



Information Society
Technologies



European Commission

Towards Ubiquitous and Unlimited Capacity Communication Networks

European Research in Framework Programme 7

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European Commission

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Contents

- **Lisbon Strategy and ICT Policy**
- **Mobile Broadband Communication**
- **Broadband for All**
- **Current Project Portfolio in FP6**
- **Outlook to FP7**



From eEurope to i2010

- From a detailed action plan to a **strategic framework** to
 - *Reinforce the contribution of ICT to Europe's performance...*
 - *Creating a favourable environment for competitiveness and growth...*
 - *Increase the welfare of European citizens through increased use of ICT...*
- **Broadened scope:** all electronic communications, services and media sectors, investment in research, inclusiveness and public services, **widespread availability of broadband access at competitive prices**
- **Link to the Lisbon strategy**, stating objectives and benchmarking performance, role for each stakeholder



i2010: Three priorities (3 I's)



- **A Single European Information Space**

- i. The completion of a **Single European Information Space** which promotes an open and competitive internal market for information society and media

- **Innovation and investment in research**

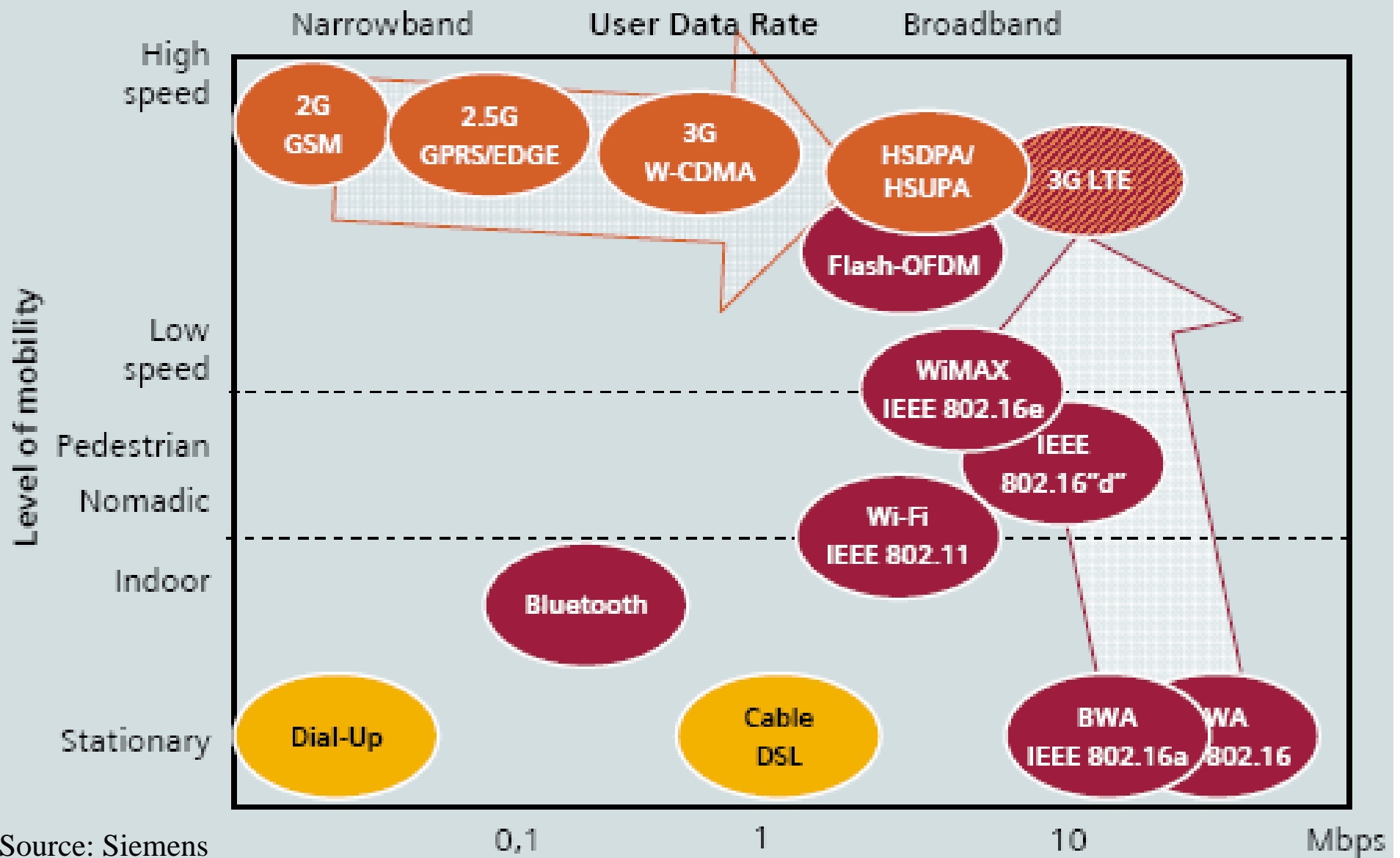
- ii. Strengthening **Innovation and Investment** in ICT research to promote growth and more and better jobs

