Open Development Platforms for Software and Services

Towards software enabled service economies

1st International Conference on Service Oriented Computing
Trento, 16 December 2003

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DG Information Society / Unit D3

SW and Service Technologies

- Overview of FP6 - IST Programme
- Domain, Market and Status
- Strategy for Competitiveness
- Towards lively service economies

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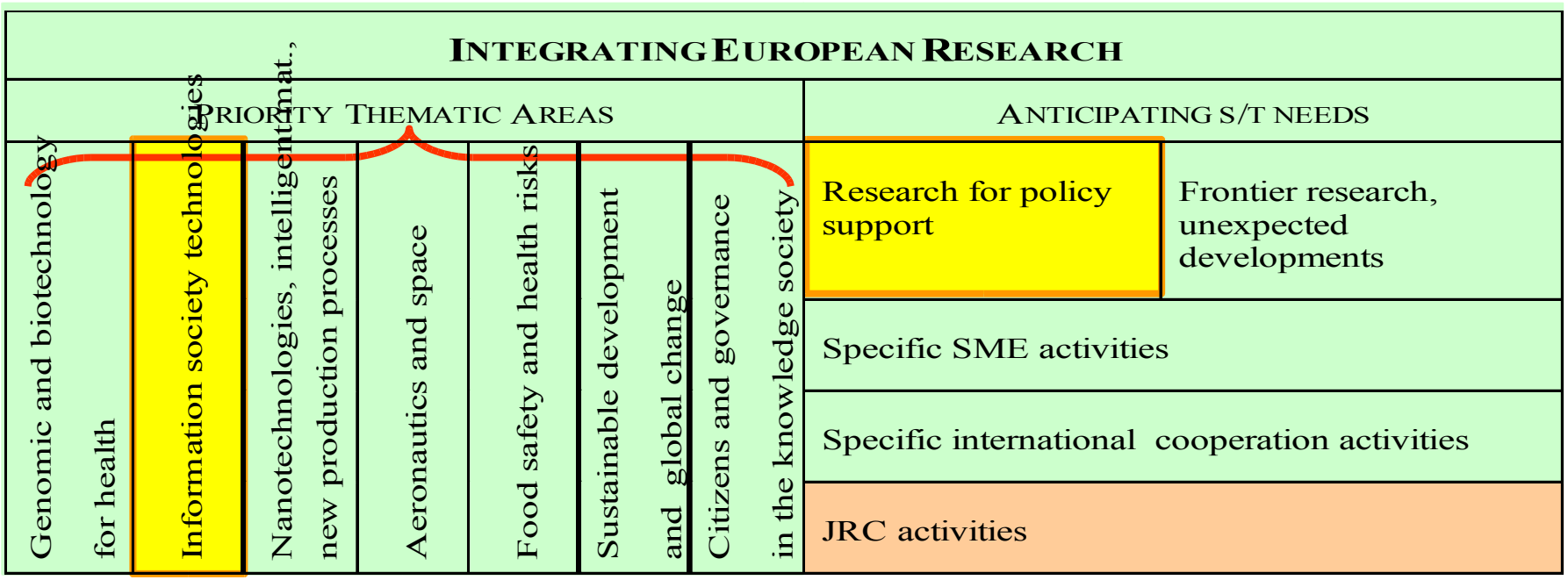
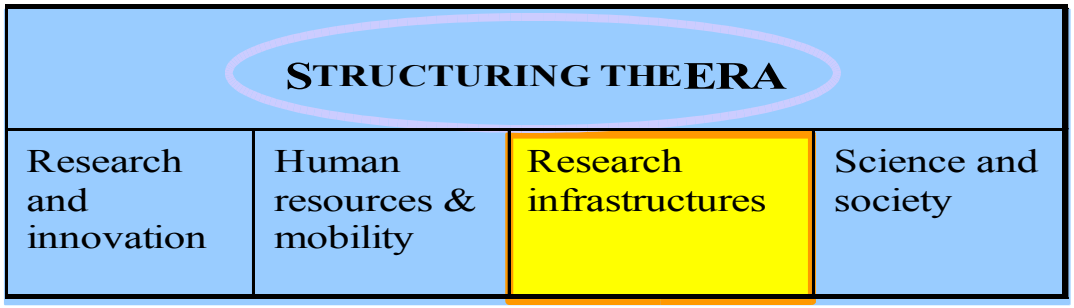
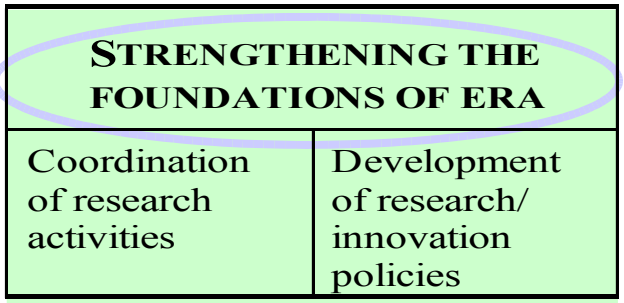
The components of FP6







