

FP7 INFSO Calls 1&2 - Challenge 3 Components, Systems, Engineering

Infoday - CDTI

Madrid, 12 February 2007

Isabel Vergara

Micro and Nanosystems

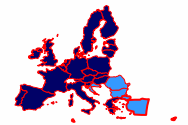
European Commission, Brussels

Presentation outline

- The 7th Framework Programme (2007-2013)
- ICT Work Programme 2007-08
- Challenge 3
- What's new in FP7 and Recommendations

The renewed Lisbon agenda

- Markets & Competition: Europe - A more attractive place to invest & work
 - Extend & deepen the internal market
 - Improve European and national regulation
 - Ensure open & competitive markets inside & outside Europe
 - Expand & improve European infrastructure



EU: Largest
knowledge-based
economy by 2010 ?

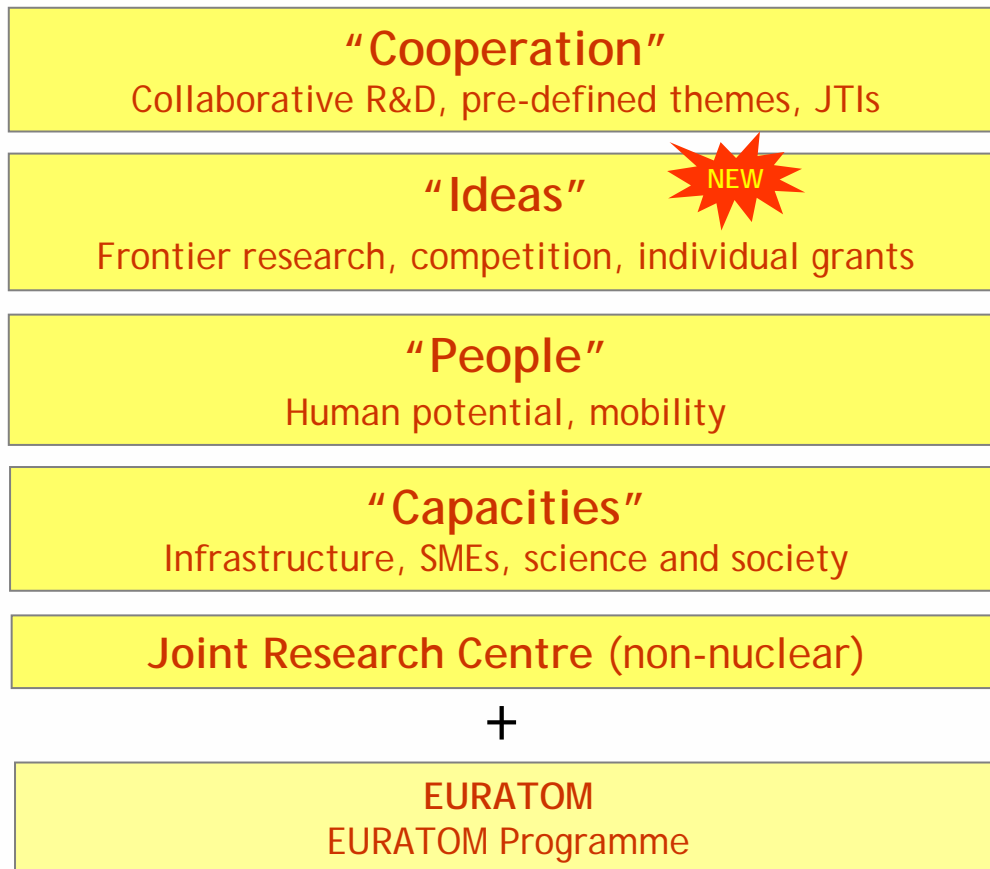
- Knowledge & innovation for growth
 - Increase & improve investment in R&D
 - Facilitate innovation & uptake of ICT & the sustainable use of resources
 - Contribute to a strong European industrial base
- Employment & Skills: Creating more & better jobs
 - Attract more people into employment & modernise social protection systems
 - Improve the adaptability of workers & enterprises & the flexibility of labour markets
 - Invest more in human capital through better education & skills

European Strategy for RTD and Innovation

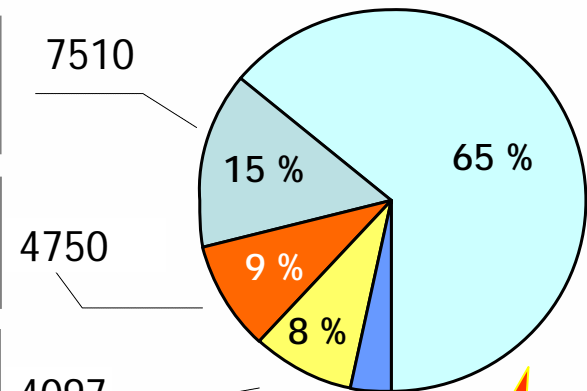
The implementation mechanisms

- European Research Area
“Internal market in research, restructure of research fabric, research policy”
- Framework Programme - IP, NoE, STREP, JTI,
“Master and shape RTD in ICT and related applications”
- Technology Platforms as a gateway to Strategic Research Agendas and Joint European Technology Initiatives
“Industry led Forum involving main public and private stakeholders (industry, research, finance, public bodies) to address technological and related challenges”
- CIP: Competitivity and Innovation Programme
“ICT policy support programme to ensure uptake and best use”
- National Programs, Regional Policies,
- EUREKA

FP7 Specific Programmes budget agreement (Nov 2006)



32413 EUR million



**Total
50521 EUR million
2007-2013**

FP7 Cooperation: Themes

*Budget [EUR million],
Council's compromise, Nov 2006*

1.	Health	6100
2.	Food, Agriculture & Biotechnology	1935
3.	Information & Communication Technologies	9050
4.	Nanosciences, Nanotechnologies, Materials & new Production Technologies	3475
5.	Energy	2350
6.	Environment (including Climate Change)	1890
7.	Transport (including Aeronautics)	4160
8.	Socio-Economic Sciences & the Humanities	623
9.	Space	1430
10.	Security	1400

