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Information / Communications Technologies (ICT) in Horizon 2020

The overall aim of EU research and innovation information and communication (ICTs) under Horizon 2020 is to bring the benefits of progress in these technologies to European citizens and businesses.

25 years ago only a few geeks and scientists might have imagined that mobile phones and computers could be connected across the world or that they would be essential to our daily lives. Today, a mobile phone is a million times cheaper and a thousand times more powerful than the world's leading computer of 1970. What used to fit in a building now slips into your pocket. Thanks to the hard work and dreams of ambitious scientists with bright ideas, today we take these things for granted. Our way of living is shaped by the results of research and innovation in ICT.

As a whole, the ICT sector represents 4.8% of the EU economy. It generates 25% of total business expenditure in Research and Development (R&D), and investments in ICT account for 50% of all European productivity growth.

Why is EU spending on ICT research necessary?

Research and Innovation generates new knowledge and benefits society as a whole. For example, research into semiconductors leads to lower costs for computers with ever increasing power.

What does the Commission propose for ICT funding in Horizon 2020?

EU investments in ICTs are due to increase by 46% under Horizon 2020 compared to the current EU research programmes (FP7). This is in line with the Commission's proposed increase in funding across all themes. This EU investment will support the riskier ICT research and innovation that can deliver new business breakthroughs, often on the basis of emerging technologies. In particular, Horizon 2020 will support the development of:

- A new generation of components and systems including Micro / nano-electronics and photonics technologies, components and embedded systems engineering.
- Next generation computing, Advanced computing systems and technologies.
- Infrastructures, technologies and services for the future Internet,
- Content technologies and information management, including ICT for digital content and creativity.
- Advanced interfaces and robots and Robotics and smart spaces

ICTs and Key Enabling Technologies (KETs)

Horizon 2020 will have a strong focus on developing European industrial capabilities in *Key Enabling Technologies* (KETs). ICT-wise this includes micro- and nano-electronics, and photonics, using a multi-disciplinary, capital-intensive approach.

Recent success in EU-funded ICT research

Mobile phones and broadband: 3G and 4G

European mobile phone technologies and standards have proved so successful that they have been widely adopted worldwide. The European 3G standard is used by over 600 million mobile phones in the world. A €120 million investment 10-15 years ago at EU level has enabled the flourishing of a €250 billion product and services market for 3G telecom equipment today.

With EU-funding, researchers have developed the first concept of the 4G-based mobile network infrastructure. This will be ten times faster than current 3G wireless technology. 4G is already available in Oslo and Stockholm. Over the next 10 years 200 4G networks are planned globally. This will enable the flourishing of a product and services market worth several hundreds of billions of euros.

Improving life for the elderly

The number of people over 65 years old in Europe will grow by 45% between 2008 and 2030 and it will rise to over 30% of the population by 2060. ICTs can make life easier and better for seniors. A good example: 'eldercare social robots' can help perform daily tasks such as lifting or cooking, or set off an alarm if an in-built camera registers that a person has fallen. This brings new business opportunities and huge savings in the cost of social and health care. For example, telecare solutions can cut the costs of care services by up to 30%.

Aircraft safety

Groundbreaking safety technology in aircraft has been developed by EU-funded research. New cabin air pressure system in Airbus A380 allows pilots to maintain a safe and comfortable environment for crew and passengers while flying at higher altitudes.

Digital media standards

The Digital Video Broadcasting (DVB) standard is used today in 500 million devices in over 70 countries. Millions of photo and movie cameras use the MPEG2 and MPEG4 standards for image compression that have improved the quality of the pictures you take at home or on holidays.

Energy efficient lighting

New OLEDs (Organic Light Emitting Diodes) are at least 5 times more efficient than conventional lighting. European research has delivered world-class results in this new and exciting technology. The market for organic and large area electronics is expected to grow to around €70 billion by 2020. The EU's share of the supply is 25%.

Micro components

Europe leads the miniaturization race is reflected. Almost every smart phone in the world today contains European manufactured (or designed) micro-components.