- **Inclusion, better public services and quality of life**

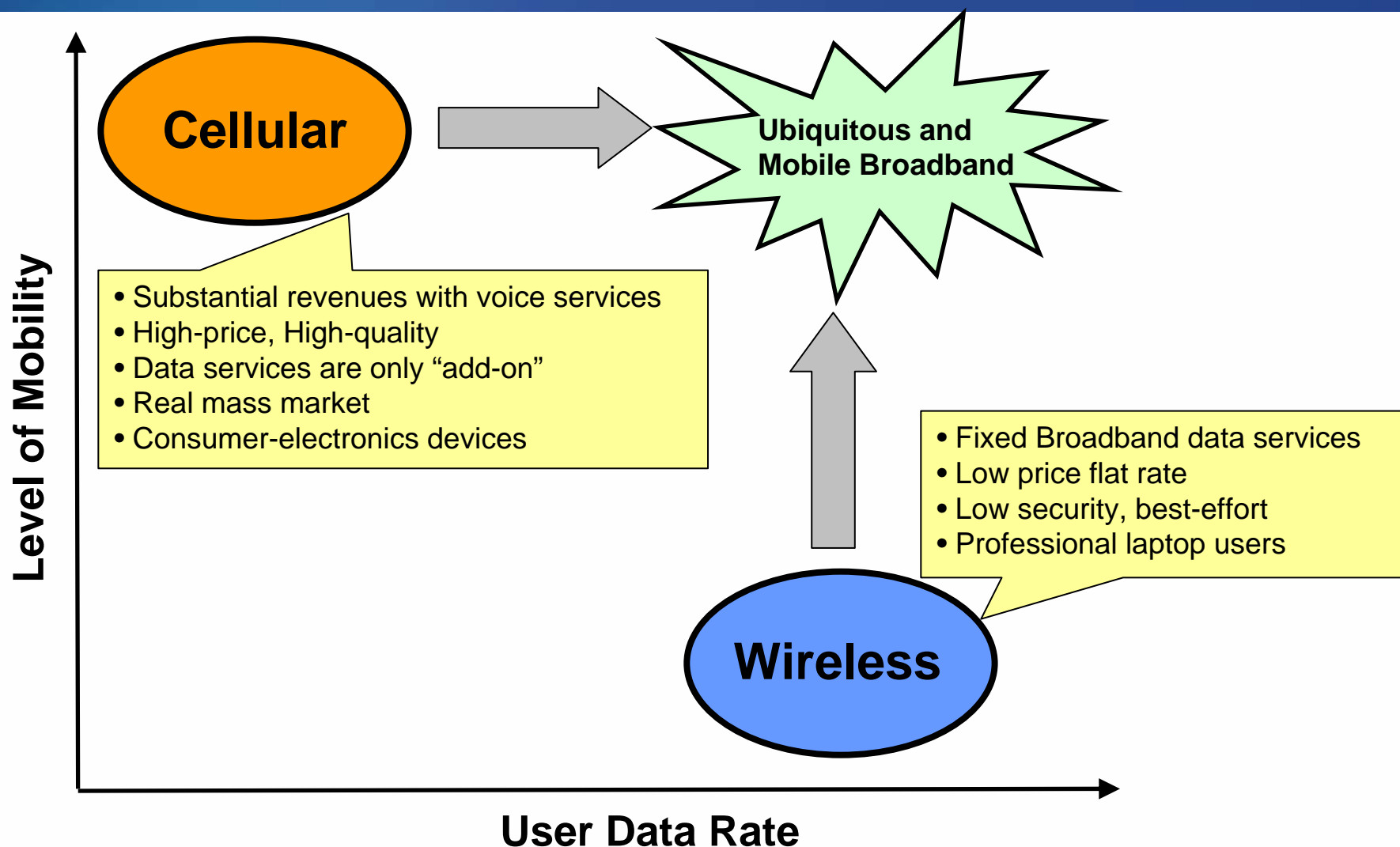
- iii. Achieving an **Inclusive European Information Society** that promotes growth and jobs in a manner that is consistent with sustainable development and that prioritises better public services and quality of life



