DEPPY: its numbers

- **4 preparatory Workshops** were held from 1997 to 1999 to define the initiative. More than **50 EU org**. plus some **USA 15 org**. were involved.
- **3 Action Lines in IST WP** - 1999, 2000 and 2001;
- **16 projects** are part of DEPPY portfolio for an overall value ~**54 million Euro** of which **28.4 million Euro** is the funding from the Commission;
- **~100 contractors** in projects + some **40 members** more in **1 NoE**;
- **~20 PO (including 6 from the JRC)** have been involved in **building, defining and implementing DEPPY**;

DEPPY: its numbers

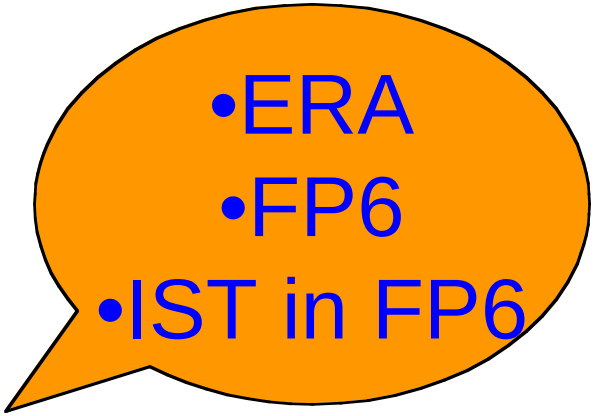
- **1 DEPPY Project Workshop -** at **ICDSN 2001** in Göteborgh;
- **1 Web site** - **deppy.jrc.it**;
- **1 study** on **Complexity and dependability** - in collaboration with **Washington University**;
- **2 Workshops** on **Interdependencies and vulnerabilities in Information Infrastructures -** March 2001 & November 2001;
- **1 EU WG** on **Interdependencies and vulnerabilities in Information Infrastructure -** since June 2001;

DEPPY: its numbers

- **1 Joint EU-US Task force on CIP** set up in 1998 under the auspices of the JCG of the S&T Agreement with USA;
- **4 EU-US Working Workshops** from 1999 to 2001 - the last one was held on **1-2 December 2001** in Düsseldorf;
- **2 Project Workshops with DARPA** in 2000 and 2001;
- **4 joint sessions at International Conferences**, (2nd EU-US Vistas, IST19999, ISW2000, IC-DSN2000 and IST2001).

The European Context

- **The Lisbon Strategy…**
  to become the strongest knowledge-based economy in the world by 2010
- **…based on 3 ingredients:**
  - **A single market …**
  - **A single currency …**
  - **European Research Area: a single European market for research …**



ERA: a Research Policy

- Knowledge-based economy & society
- competitiveness & economic growth

- legal instruments (e.g. European Patents)
- **financial instruments: FP6**

Commission proposal for FP6

INTEGRATING EUROPEAN RESEARCH								
PRIORITY THEMATIC AREAS							ANTICIPATING S/T NEEDS	
Genomic and biotechnology for health	Information society technologies	Nanotechnologies, intelligent mat., new production processes	Aeronautics and space	Food safety and health risks	Sustainable development and global change	Citizens and governance in the knowledge society	Research for policy support	Frontier research, unexpected developments
							Specific SME activities	
							Specific international cooperation activities	
							JRC activities	

STRUCTURING THE ERA			
Research and innovation	Human resources & mobility	Research infrastructures	Science and society