Joint Technology Initiatives

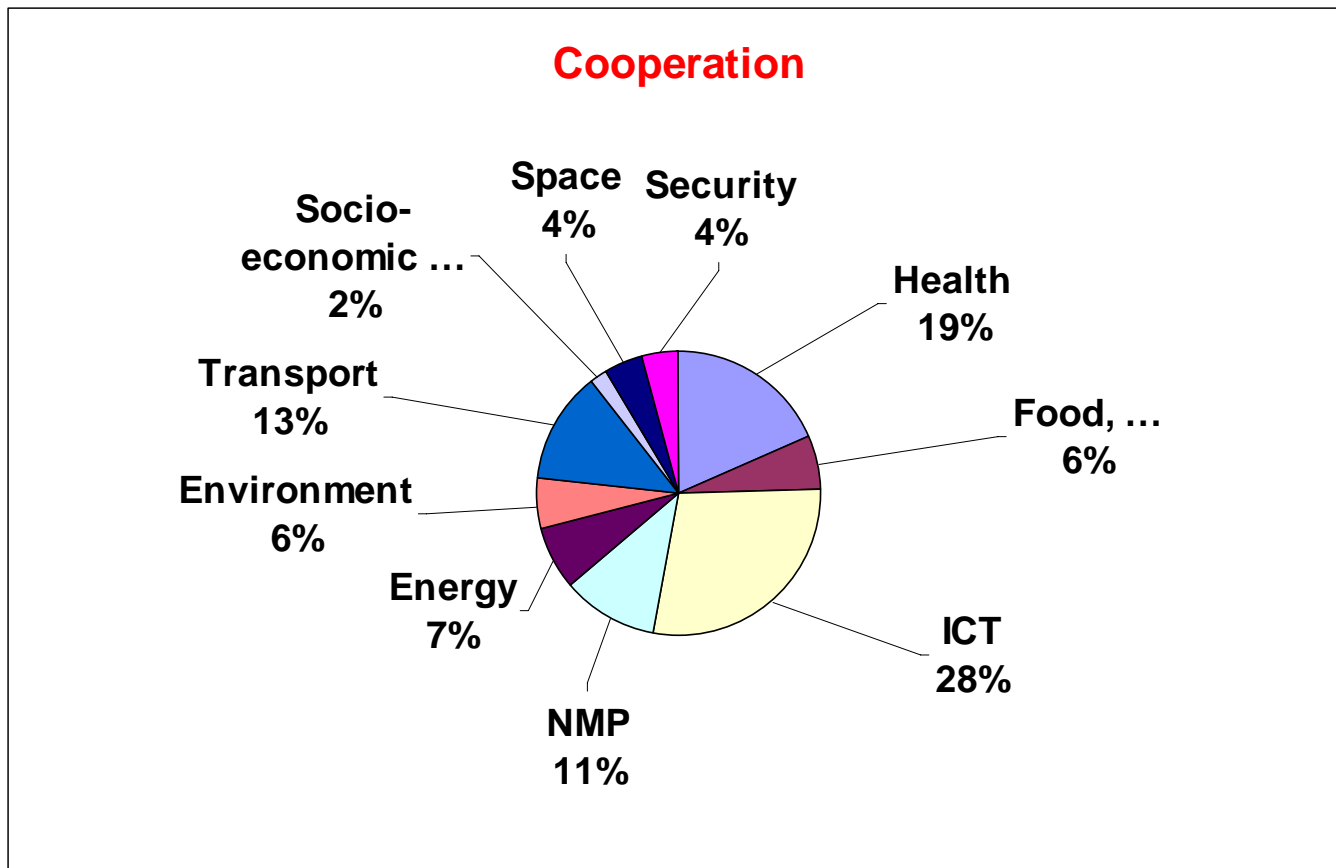
32413

... including

ERA-Nets

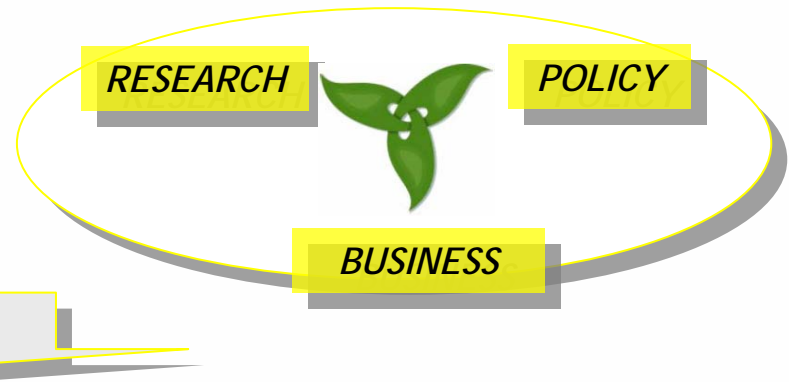
International Co-operation

FP7 Cooperation: Themes



European Technology Platforms

A spiral model of innovation capitalising on the multiple reciprocal relationships between public & private stakeholders at various knowledge stages



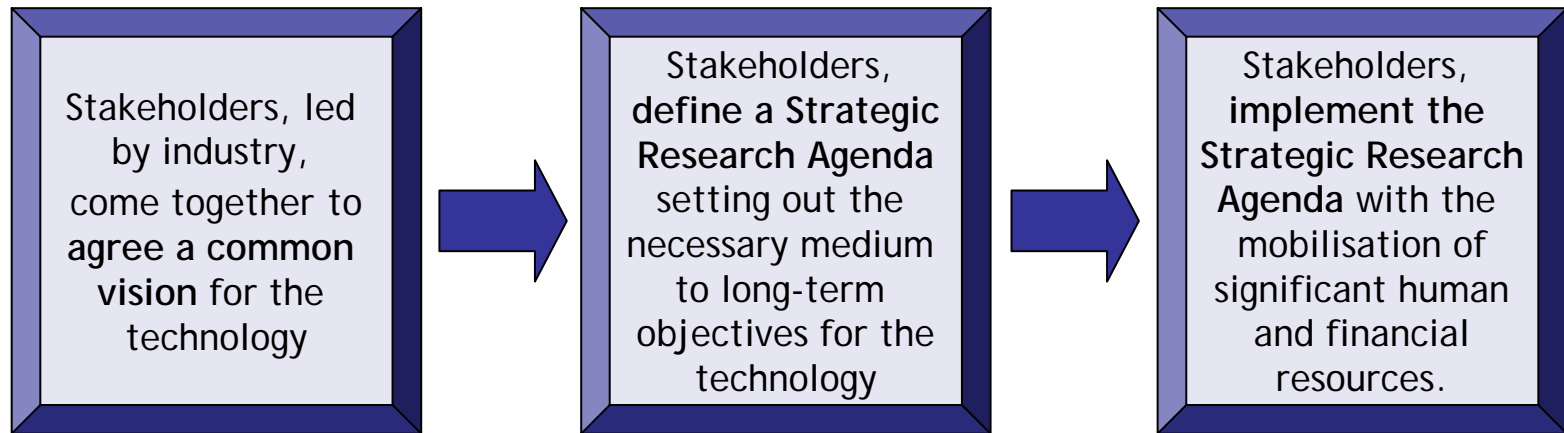
31 European Technology Platforms launched so far:

- Addressing major technological challenges in specific domains
- Aiming to leverage public & private investment for R&D & innovation
- Involving key R&D stakeholders
 - eg industry, the research community & public authorities
- Bundling fragmented R&D efforts towards agreed goals
 - Vision 2020 document & Strategic Research Agenda

cordis.europa.eu/technology-platforms

European Technology Platforms.

A staged approach



- Bottom-up process with keys stakeholders in a specific domain
- Key deliverable: Strategic vision document

- Co-ordinated by an Advisory Council
- Consensus-based
- Deployment strategy

- Through collaborative research in FP7 & with other resources, or
- Through a Joint Technology Initiative which integrates funding sources