Mobile Technology Evolution



Mobile Broadband - Clash of Telco and IT Worlds?



Broadband in Europe

- **Rapid growth of broadband** connections throughout Europe has been the most positive development in the telecoms sector in 2003-2005.
- Broadband penetration rate at the end of 2005 estimated at **13% of population** or about **25% of households**, reaching almost 60 million lines throughout the EU (growth rate 70% !)
- In 2005, broadband was **available to about 60%** of businesses and households in the remote and rural areas of the EU15, and to more than **90% in the urban areas**
- DSL is the most widely deployed (80% of subscribers) and fastest growing platform, followed by cable.
- Other broadband access technologies (fibre, PLC, WiMAX, satellite, etc.) are still in the early stages, with as yet few subscribers.
- Triple-(Quadruple-) Play will drive development of next generation of higher-speed broadband.
- But growth is not uniform across the Union and there are still wide **disparities in broadband penetration rates between Member States**.
- **Europe is lagging behind Asia-Pacific**, in some respects.

DSL: Digital Subscriber Line

PLC: Power Line Communications



Broadband Policy in Europe

decrease the Digital Divide

- Increase broadband **coverage**, also in rural areas
- Increase **take-up** by increasing **propensity to subscribe** in rural areas and universal
- **Optimal mix of technologies** (depending on local topography and population density)
- **Government intervention** may accelerate deployment but needs to be cautious (best when carried out at **local level**)
- National broadband strategies important policy means to stimulate roll-out



FP6 Activities: Mobile and Wireless Systems beyond 3G

- Ensure technology leadership for the **next-generation mobile broadband air interface**
 - after the world-dominating European standards GSM and UMTS
- **Develop “Ambient Networks”**
 - By integrating local, cellular and broadcast access networks,
 - Developing new architectures for Sensors, Personal and short range networks
- Enable the **take-up of UMTS services on the European market**
 - UMTS+ : providing higher-speed data and better spectrum-efficiency technologies
 - enabling service providers to create innovative and interoperable mobile services and multimedia content for the user

