

ICT in FP7

At A Glance

mid November, 2006

Injecting over €9bn to boost European Information and Communication Technologies (ICTs)



Information and Communication Technologies (ICTs) are critical to creating jobs and improving quality of life across Europe.

Although the ICT sector is itself worth 6-8% of the EU's GDP, their importance goes well beyond that - ICTs are also vital to:

- meeting the globalization challenge by boosting innovation, creativity and competitiveness throughout the economy;
- delivering cutting-edge science in all scientific and technological areas;
- making Europe's large public sector more efficient, and modernising sectors ranging from education to energy;
- tackling social challenges, improving quality of life and meeting the challenge of an ageing society.

Europe must therefore master these technologies to remain competitive and safeguard its quality of life, which is why ICT research is one of the key themes of the EU's Seventh Framework Programme (FP7) for Research and Technological Development, which will fund research across Europe from 2007-2013 (see box).

Tackling the Challenges

EU research funding is deliberately focused on seven key Research Challenges to ensure Europe becomes a world leader in ICTs.

Three Challenges aim at industrial leadership in key ICT sectors, while four are driven by socio-economic targets.

Within each Challenge, the Programme will fund an array of collaborative

WHAT IS FP7?

FP7, the EU's latest research programme, is divided into four specific programmes^(*):

Cooperation (€32.4bn): building European leadership in ten key Themes through funding research carried out by organisations working together across European national borders;

- *The ICT element:* with a budget of €9.1bn, the ICT Theme is the largest;

Capacities (€4.1bn): building world-class infrastructure for European researchers;

- *The ICT element:* the e-Infrastructures strand has a budget of ~€600m;

Ideas (€7.5bn): an autonomous European Research Council to reinforce European science;

People (€4.7bn): strengthening the human potential of European research;

Both Ideas and People Programmes will cover all scientific and technological research, and so will also fund ICT-related research.

*All figures are drafts.

research projects, each bringing together public and private organisations across Europe to help the EU pool its scientific, industrial, financial and human resources.

Small and medium-sized enterprises are actively encouraged due to their vital role in innovation and economic growth.

Research partnerships will also be forged with advanced and developing countries, supporting European competitiveness and helping international development.

1: Laying Tomorrow's Networks

Tomorrow's information infrastructure will connect together billions of people, countless organisations and literally trillions of devices - PCs, mobile phones, servers, sensors and much more.

This infrastructure will underpin economic development in all EU regions, and will be at the origin of new services and business opportunities throughout the economy.

Mastering the development of this infrastructure is essential to reaping the benefits of ICTs in areas as diverse as manufacturing and home healthcare. It is an immense challenge to make this network and service infrastructure more robust, resilient and secure.

2: Smarter Machines, Better Services

Providing the next generations of ICTs with more intelligence will create many new opportunities in a range of sectors.

Research here will focus on developing ICT systems that are more aware of what is

going on around them, and will be able to learn, reason and interact with people more naturally. These robots and "smart artefacts" will thus better serve our needs in the real world.

Instead of forcing users to learn how to use the machines, the machines will learn how best to work with us. Applications in areas as diverse as manufacturing, education, healthcare, public safety, environmental protection and service robotics are expected.

" Instead of us learning how to use machines, they will learn to work with us "

