

IST Research: Building European Leadership for the Knowledge Economy

Research into Information Society Technologies (IST) is the largest priority in the EU's Sixth Framework Programme (2002-2006), reflecting the importance of these technologies in achieving the Lisbon goal of turning the EU into the world's most competitive, dynamic knowledge-based economy by 2010.

High quality research is increasingly complex, interdisciplinary and costly, making it more and more difficult for individual countries to establish or maintain scientific and technological leadership. Yet this leadership is essential if Europe is to achieve long-term economic growth and sustainable development.

Hence the EU's goal of coordinating research across the Member States, sharing goals, ambitions and resources to develop the technologies essential to create jobs, achieve sustainable development and improve European quality of life.

IST Research: A European Priority

The principal instrument is FP6 - the EU's Sixth Framework Programme (see box). As in its predecessor, Information Society Technologies (ISTs) are the single largest priority, reflecting:

- **their contribution to overall economic performance:** information & communication technology (ICT) equipment and services is one of the most innovative and productive sectors, accounting for 6% of EU employment in 2000. ICT is also central to boosting productivity and improving competitiveness: 40% of EU productivity growth over 1995-2000 was due to ICT, which increasingly form an integral part of all industrial and service markets;

- **the benefits they offer society at large:** allowing more and better services to be provided to larger numbers of people, and providing a powerful tool for preserving and promoting Europe's cultural heritage.

IST research in FP6 therefore aims to ensure European leadership in the technologies at the heart of the knowledge economy, increasing the competitiveness of European industry and bringing wider benefits to all Europeans.

Empirical evidence suggests Europe's productivity gap with the US is to a large extent explained by its weaker investment in ICT

High-Risk, Long Term Goals

EU support for IST research in FP6 mobilises Europe's industrial and research community around high-risk, long term goals, focusing only on the work that is essential at European level and that requires a collaborative effort involving research actors across the EU and associated states.

In the "Ambient Intelligence" vision underlying the research, users are centre stage. Computers and networks are integrated into the everyday environment, making a multitude of services accessible through intuitive, user-friendly interfaces.

The Sixth Framework Programme for Research (FP6) at a Glance

The fundamental aims of all Community support to Research and Development (R&D) are to strengthen industry's scientific and technological base, encourage its international competitiveness and promote research supporting other EU policies. These aims are realised via multi-annual Framework Programmes, the first of which was launched in 1984. The budget for successive FPs has increased over time, with new research areas being added systematically.

Reflecting the EU's Lisbon goals, the Sixth Research Framework Programme (FP6) brought new objectives and ambitions, particularly the creation of a European Research Area in which research was more coordinated across the EU. Most (~70%) of the FP6 €16.3bn non-nuclear research budget is focused on seven thematic priorities: Life Sciences, Genomics and Biotechnology for Health Genomics; Information Society Technologies; Nanotechnologies, Materials and Production Processes; Aeronautics and Space; Food Quality and Safety; Sustainable Development; and Citizens and Governance in a Knowledge-Based Society.

In March 2004 the Commission proposed to almost double its research budget for 2007-2013.

Social and Economic Challenges

The main socio-economic challenges addressed by EU IST research and development are:

- Solving “**trust and confidence**” problems to improve the dependability of technologies, infrastructures and applications;
- **Strengthening social cohesion** by providing efficient, intelligent and easy-to-use systems for health, transport, inclusion, risk management, environment, learning and cultural heritage;
- **Enabling sustainable growth and improving competitiveness** of both large and small businesses, as well as the efficiency and transparency of governments;
- **Supporting complex problem solving in science, society, industry and business**, harnessing computing and knowledge management resources across Europe.

Technology Building Blocks

Achieving the above goals also means making significant progress in several technological areas:

- **Miniaturisation** and minimising the costs and power consumption of microelectronic components and microsystems;
- Developing mobile, wireless, optical and broadband **communication infrastructures**, as well as software and computing technologies, that are reliable, pervasive, interoperable and adaptable;
- Developing **user-friendly, intuitive interfaces** which can interpret all our senses and understand our gestures and various languages, coupled with more powerful and flexible knowledge technologies.

Strategic Objectives

These challenges are met largely through a set of focused Strategic Objectives. Selected after intensive consultations and analyses of Europe's socio-economic and technological options, the 23 Strategic Objectives integrate technology components, integrated systems and applications to:

- **reinforce European strengths in areas where it has industrial and technology leadership** - e.g., mobile and wireless communications, microelectronics and microsystems, embedded systems, applying IST to health, transport and business support;
- **overcome weaknesses in areas critical for European competitiveness and for addressing societal challenges:** such as generic software and computing systems, and content development tools;

- **exploit new opportunities and respond to emerging needs** - e.g., advanced interaction techniques, new sensors and microsystems, context-aware knowledge handling, and using Grids to solve complex problems in the fields of environment, health or engineering;
- **ensure the co-evolution of technology and applications** so that technology advances are exploitable in innovative products and services.

In addition, research projects also investigate **Future Visions and Emerging Technologies (FET)** at the frontier of knowledge in the IST field, and support the further development of the EU's **Research Networking infrastructure**, including the 'Grid technologies' crucial to building the European Research Area.

Progress to Date

The first half of the Programme (2002-2004) saw a total of six Calls for Proposals, along with a permanently open FET Call. Just over 400 projects had been successfully negotiated by November 2004. The €1.7bn of Community funding they will receive will mobilise another €1bn of private sector research funding.

Most projects (350) are in the areas covered by the Strategic Objectives (technology components and their integration into various application contexts), and account for over €1.48bn in funding.

The remaining projects are funded under Future Visions and Emerging Technologies (23 projects totalling around €80m), research networking (seven projects, €121m) and other accompanying actions and measures (17 projects, €2m).

2005-2006 will see two more Calls for Proposals, with a total indicative budget of just over €1.75bn.

See Also:

- Factsheet 30: IST Work Programme 2005-2006

All Factsheets and more can be downloaded from "Europe's Information Society: Thematic Portal", below.

Further Information

- **IST Research:** <http://www.cordis.lu/ist/>
- **Europe's Information Society: Thematic Portal** http://europa.eu.int/information_society/
- **Information Society Directorate-General:** Av. de Beaulieu 24, 1160 Brussels info-desk@cec.eu.int