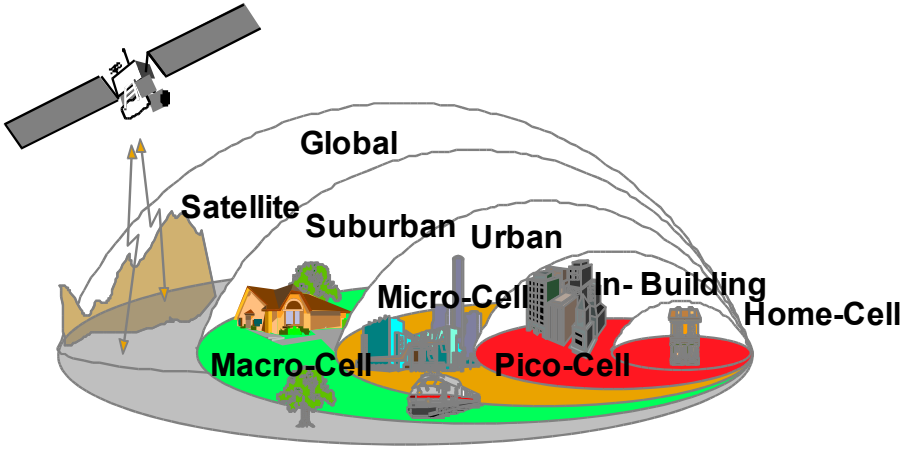
FP6 Budget breakdown

- Research and Technological Development
  - Genomics 2255 M€
  - **IST** **3625 M€**
  - Nanotechnologies, int.. 1300 M€
  - Aeronautics and space 1075 M€
  - Food quality and safety 685 M€
  - Sustainable development 2120 M€
  - Citizens and governance .. 225 M€
  - Anticipation of S&T needs 1300 M€
- Mpecific INCO 315 M€
- European Research Area 3005 M€
- Joint Research Centre 760 M€M€

16,270 M€

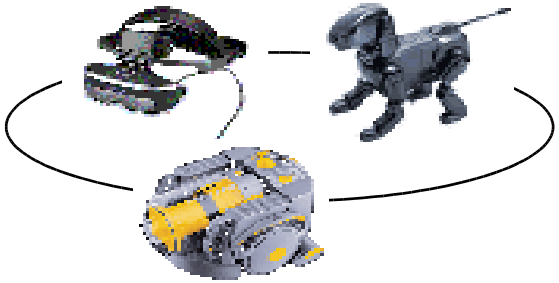
IST vision: ‘Ambient Intelligence’

Software & Systems Technologies



Seamless & Rich Connectivity
(fixed optical & wireless communications)