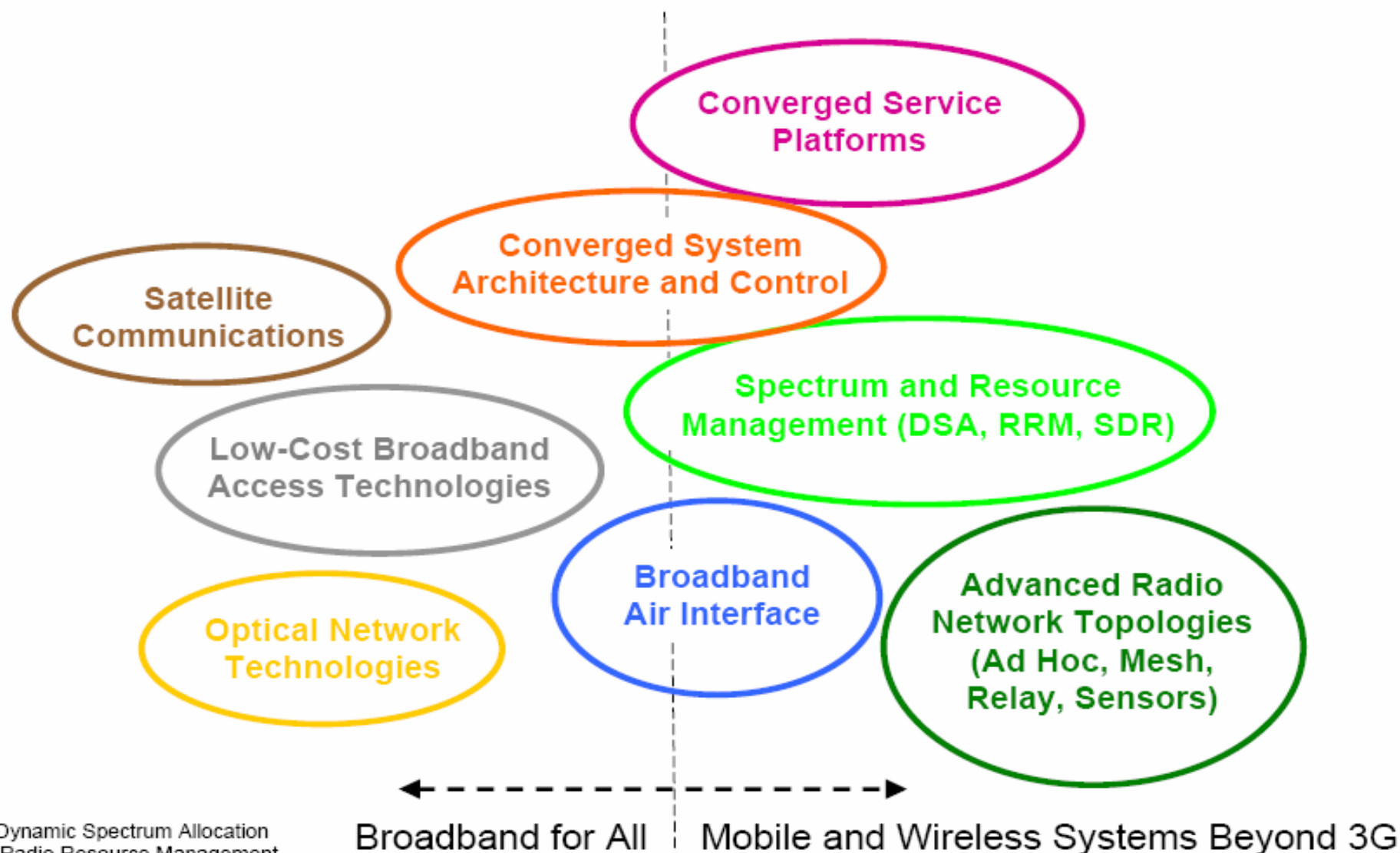


FP6 Activities: Broadband for All

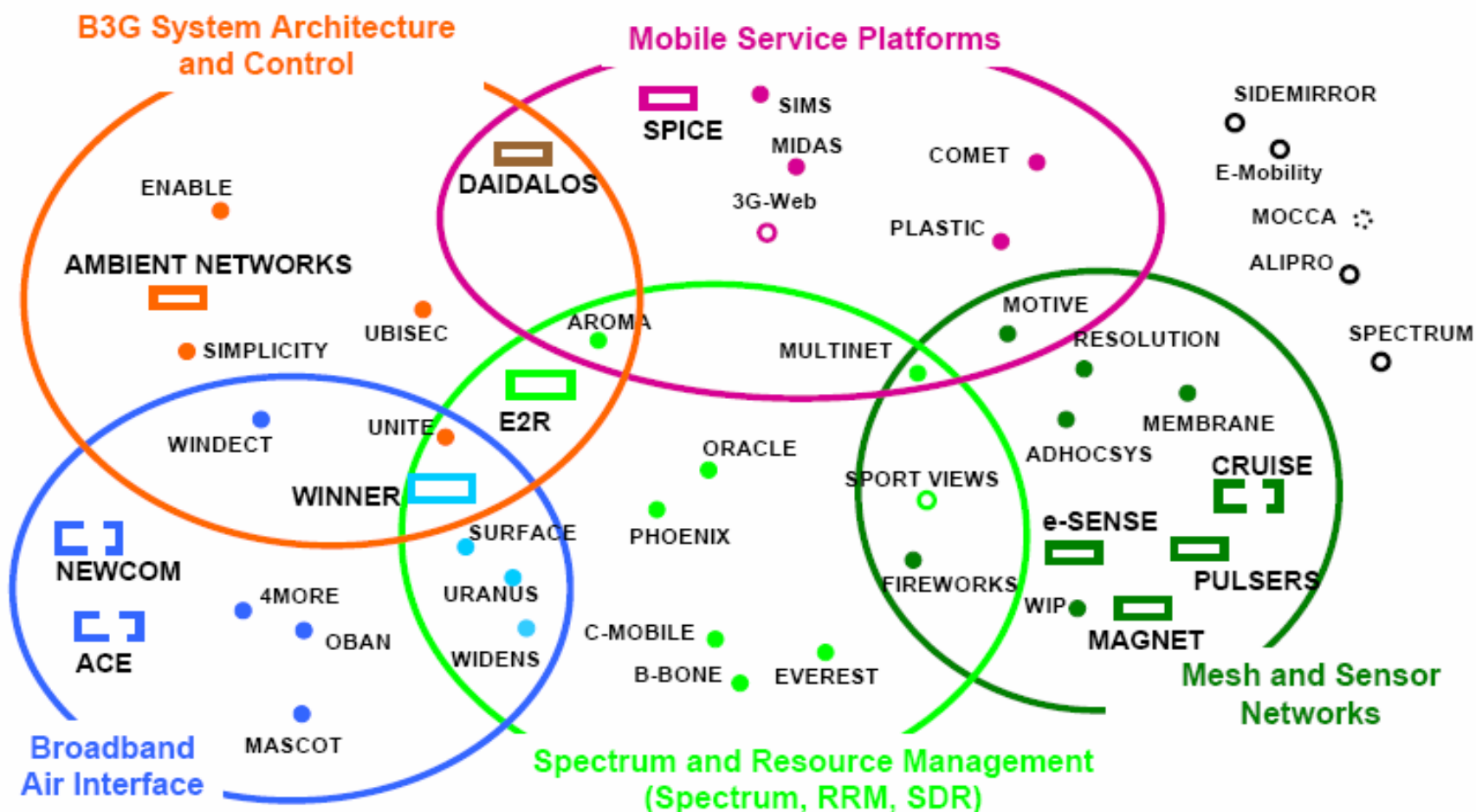
- **Optical technologies offer unlimited transmission bandwidth ($n \times 10\text{Gbit/s}$) in the core**
 - EU industry is leader supported by Academic excellence.
 - Optical switching and full deployment is coming soon.
- **Low cost access for all**
 - Development of full range of access technologies (DSL, radio, satcom, etc..) including alternative solutions like powerline.
 - Tackle digital divide (ex: rural, NMS..)
- **Network convergence**
 - Integration of networks
 - IP is deployed everywhere to offer Internet, voice, video