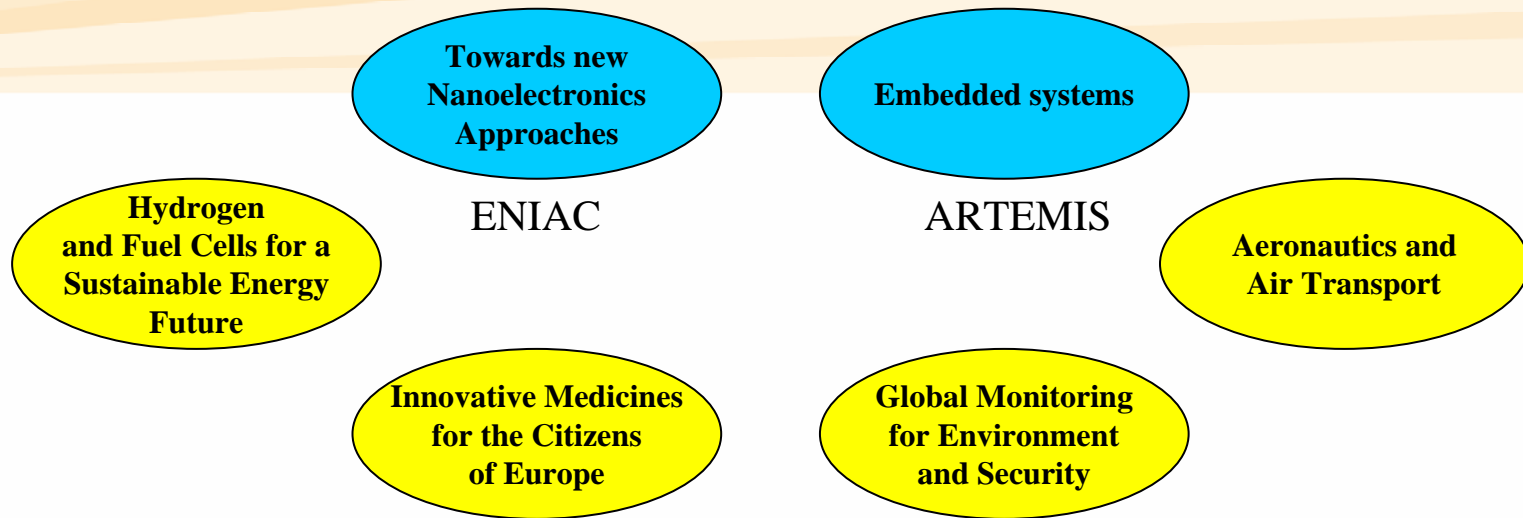
Joint Technology Initiatives (JTIs)

- Arising from *Technology Platforms*
- Scale and technical complexity necessitates building a critical mass of research and innovative effort
- Creating public/private partnerships to implement research agendas (Art. 171)
- Mobilisation of public and private funding sources
- Several European Technology Platforms have set up national platforms. In particular, these help to disseminate information and to overcome language barriers, both of which can facilitate the involvement of SMEs.

Article 171

“The Community may set up joint undertakings or any other structure necessary for the efficient execution of Community research, technological development and demonstration programmes.”

Joint Technology Initiatives (JTIs)



Other possible themes to be identified later...

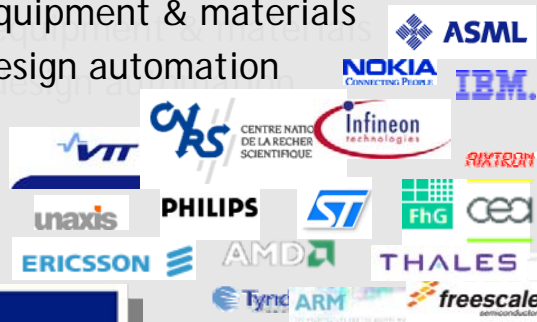
- Proposal for Council regulations on the setting up of JTIs is planned to be adopted by the Commission in March 2007.
- Council decision to be adopted in the second half of 2007 under Portuguese presidency.
- Launch of nanotechnology related JTIs (ENIAC, ARTEMIS, Nanomedicine) probably in November 2007 at the occasion of Conference on Nanotechnologies (Nov 2007, Braga)

Nanoelectronics & Embedded Systems Technology Platforms

Nanoelectronics:

addressing the needs of silicon-based technologies & beyond

- shrinking of CMOS logic & memory devices
- development of value-added functions for system-on-chip or system-in-package solutions
- equipment & materials
- design automation



eniad.eu

Embedded Computing Systems:

ubiquitous, interoperable & cost-effective embedded systems

- reference designs and architectures
- middleware for interoperability and seamless connectivity
- integrated design software tools for rapid development & prototyping



artemis-office.org

Technology Platform of Systems Integration: EPoSS

- **A multi-disciplinary endeavour:**
Combining optics, mechanics, electronics, fluidics, thermodynamics, chemistry, biology
- **Converging scientific disciplines:**
Looking at the overlapping areas between nano-, bio-, information & cognitive sciences
- **Multi-material integration:**
Semiconductors, polymers (plastics), ceramics, glass, ...
- **Multi-technology integration:**
Monolithic, hybrid, multichip, large-area, ... miniaturisation techniques
- **Multi-functional integration:**
Combining sensing, processing, actuating



Other ICT Technology Platforms

EUROP

www.roboticsplatform.com

To boost the development of robotics business & bring robotics services to Europe's citizens



www.nessi-europe.com

New software & services architecture based on open standards



www.emobility.eu.org

To reinforce Europe's world leadership in mobile & wireless communications & services



www.photonics21.de

To explore the almost limitless applications of light for ICT, lighting, manufacturing and health applications



www.nem-initiative.org

Convergence of existing and new media technologies creating advanced personalised services



www.isi-initiative.eu.org

An integral Satcom initiative covering all aspects of satellite communications



Presentation outline

- The 7th Framework Programme (2007-2013)
- ICT Work Programme 2007-08
- Challenge 3
- What's new in FP7 and Recommendations

WP Input and Consultations

- FP, SP and RfP
 - Policy and research priorities
- Detailed Consultations/Workshops
 - Consultation WS on Micro-Nano-Biosystems. Future R&D and New Challenges. Brussels, 3 May 2006
 - IST Workshop contributing to future Framework Programme VII. Brussels, Tuesday May 30th, 2006
- ETPs Strategic Research Agendas
 - Photonics21
 - EPOSS
 - ENIAC
 - ARTEMIS
- ISTAG reports
 - General orientations