Anthropocentric Interfaces



Intelligent Environments

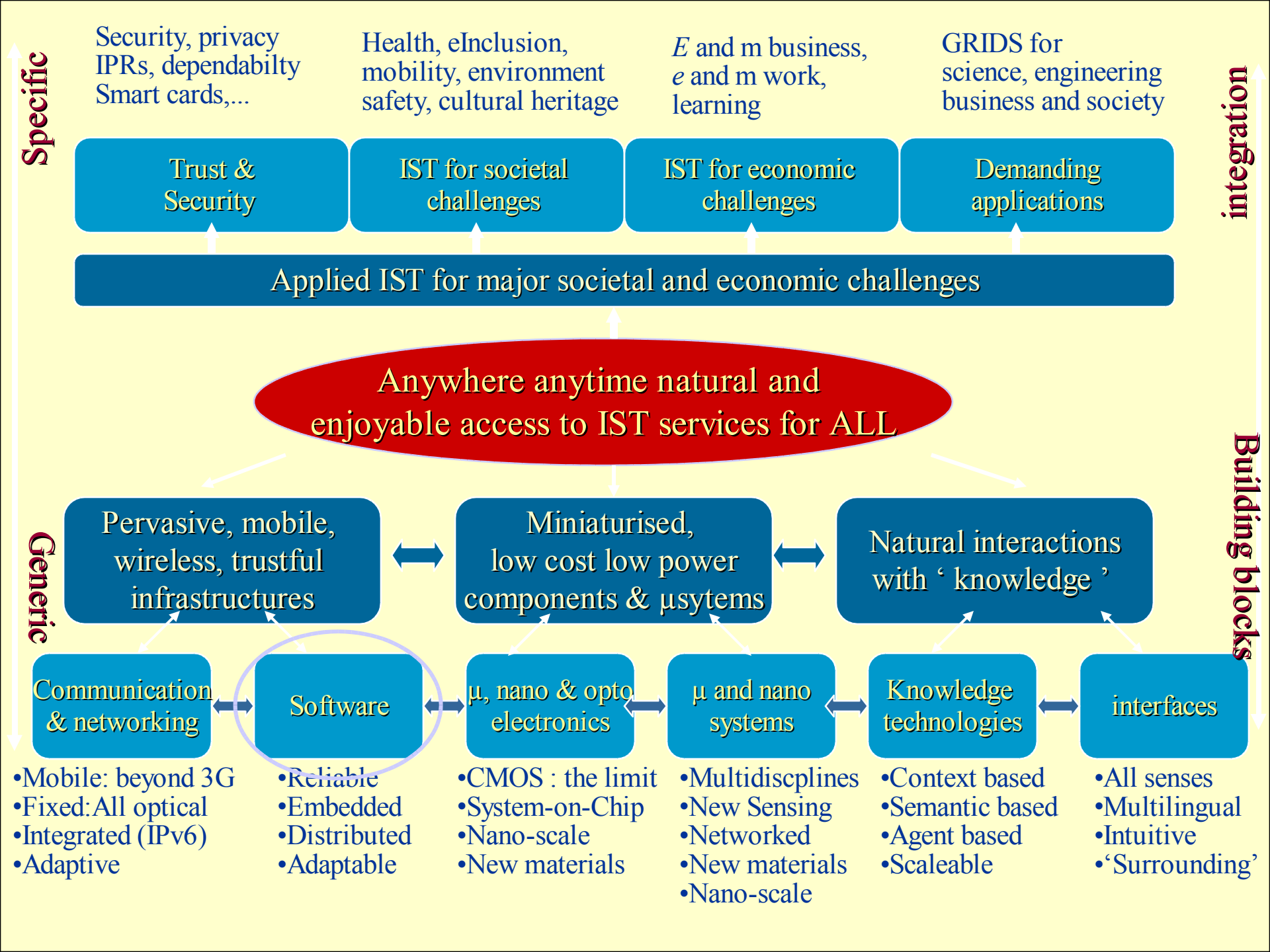
"all inclusive knowledge society"

IST today

- PC based
- "Writing and reading"
- "Word" based information search
- Low bandwidth, separate networks
- Mobile telephony (voice)
- Micro scale
- Silicon based
- *e*Services just emerging
- 5% of global population on-line

"Ambient Intelligence" tomorrow

- "Our surrounding" is the interface
- Use all senses, intuitive
- Context-based knowledge handling
- Infinite bandwidth, convergence, ..
- Mobile/Wireless full multimedia
- Nano-scale
- + new materials
- Wide adoption (*e*Health, *e*Learning,)
- >70% of world population on line


Specific
integration
Security, privacy
IPRs, dependabilty
Smart cards,...
Health, eInclusion,
mobility, environment
safety, cultural heritage
E and m business,
e and m work,
learning
GRIDS for
science, engineering
business and society
Trust &
Security
IST for societal
challenges
IST for economic
challenges
Demanding
applications
Applied IST for major societal and economic challenges
Anywhere anytime natural and
enjoyable access to IST services for ALL
Generic
Building blocks
Pervasive, mobile,
wireless, trustful
infrastructures
Miniaturised,
low cost low power
components & µsytems
Natural interactions
with ' knowledge '
Communication
& networking
Software
µ, nano & opto
electronics
µ and nano
systems
Knowledge
technologies
interfaces
•Mobile: beyond 3G
•Fixed:All optical
•Integrated (IPv6)
•Adaptive
•Reliable
•Embedded
•Distributed
•Adaptable
•CMOS : the limit
•System-on-Chip
•Nano-scale
•New materials
•Multidiscplines
•New Sensing
•Networked
•New materials
•Nano-scale
•Context based
•Semantic based
•Agent based
•Scaleable
•All senses
•Multilingual
•Intuitive
•'Surrounding'