Portfolio Mobile and Broadband



Project Portfolio - Mobile



Instruments :

Integrated Project (IP)

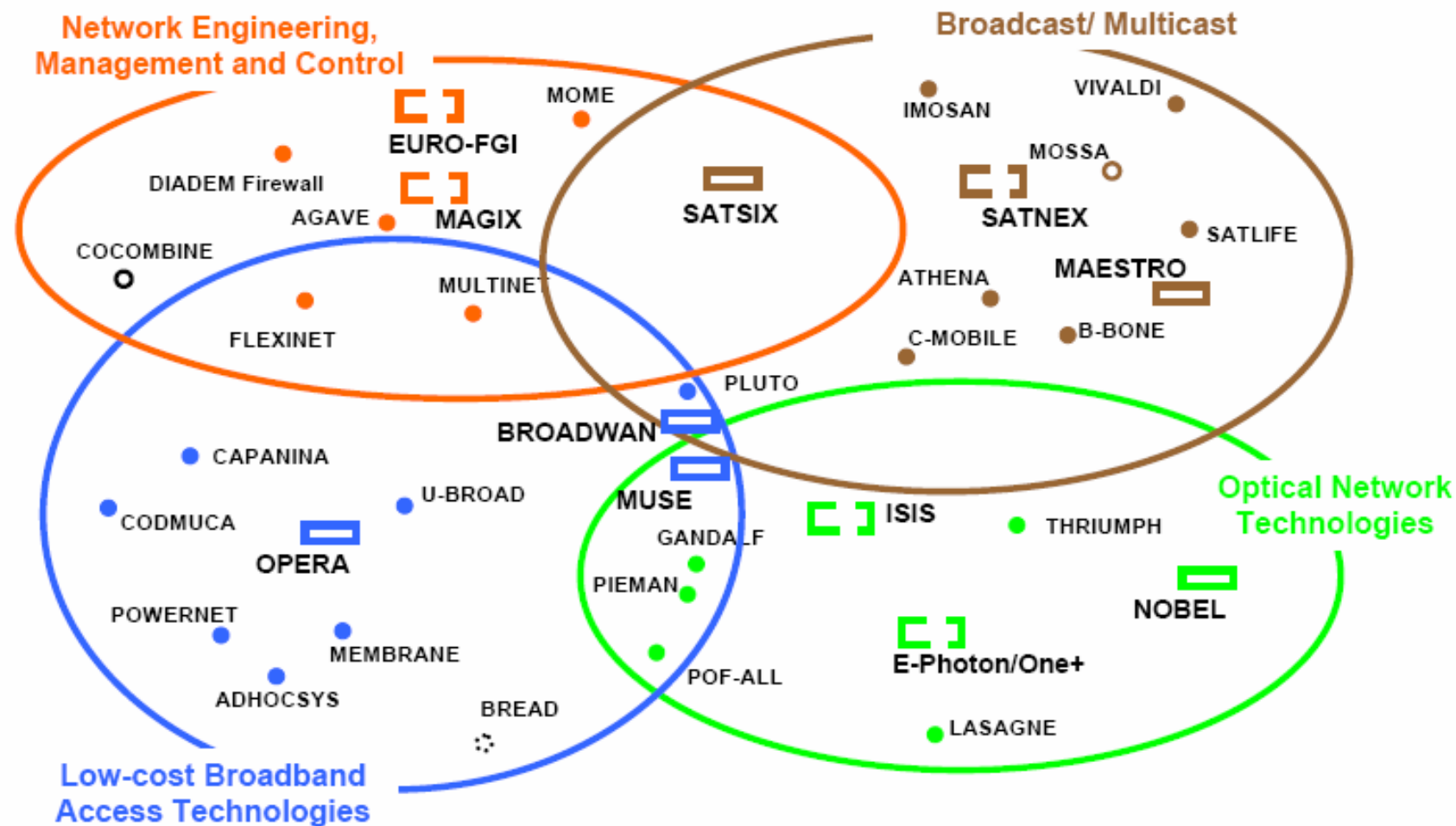
**Network of
Excellence(NoE)**

Specific Targeted Research
Project (STREP)