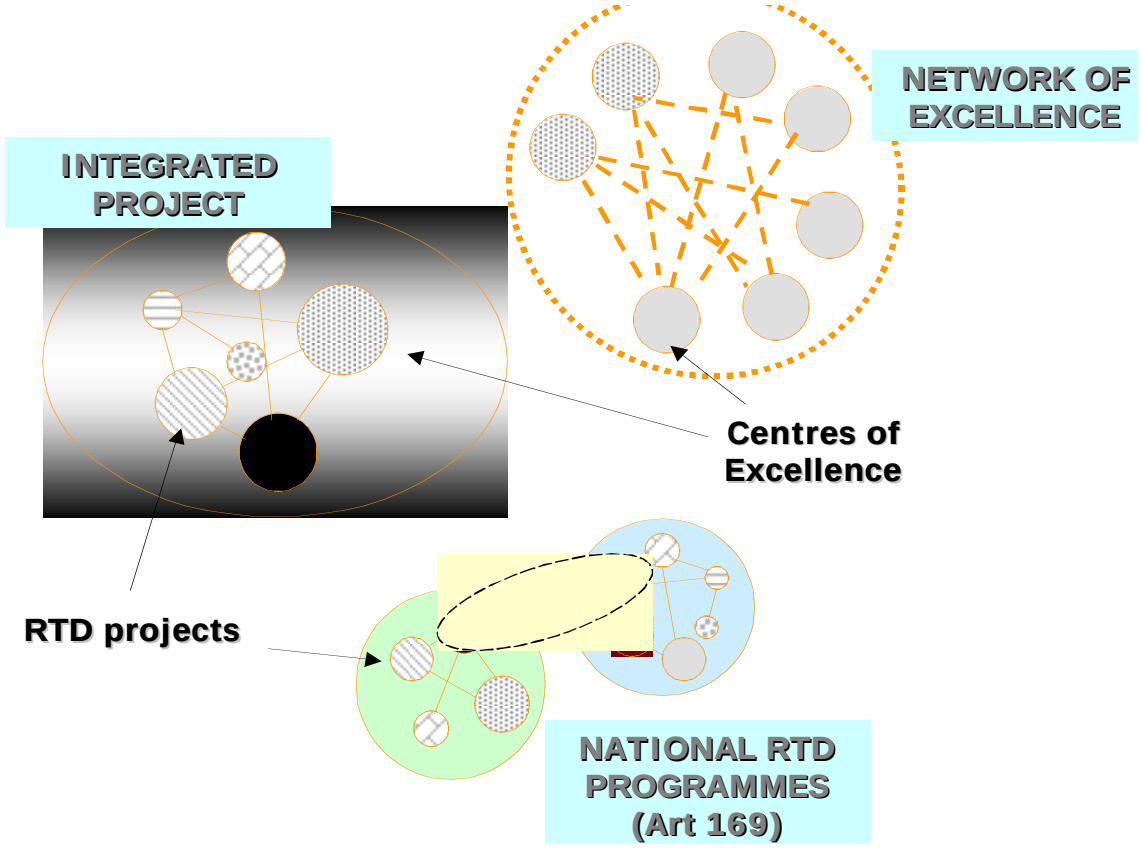
STRENGTHENING THE FOUNDATIONS OF ERA	
Coordination of research activities	Development of research/ innovation policies

FP6

- **from co-operation**
- **to reinforcing scientific / technical excellence**

- Concentration on 7 priorities, one of them is **IST**
- implemented through 3 major instruments:
  - **Networks of Excellence**
  - **Integrated Projects**
  - participation of the EU in national pgms (**Art. 169**)

Instruments of FP6



New Instruments in FP6

- Would **reinforce scientific and technological excellence** by integrating research capacities
- Would be contribute to the **solution of important societal European** through mobilisation of a **critical mass** of research and technological development resources and skills

Just what we need for RTD on dependability in Information Society

Why is Dependability a priority for FP6

- Dependability is a key requirement for Information Society: it embraces all the usual attributes and properties of “critical systems
- There is a growing policy interest on dependability of information infrastructures and related interdependencies (economic security, protection of assets and IT investments, etc.)
- The IST Advisory Group identified dependability as an important topic for an Integrated Project
- Focussing on dependability implies stimulating an holistic reflection on our dependency on technology

Global collaboration on dependability

- **Rationale for collaboration -** The Information Infrastructure is global and arises global dependability concerns
- There are significant **technical and non-technical issues** that due to their scale and nature would benefit from a global leverage of wider and diverse pool of skills and resources
- September 11th has changed the “picture” making **security and dependability concerns** a top priority on policy agendas

Web sites

- **IST PROGRAMME**
  - –http://www.cordis.lu/ist/
- **Deppy Forum**
  - –http://deppy.jrc.it