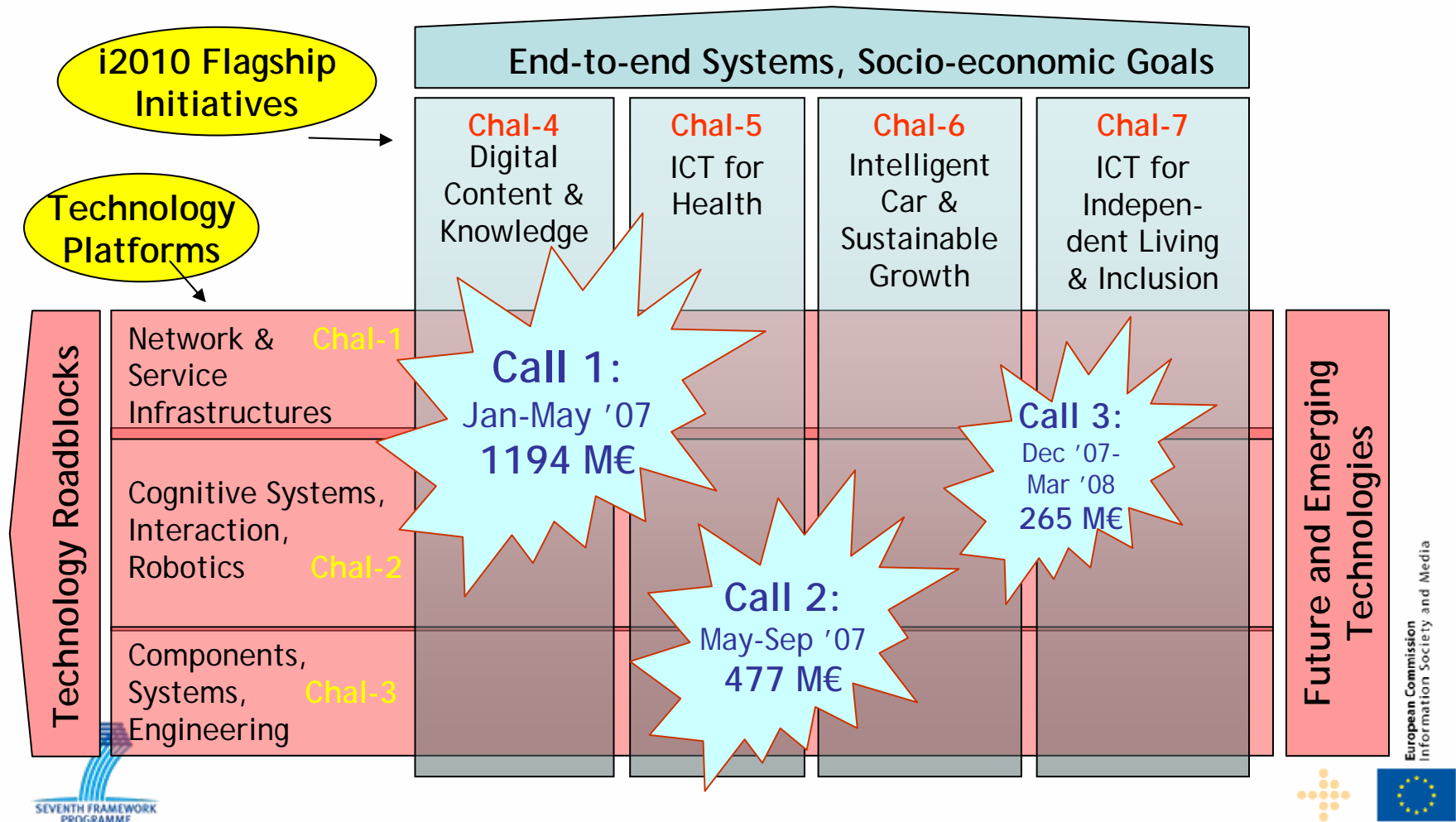
WP Main Objectives and Structure

- A WP structured around a limited set of “Challenges” that should be addressed if Europe is to be among the world leaders in next generation ICT and their applications.
- A Challenge is
 - Focused on concrete goals that require effort at Community level and where collaboration is needed
 - Ambitious and strategic proposing a European vision on ICT for the next 10 to 15 years
 - Described in terms of achievements to reach and not in terms of means to realise achievements
 - A set of research objectives will be called for in 2007. For each objective, the WP defines the target outcome and its expected impact on the European economy and society.

ICT Challenges

- 3 ICT **Technology challenges** for European industry to be among the leaders in IST in the next ten years. Identified with the help of ETPs in ICT:
 - Converged communication and service infrastructure
 - More robust, context-aware and easy-to-use ICT systems
 - Increasingly smaller, cheaper and more reliable electronic components and systems
- 4 ICT Challenges driven by **socio-economic goals**, in line with the flagship initiatives of i2010
 - Digital libraries, knowledge and content development tools and applications
 - Sustainable health systems
 - Intelligent and safe cars and technologies for sustainable growth
 - Inclusion and independent living

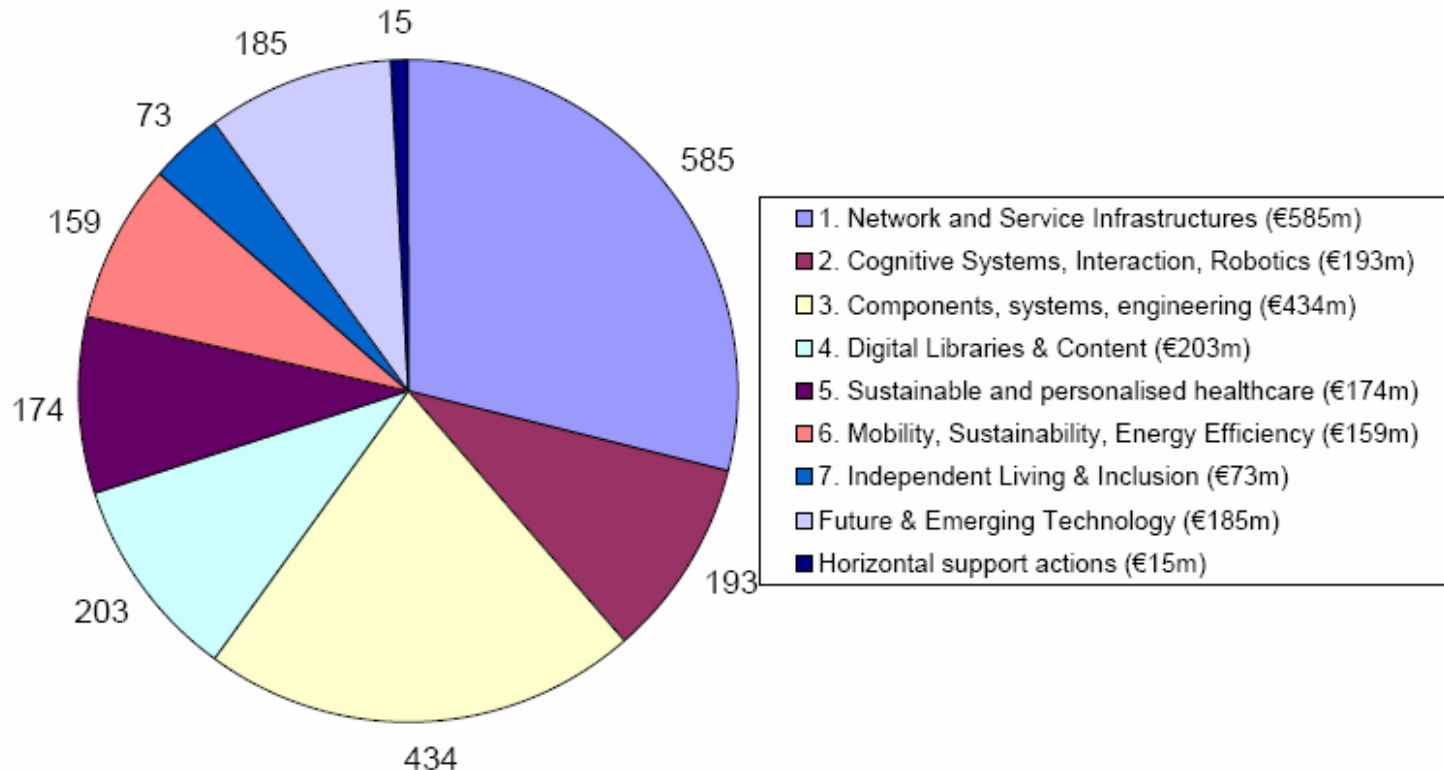
ICT Work Programme 2007-08



ICT Workprogramme: Budget breakdown

BUDGET BREAKDOWN, 2007-2008 (DRAFT)

(mid November, 2006)



The ICT Theme's budget for the first two years of FP7 will be just over €2 billion.
The e-Infrastructures budget (not shown) is an additional ~€600m over the entire Framework Programme. All figures are draft, and are in millions of euros.