IST Workprogramme - approach

- a two year WP to ensure concentration of effort and visibility for the research Community
- more limited number of calls (three over two years)
- concentration on a limited set of « Strategic Objectives »
  - Selection and focus based on Europe's options
  - a total of 23 strategic objectives for WP2003-04
- addresses RTD in both technologies and applications
- focus on new instruments (IPs and NoEs)
  - ~70% of budget targeted to new instruments
  - per S.O: ~3 to 4 IPs, 2 to 3 NoEs and number of STREPS/SSA/CA

Call sequence IST 2003-2004

Strategic objectives in Call 1

1. *Pushing the limits of CMOS, preparing for post-CMOS*
2. *Micro and nano-systems*
3. *Broadband Access for All*
4. *Mobile and wireless systems beyond 3G*
5. *Towards a global dependability and security framework*
6. *Multimodal interfaces*
7. *Semantic-based knowledge systems*
8. *Networked audiovisual systems and home platforms*
9. *Networked business and government*
10. *eSafety for road and air transport*
11. *e Health*
12. *Technology-enhanced learning and access to cultural heritage*

Strategic objectives in Call 2

1. *Advanced displays*
2. *Optical, opto-electronic, photonic functional components*
3. ***Open development platforms for software and services***
4. *Cognitive systems*
5. *Embedded systems*
6. *Applications and services for the mobile user and worker*
7. *Cross-media content for leisure and entertainment*
8. *GRID-based Systems and solving complex problems*
9. *Improving Risk management*
10. *eInclusion*
11. *Product design and manufacturing 2010*

IST Programme - Call Status

	Props	Funding
Call 1 (under negotiation)		
Selected (approx)	**230**	**1,070 Mi€**
Call 2 (under evaluation)		
Selection expected up to a budget of		**525 Mi€**
EXECUTED WP 2003-2004		**1,595 Mi€**

IST programme - Upcoming activities

- **Call 3 – tentative information**
  - **Summer 2004 ??**
  - **Future and emerging technologies**
  - **Nano technologies**
  - **Extension of existing actions or Special Support actions focused on:**
    - International cooperation
    - Small and medium enterprises
    - Improving cohesion with new acceding countries

IST programme - Upcoming activities

- **New Workprogramme for 2005 –2006 (to be decide end 2004)**
- **With new calls foreseen in 2005 and 2006**