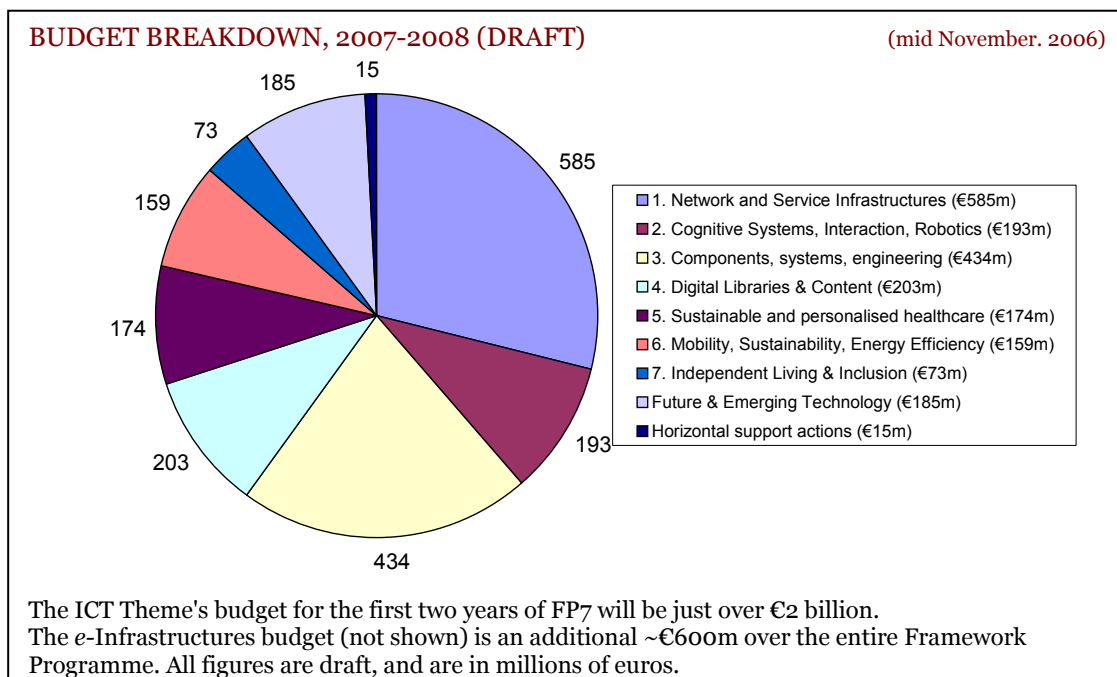
3: The Nuts and Bolts of Tomorrow's Products

European firms are currently among the world's leaders in supplying electronic components to industries as varied as transport, telecoms, consumer electronics and medical equipment. Europe also enjoys leading positions in technologies such as photonics, plastic electronics, flexible displays and micro/nanosystems.

Europe is well positioned in the global race to develop these technologies and to embed intelligence into products, services and processes. This Challenge will support European industry and academic researchers in this strategic field and ensure that these new technologies meet the needs of European business & society.

4: Digital Content & Learning

ICTs enable us to access, create and share content widely. They also allow us to learn better, and to preserve and enrich our cultural heritage.



Every day, however, brings us face to face with the shortcomings of current technologies, and the way they are used.

We are often overwhelmed with information. We still have limited eLearning tools. And we are still just discovering the opportunities that ICTs offer for developing our cultural assets and reinforcing our creative potential.

Research under this Challenge will therefore help develop digital libraries, enabling us to easily create, interpret, use and preserve cultural and scientific resources, and revolutionise learning through adaptive and intuitive ICTs.

“ we suffer information overload because it has become easier to send information than it is to use it ”

5: A Healthcare Revolution

Sustaining Europe's healthcare systems is a major challenge, with healthcare already accounting for around 9% of EU GDP.

The health sector is information intensive, so e-Health is emerging as an important new industry, with e-Health spending predicted to account for around 5% of the total health budget by 2010.

Research under this Challenge will improve the quality, availability and effectiveness of healthcare by developing ICTs to improve everything from healthcare administration to biomedical imaging, from personalised, home-based care to the creation of new medicines.

6: Environment, Energy and Transport

With traffic congestion rising, 40,000 people dying on the roads annually and fuel consumption and air pollution continuing to grow, Europe faces serious challenges on its roads. Air pollution and climate change, moreover, are not Europe's only environmental challenges.

ICTs can help improve safety, optimise natural resource use, design smarter and cleaner processes, and predict and manage the environment. Research in this Challenge therefore covers a lot of ground.

'Intelligent car' research will make transport systems safer and more energy efficient, as well as support Europe's automotive industries, while new 'mobility services' will ensure transport resources are used more efficiently.

Infrastructure and manufacturing plants, such as power networks, chemical plants and oil pipelines, will also be made more resilient, secure and energy efficient, while new systems to monitor and react to environmental risks will be developed.