Presentation outline

- The 7th Framework Programme (2007-2013)
- ICT Work Programme 2007-08
- **Challenge 3**
- What's new in FP7 and Recommendations

Challenge 3: Components, Systems, Engineering

To enable Europe's industry to stay at the forefront of electronics developments & applications through chip making, integration & embedded systems capabilities



www.eniac.eu

www.artemis-office.org



www.smart-systems-integration.org



www.photonics21.de

R&D objectives are in line with Strategic Research Agendas of European Technology Platforms & support international co-operation under the Intelligent Manufacturing Systems initiative



cordis.europa.eu/ims

Challenge 3: Components, Systems, Engineering

Objectives

Call 1

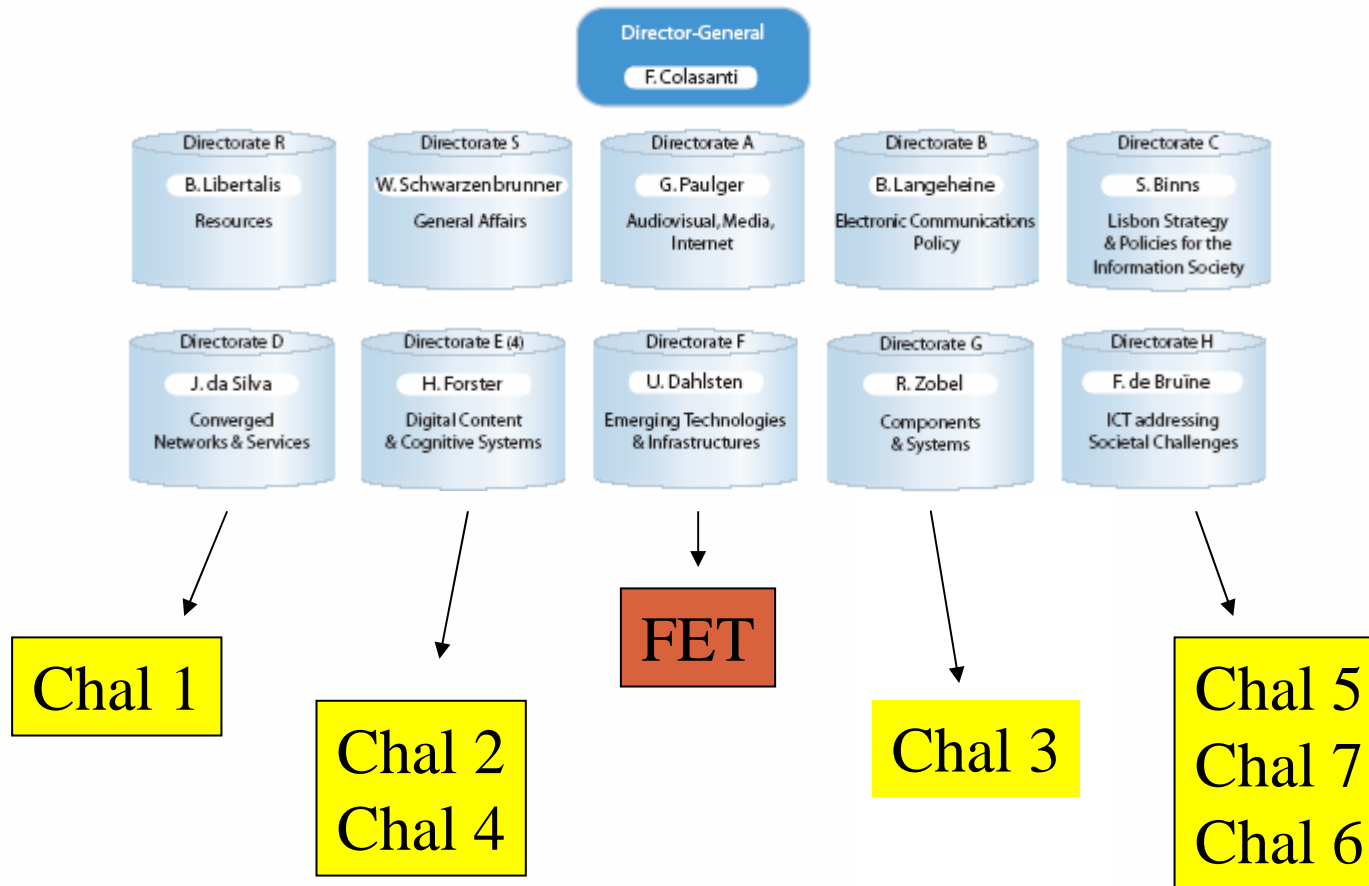
- IST-2007.3.1: Next generation nanoelectronics components and electronics integration
- IST-2007.3.2: Organic and large area electronics and displays
- IST-2007.3.3: Embedded systems design
- IST-2007.3.4: Computing systems

Call 2

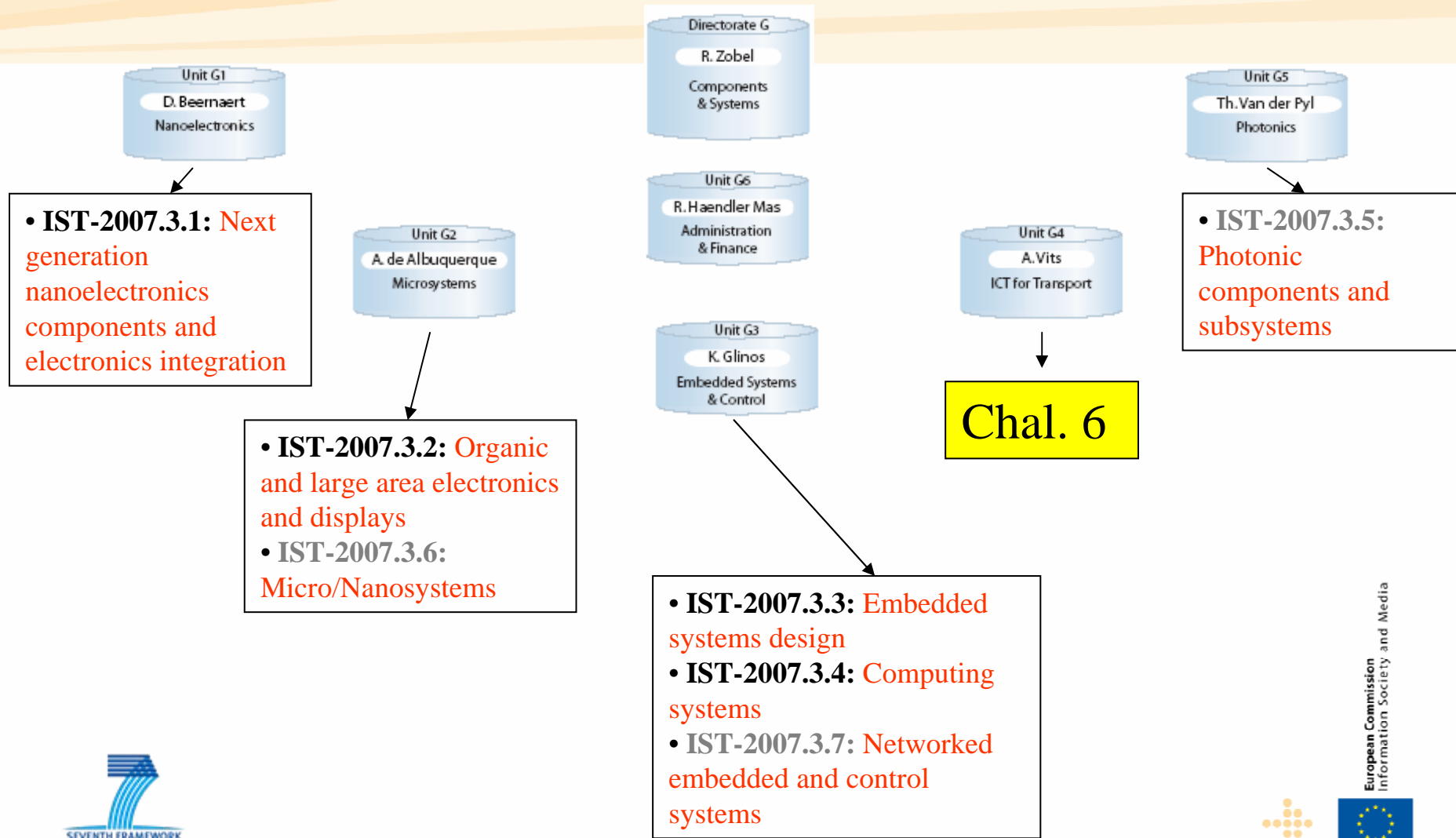
- IST-2007.3.5: Photonic components and subsystems
- IST-2007.3.6: Micro/Nanosystems
- IST-2007.3.7: Networked embedded and control systems