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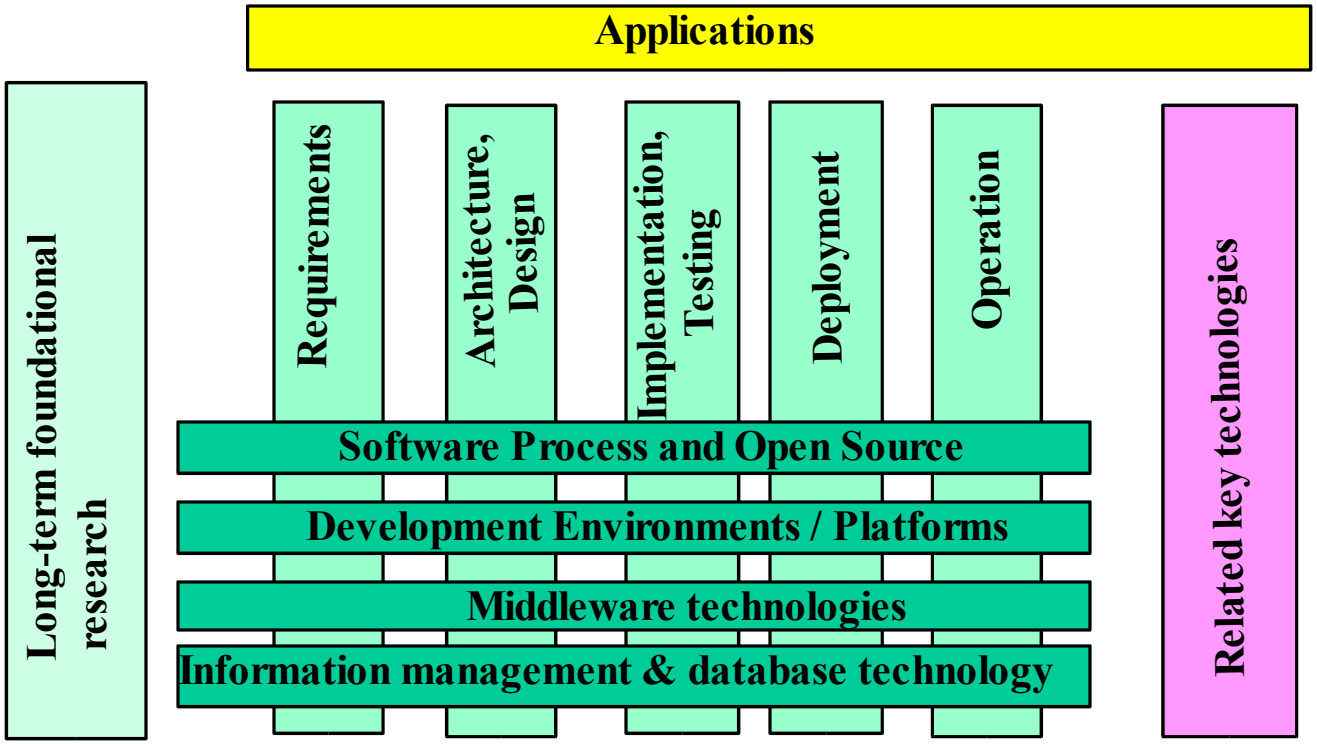
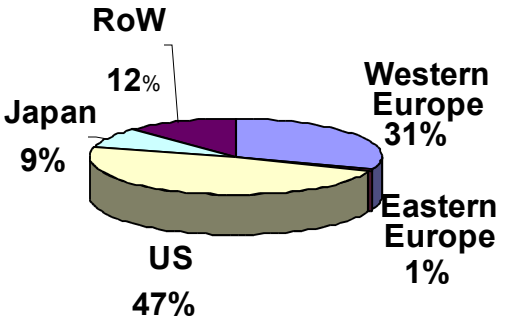
Software Technologies in IST

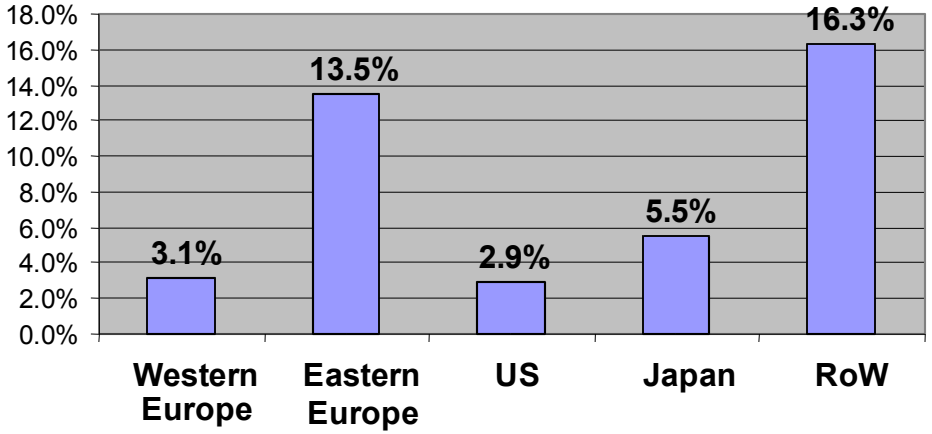


Some market figures (EITO 2003)

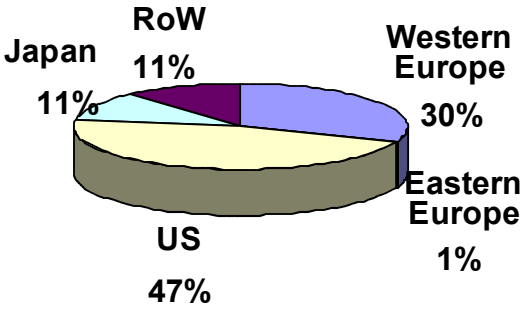
Software* Market 2002 (total 207 B€)