7: Access for All

While ICTs offer many advantages to European society, their impact will not be fully felt until all Europeans can use them.

But European society is changing – the proportion of population over 65 will increase from 20% to 28% between now and 2025, and by 2050 the old-age dependency ratio will have risen by over 160% from the 1985 level.

i2010 FLAGSHIP INITIATIVES

Delivering the Information Society requires more than just research. In four critical areas, Flagship Initiatives have been launched under the Commission's i2010 initiative to underline the full potential of ICTs to improve quality of life in Europe:

- **European Digital Library:** making Europe's diverse cultural and scientific heritage (books, films, maps, photographs, music, etc.) easier and more interesting to use online for work, leisure and study. It builds on Europe's rich heritage, combining multicultural and multilingual environments with technological advances and new business models;
- **Intelligent Car:** ICTs for smarter, safer and cleaner vehicles, helping reach Europe's goal of cutting road fatalities in half by 2010;
- **ICT for Independent Living in an Ageing Society:** improving social inclusion by providing people, particularly the elderly, with ICT tools to support their health, well-being and mobility. The new applications will also help to substantially improve ICT take-up across Europe;
- **ICT for sustainable development:** tackling the unsustainable trends which are undermining economic growth and reducing quality of life for all Europeans. ICT-based environmental monitoring and management tools will optimise the use of natural resources and will play a key role in attaining sustainable development.

ICTs can help meet this challenge: extending the time elderly people can spend living independently in their preferred environment, for example, and providing a new generation of products and services to help integrate people at risk of exclusion. Such systems both address pressing societal needs and offer major opportunities for European industry.

" the old-age dependency ratio will grow to 160% over the 1985 level by 2050 "

The ICTs themselves, however, have to change, becoming more user-friendly, personalised and accessible to all.

Beyond the Challenges

Future and Emerging Technologies

As well as addressing today's challenges, the ICT Theme also looks further ahead, complementing the Challenges with long-term, high-risk, 'purpose-driven' research.

Known as Future and Emerging Technologies (FET), the idea is to support pioneering research with a high potential for significant breakthroughs.

This is the research 'at the fringes' that may become tomorrow's radical innovations - the sort of work that opens up entirely new markets.

FET will therefore explore radical interdisciplinary avenues, delivering proofs-of-concept for new options and demonstrating new possibilities. It will strengthen Europe's science and technology base in new and emerging areas, refine new visions to the point where they attract industrial investment, and establish new interdisciplinary research communities within European science and industry.

eInfrastructures

ICT-based research infrastructures – from supercomputers to genetic databanks and high-speed networks - are essential to high quality research.

Yet they are increasingly expensive to maintain and develop. Europe must therefore get better use out of what it has, and pool its resources to provide its scientists and engineers with world-class facilities.

Hence the Capacities programme, where the e-Infrastructures strand will oversee the improvement of dedicated digital infrastructures that allow European researchers to work together more effectively.

Powerful new software techniques - crucial to tackling the biggest challenges facing European science and industry in areas as diverse as manufacturing and drug design – will also be developed.

Work in this area to date has already led to GÉANT, the world's most powerful research network.

" Europe must pool its resources to provide its scientists and engineers with world-class facilities "

Want to Know More?

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

EUROPEAN TECHNOLOGY PLATFORMS AND JOINT TECHNOLOGY INITIATIVES

The EU's own Framework Research Programmes can only ever be a small fraction of all research funding – public and private – across the EU. With the cost of cutting-edge ICT research spiralling upwards, research must be better coordinated across Europe, which is why in many cases the main industrial and academic research stakeholders in certain fields have formed European Technology Platforms and Joint Technology Initiatives.

European Technology Platforms participants define, at the European level, a common strategic research agenda, and address technological and non-technological issues for implementing it.

Joint Technology Initiatives (JTIs), on the other hand, are long-term public-private research partnerships. Often resulting from the work of a Technology Platform, each JTI combines private sector investment and national and European public funding, including grant funding from the Research Framework Programme and loan finance from the European Investment Bank.