FP7 in DG INFSO

Information Society and Media Directorate-General



Challenge 3 in Directorate G



IST-2007.3.1: Next-Generation Nanoelectronics Components & Electronics Integration

❖ Smaller, higher performance, lower cost:

- “More Moore”
- Beyond CMOS

❖ Integration & diversification:

- SoC: Systems-on-Chip
- SiP: Systems-in-Package

Technology

materials, processes, metrology, interconnects, modelling, packaging, architectures

Design

increased complexity, changed performance, heterogeneity in SiP & SoC, productivity & “Design for Manufacturing”

Manufacturing

Cost-efficient, flexible production for silicon < 45 nm; for SoC & SiP; 450 mm wafer size; small batch/fast cycle time; equipment assessment

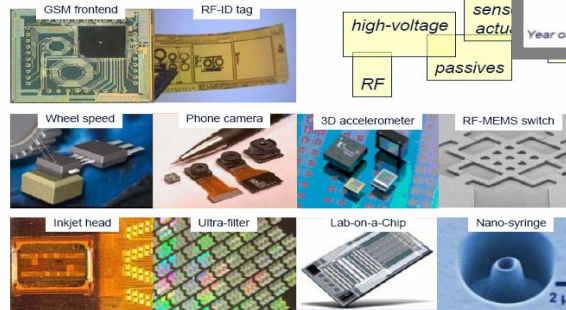
Call 1 86 M€(*)

70 M€ CP (min 27 M€ IPs and 21 M€ STREPs)

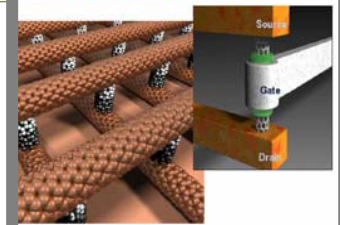
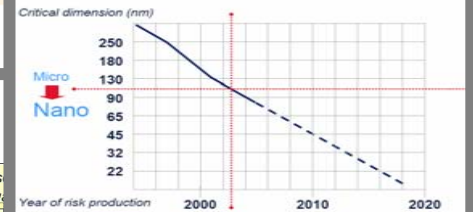
8 M€ NoE

8 M€ CSA

More than Moore: Heterogeneous technologies



More Moore: Baseline CMOS technology roadmap



(*) Total amounts to be confirmed after a new financing decision for the 2008 budget

IST-2007.3.1: Next-Generation Nanoelectronics Components & Electronics Integration

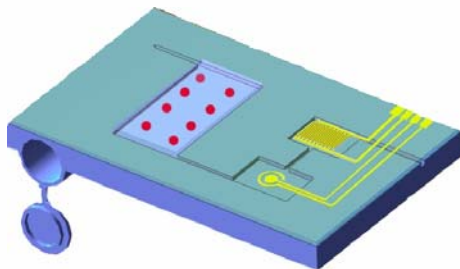
Further Information & Contact

- Dirk.Beernaert@ec.europa.eu
- Gisele.Roesems@ec.europa.eu
- Georg.Kelm@ec.europa.eu
- Andrej.Litwin@ec.europa.eu
- Michel.Hordies@ec.europa.eu
- Jean-Francois.Buggenhout@ec.europa.eu

IST-2007.3.2: Organic & Large-Area Electronics & Display Systems

a) Organic & large-area electronics

Lab on foil system



Courtesy of Fraunhofer IZM

RF-ID tag



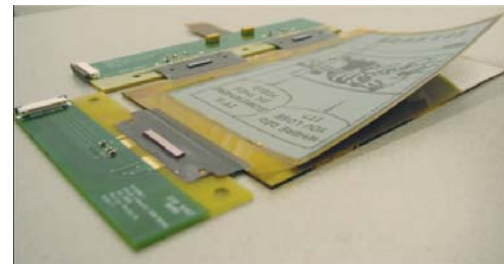
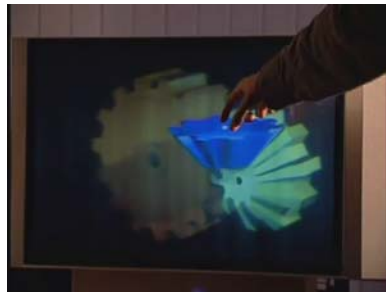
Courtesy of Philips

Large area processing



Courtesy of Fraunhofer IZM

b) Visualisation & display systems



Call 1 63 M€(*)

57 M€ CP (min 14 M€ IPs and 22 M€ STREPs)

3 M€ NoE

3 M€ CSA

(*) Total amounts to be confirmed after a new financing decision for the 2008 budget



European Commission
Information Society and Media

IST-2007.3.2 (a): Organic & Large-Area Electronics

Expected Outcome

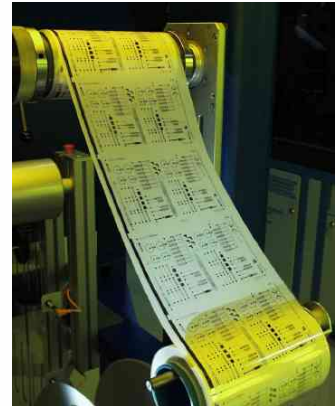
Large area technologies for new manufacturing paradigms enabling system in foil integration and low costs applications

Technology areas

- Additive / printable processes & corresponding equipment & materials
- Flexible interconnects and device encapsulation
- device architecture and characterisation
- Device modelling and circuit design

Enabling Functionalities

- Logic, memory, RF
- Sensing, Photovoltaic
- Organic Light Emitting Diodes
- energy scavenging/storage & power management



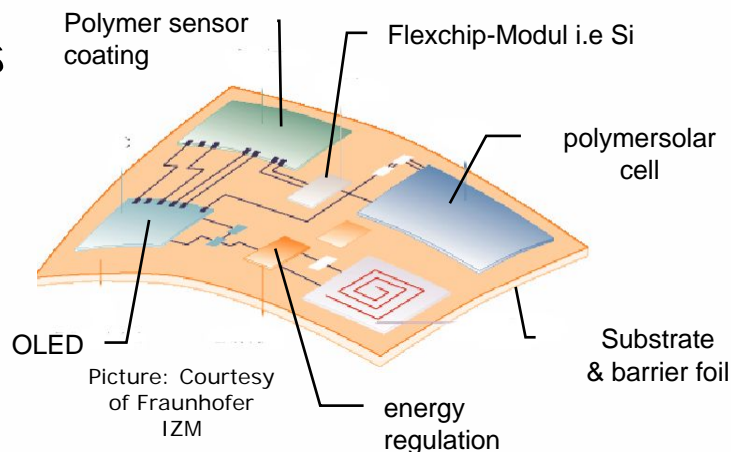
IST-2007.3.2 (a): Organic & Large-Area Electronics

Expected applications

- e-paper, flexible displays
- smart tags, RFIDs
- Intelligent lighting
- Bio-sensors, lab on chip
- System in foil
- Sheet PVs & batteries

Support measures

- Access to competence & infrastructures
- Training & education
- Joint users assessment of prototype equipment
- Develop synergies between the electronic, equipment, material & printing industries