ExpectedAnnual Growth 2002-2004



IT Services 2002 (Total 445 B€)**



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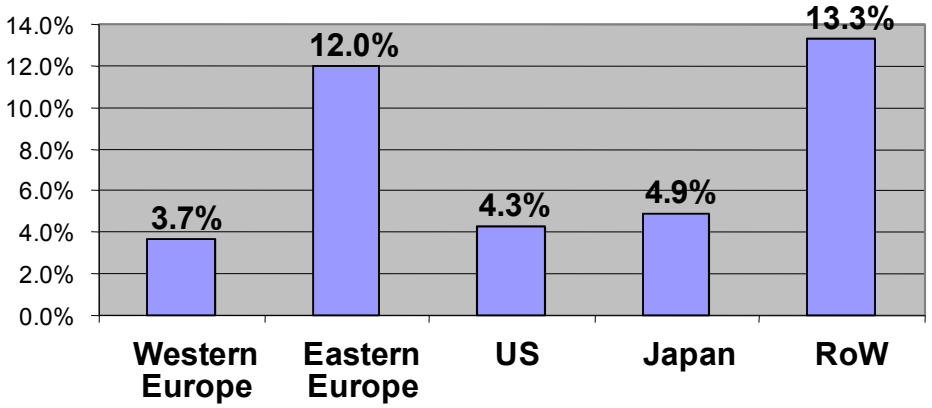

* No in-company SW and use

** No carrier services

European Software industry - status

- Tool and Packaged SW weak **(-)**
- OS, PC platform, standards and interoperability dominated by US industry **(-)**
- 70% SW development within secondary industry (telecom, automotive, aerospace, engineering, …) **(!)**
- Traditionally strong academic research, also in ACCS, but may be declining **(+/-)**
- Strong Free and Open Source SW Community **(+)**
- Emerging market for value added services **(+)**

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A strategy for competitiveness

Guiding Principle

Promote Openness and Interoperability at all levels

- Promote the creation of User-Supplier networks
- Encourage the development and use of F/OSS
- facilitate the emergence of lively service economies

User - Supplier Networks

- Use Europe's industrial strength in telecom, automotive, airospace, consumer electronics, etc.
- promote activities (e.g. IP, NoE, streps etc) aiming at building **collaboration** between secondary SW industry (e.g. large industrial users) and primary software industry (e.g. software, tools, COTS, component, service) supported by academic research, leading to **strong (often sectorial) user-supplier networks**
- support foundational research were appropriate through STREPs and CAs
- support complementarity and co-operation with relevant national and international programmes e.g. EUREKA/ITEA

Free and Open Source Software

- supports and contributes to open standards, formats and platforms
- stimulates competition in the software industry (e.g. by lowering entry barriers)
- accelerates development of eGovernment services

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Lets look back to the ...

Internet

- set of open and interoperable protocols and formats
- “exploded” when tools for easy creation and deployment of content became available.
- Large amount of content build by users “for fun”
- intelligence build at the edges

SMS

- originally foreseen for network maintenance
- incredible and absolutely unforeseen success despite a terrible user interface
- social phenomenon - sometimes facilitated by restrictions

Towards a lively service economy

Current Trends

- build-up of infrastructure and connectivity
- emerging market for mobile applications & services, software as a service

Problems / Issues

- track record on "killer applications" or successful new services
- build environment for yet unknown services and service types
- business models and role of existing players uncertain - new roles and players might emerge (e.g. service concentrators)
- the future has no lobby
- Assumptions can turn into restrictions (e.g. user = consumer)

Towards a lively service economy

Approach

- Large scales trials (and errors) needed in mass and niche markets
- Neutral in regard to technology and (!) business model (e.g. p2p)
- Low threshold to enter market (Industry, SMEs, Communities, Individuals)

through

- Low-cost and easy to use tools and platforms
- open and interoperable infrastructure and runtime environment (data formats, protocols, APIs, source)

Successful future services

Characteristics

- Simple to use with high perceived value
- Adaptive to situation and environment
- User in control - supportive “intelligence”
- Provided transparently through different infrastructures and devices
- ease of: development, (dynamic) composition, testing, deployment, life cycle management

Some challenges

- Interoperability / Standardisation / Innovation => Extensibility
- Multitude of Technologies, approaches, terminologies
- dynamic composition / extensibility
- Granularity and structure of composable “things” (components, protocols, formats)
- Intelligence / for what / how much / where
- …….

Further information on FP6 / IST

http://www.cordis.lu

http://www.cordis.lu/ist

http://www.cordis.lu/ist/fp6/fp6.htm

http://www.cordis.lu/ist/directorate_d/st-ds/index.htm

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