Specific Support
Action (SSA)

Coordination
Action (CA)

Project Portfolio - Broadband



Instruments :

Integrated Project (IP)

**Network of
Excellence(NoE)**

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Technology Challenges

- **Full convergence of wired and wireless networks to offer seamless services**
 - Integration and management of heterogeneous networks to offer seamless Internet access and triple-play services
 - Interoperability, signalling schemes, routing, integrity, QoS
- **Mobile and wireless technologies go broadband and pervasive**
 - Future mobile radio interface, 4G, 100Mbit/s
 - Radio-fibre integration
 - Interconnection of systems for devices and systems for sensors
- **Future research challenges**
 - The Gbit/s radio interface
 - Optical switching, ultra-high capacity core networks
 - The beyond-IP protocol stack
 - Spectrum and resource management challenges



Proposal for the 7th Framework Programme

- European Commission **proposal** for a Decision of the EP and Council on the **7th Framework Programme** for RTD and demonstration activities (6 April 2005)
- European Commission proposed a significant increase of the budget allocated for **collaborative research**
- The **ICT theme** corresponds to a significant share (28.5%) of the **collaborative research** budget
- FP7 will be organised in four Specific Programmes: **cooperation, ideas, people** and **capacities** over the period 2007-2013



Co-operation: 9 themes

- Health
- Food, Agriculture and Biotechnology
- **Information and Communication Technologies**
- Nanoscience, Nanotechnologies, Materials and New Production Technologies
- Energy
- Environment, including Climate Change
- Transport, including Aeronautics
- Socio-economic Sciences and the Humanities
- Security and Space



Cooperation

- Each of the 9 themes comprises sufficient **flexibility to adapt to evolving needs and opportunities** that may arise during the FP7 lifetime
- Support to trans-national cooperation will be implemented across all 9 themes through:

Collaborative research
(Collaborative Projects, Networks of Excellence, Coordination/Support Actions)

Joint Technology Initiatives

Coordination of non-Community research programmes
(ERA-NET; ERA-NET Plus; Article 169)

International co-operation

ICT Theme: Objectives

- Enable Europe to **master and shape the future developments of ICT** so that the demands of its society and economy are met
- Activities will:
 - strengthen Europe's **scientific and technology base** in ICT
 - help drive and stimulate **innovation through ICT use**
 - ensure that ICT progress is **rapidly transformed into benefits** for Europe's citizens, businesses, industry and governments



Activities

ICT technology pillars

Integration of technologies

Applications research

Future and emerging technologies



ICT Technology Pillars

- One out of six pillars:

Ubiquitous and unlimited capacity communication networks

*Ubiquitous access over heterogeneous networks - **fixed, mobile, wireless and broadcasting** networks spanning from the personal area to the regional and global area allowing the seamless delivery of ever higher volumes of data and **services anywhere, anytime***



Next Steps

- **Legislative texts (FP, SP) to be finally agreed by Parliament and Council in second semester 2006**
- **ICT, an important part of FP7 (ca 30%)**
- **Budget under discussion**
- **Current priority: defining the Work programme:**
 - April 06: Skeleton including topics and proposed budgets
 - 4-5 May: Austrian Presidency Conference on European Technology Platforms (e.g. eMobility, <http://www.emobility.eu.org/>)
 - End of May 06: First draft work programme
 - June: 1st draft to IST-C
 - Fall 2006: Formal decision
 - Nov/Dec 06: First call
 - Feb/Mar 07: Closure and Evaluation