Picture: Courtesy of Plastic Logic Ltd

IST-2007.3.2 (b): Visualisation & display Systems

Expected Outcome

- 3-D: Unrestricted visualisation, natural scene acquisition & representation
- User interaction
- Extended performance, novel technologies
- display systems for next generation portable applications



Areas of activity

- Multi-viewer, pseudo-holographic 3D displays, 3D signal acquisition and processing
- Extended colour & brightness space
- Zero-power, foldable/transparent, virtual displays, μ -projectors



IST-2007.3.2: Organic & Large-Area Electronics & Display Systems

Further Information & Contact

- Thomas.Reibe@ec.europa.eu
- Marc.Boukerche@ec.europa.eu

IST-2007.3.3: Embedded Systems Design

- Target outcomes

- Theory & methods for system design
 - Key issues: heterogeneity, composability, predictability & adaptivity
 - International cooperation is encouraged
- Suites of interoperable design tools for rapid design & prototyping
 - Research will contribute to interoperability of tools from SME , ' consolidating tool developers' joint R&D work; pen tool frameworks
- Coordination of national, regional and EU-wide R&D programmes

- Expected impact

- Increase system development productivity (at least 1 order of magnitude)
- Stimulate growth of European high-tech companies in the field
- Reinforce S&T leadership in complex systems engineering

Call 1 40 M€(*)

34 M€ CP (min 5 M€ IPs and 19 M€ STREPs)

4.5 M€ NoE

1.5 M€ CSA

(*) Total amounts to be confirmed after a new financing decision for the 2008 budget



IST-2007.3.3: Embedded Systems Design

Further Information & Contact

Embedded Systems:

<http://www.cordis.lu/ist/embedded>

Info Day Embedded Systems on 7 March 2007 in Brussels:

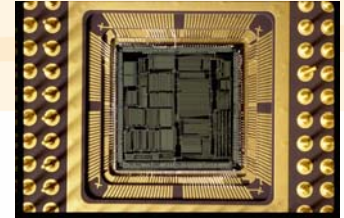
http://cordis.europa.eu/ist/embedded/news_events.htm

E-Mail : tom.clausen@ec.europa.eu
 philippe.reynaert@ec.europa.eu

IST-2007.3.4: Computing systems

- Target outcomes

- Novel architectures for multi-core computing systems
 - Architectures & system software for scalable & customisable on-chip computing systems incorporating multiple networked, symmetric or heterogeneous, fixed or reconfigurable processing elements
 - Key issues: power & performance versatility; reliability & availability
- Reference architectures for generic embedded platforms
 - Key issues: composability, networking, robustness/security, diagnosis/maintainability, resource management, evolvability & self-organisation



- Expected impact

- Inexpensive generic platforms with high European added value enabling European supplier companies to increase market share
- Develop European competences in the use of high-end computing for the development of new applications
- European excellence in computing architectures, system software & platforms

Call 1 25 M€(*)
20 M€ CP (only STREPs)
5 M€ NoE

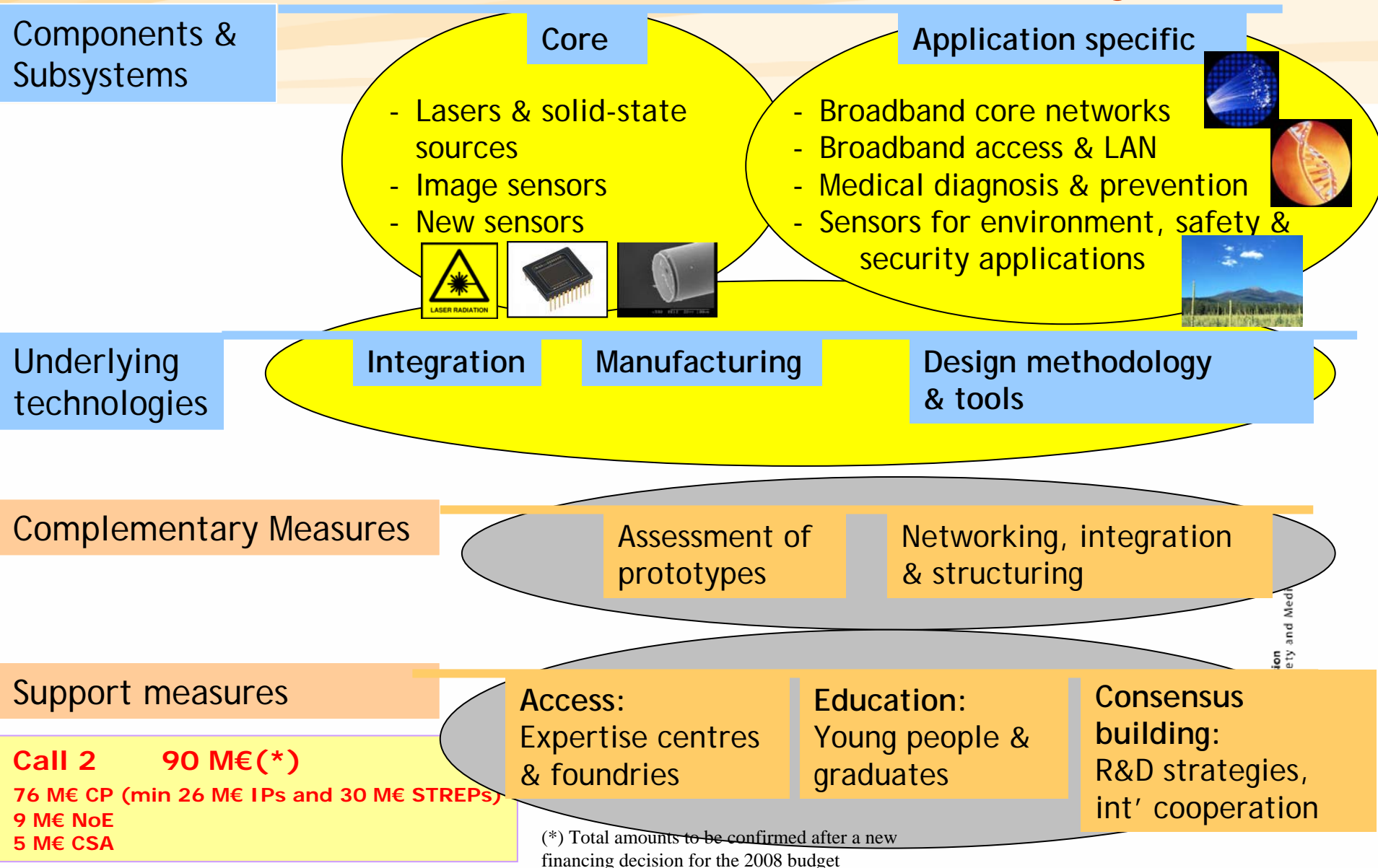
(*) Total amounts to be confirmed after a new financing decision for the 2008 budget

IST-2007.3.4: Computing systems

Further Information & Contact

- Computing Systems:
- <http://cordis.europa.eu/ist/embedded/computing.htm>
- Info-day: 7 March 2007, Brussels
- http://cordis.europa.eu/ist/embedded/news_events.htm
- Email
 - Panagiotis.Tsarchopoulos@ec.europa.eu
 - Merce.Griera-i-Fisa@ec.europa.eu

IST-2007.3.5: Photonic Components & Subsystems



IST-2007.3.5: Photonic Components & Subsystems

Expected Impact

- Leading position of European industry in high value photonic products
- New photonic based applications
- (with emphasis on communications, health, well-being, environment, safety and security)
- Continued European leadership in photonics RTD
- (securing the necessary human resources and knowledge to design, produce and use new generations of photonic components)

IST-2007.3.5: Photonic Components & Subsystems

Contact points for

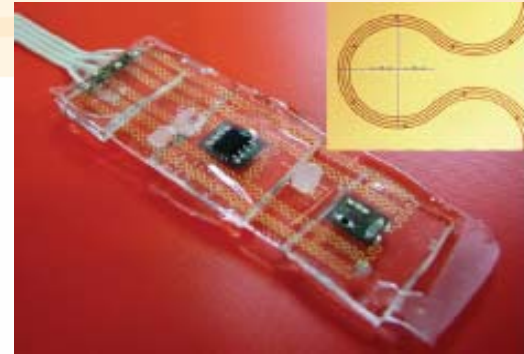
“Photonic components and subsystems”
in ICT call 2:

Michael.Hohenbichler@ec.europa.eu

Ronan.Burgess@ec.europa.eu

IST-2007.3.6: Micro/Nanosystems

- Next generation smart systems
Sensor- & actuator-based systems
High density mass storage
- Micro/Nano-Bio-ICT convergence
Biosensors, lab-on-a-chip, bioMEMS,
autonomous implants
- Integration of smart materials
Integration of micro-nano technologies and smart systems into new & traditional materials, e.g. textiles, glass, paper
- From smart systems to viable products
Microsystems manufacturing technologies
- Smart systems for communications & data management
Smart micro/nanosystems enabling wireless access & facilitating intelligent networking
- Support actions
Technology access, education & training, coordination & dissemination at EU level



Courtesy STELLA

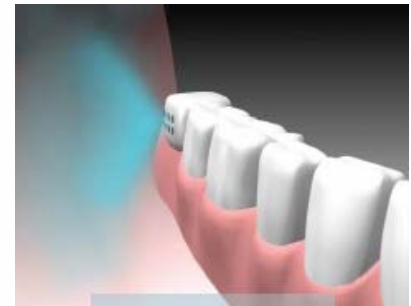
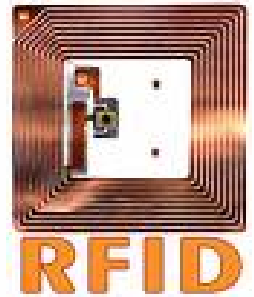


Image courtesy of project INTELLIDRUG
Courtesy INTELLIDRUG

Call 2 83 M€(*)

75 M€ CP (min 20 M€ IPs and 32 M€ STREPs)

4 M€ NoE

4 M€ CSA

(*) Total amounts to be confirmed after a new financing decision for the 2008 budget

IST-2007.3.6: Micro/Nanosystems

Micro & Nanosystems:

<http://cordis.europa.eu/ist/mnd/>

Contact:

Isabel.vergara-ogando@ec.europa.eu

Francisco.Ibanez@ec.europa.eu

Thomas.Sommer@ec.europa.eu

IST-2007.3.7: Networked Embedded & Control Systems

- Target outcomes

- Middleware platforms for embedded systems
 - Key issues: composability, minimum power consumption, openness
 - Emphasis: programmability, reconfiguration, privacy & trust
- Cooperating objects and Wireless Sensor Networks
 - Spontaneous cooperation of objects in spatial proximity
 - Emphasis on new methods & algorithms, hardware/software platforms for distributed execution & programming & tools for self-organising systems
- Control of large-scale complex distributed systems
 - Key issues: efficiency, robustness, safety, security
 - Applications: manufacturing plants, infrastructures



- Expected impact

- Enable entirely new services & applications
- Make large infrastructures more efficient, flexible & productive
- 100% plant availability, reduce maintenance & accidents

Call 2 47 M€(*)

41 M€ CP (only STREPs)

4 M€ NoE

2 M€ CSA

(*) Total amounts to be confirmed after a new financing decision for the 2008 budget



IST-2007.3.7: Networked Embedded & Control Systems

Further Information & Contact

Info-day: 22-23 May 2007, Brussels

http://cordis.europa.eu/ist/embedded/news_events.htm

Email

Alkis.Konstantellos@ec.europa.eu

Merce.Griera-i-Fisa@ec.europa.eu

Rolf.Riemenschneider@ec.europa.eu

Presentation outline

- The 7th Framework Programme (2007-2013)
- ICT Work Programme 2007-08
- Challenge 3
- What's new in FP7 and Recommendations

What's New in 7FP?

- “Contract” becomes “Grant agreement”
- **One cost reporting model**: Participants can charge all their direct and indirect costs and have the option of a flat rate (20%) for indirect costs. For non profit Public Bodies, SHE, Research organisations and SMEs unable to identify real indirect costs, option of flat rate of 60% for funding schemes with RTD
- The **Community financial contribution**:
 - R&T activities: maximum of 50% of eligible costs, except for:
 - Public Bodies, SHE, Research organisations, SMEs: 75%
 - Demonstration activities: 50% of eligible costs
 - Other activities, including management: 100%
 - Coordination and support actions: 100%
 - Frontier research: 100% for all entities.

What's New in 7FP?

- No financial collective responsibility: a **guarantee fund** is introduced to cover the financial risk of a participant's failure
- Min. 3 indep. part. from 3 MS or AC
- Support actions: min.1 part.
- 3 **evaluation criteria**: S&T quality, Impact, Implementation

Recommendations

- Build a good and complementary consortium (avoid overlapping of expertise)
- Chose the appropriate instrument for your proposal.
- Get familiar with the evaluation process (3 criteria)
- Proposal needs to be in scope of the topics or funding schemes as set out in the workprogramme
- Be aware of the expected impact of the objective of your proposal

When writing your proposal....1

Divide your effort over the evaluation criteria

- Many proposers concentrate on the scientific element, but lose marks on project implementation or impact description

Think of the finishing touches which signal quality work:

- clear language
- well-organised contents, following the Part B structure
- useful and understandable diagrams
- no typos, no inconsistencies, no obvious paste-ins, no numbers which don't add up, no missing pages ...

When writing your proposal....2

Make it *easy* for the evaluators to give you high marks.
Don't make it hard for them!

- Make sure you submit the latest, complete version of your proposal
- Don't write too little; cover what is requested
- Don't write too much
- Don't leave them to figure out why it's good, tell them why it's good
- Leave nothing to the imagination

Getting help with your proposal

The ICT theme supports

- Information days and briefings in Brussels and elsewhere
- Partner search facilities
 - http://cordis.europa.eu/fp7/ict/participating/partner_en.html
- A supporting website of advice, information and documentation
 - <http://cordis.europa.eu/fp7/ict/>
- A Helpdesk for proposers' questions, reachable by email or phone (and a Helpdesk for electronic proposal submission)
 - ict@ec.europa.eu
- Global FP7 webpage: <http://cordis.europa.eu/fp7/>

And a network of National Contact Points in Europe and beyond:

http://cordis.europa.eu/fp7/ncp_en.html

- New calls for experts for FP7
(open since December 2006)
 - to individuals
 - to organization
 - <https://cordis.europa.eu/emmfp7/>
- Current FP6 experts have been invited to transfer to FP7*
 - with a request to update their information

(*if your email address is up-to-date!)

For more information

European research on the web:

<http://cordis.europa.eu>

<http://cordis.europa.eu/fp7>

<http://ec.europa.eu/comm/research/future/>

Information Society and Media:

http://ec.europa.eu/information_society/

<http://cordis.europa.eu/ist>

Directorate G:

http://cordis.europa.eu/ist/directorate_g

Contact:

Isabel.vergara-ogando@ec.europa.eu