

COMPROMISE TEXT¹

1.1.1. Specific objective for ICT

In line with the Digital Agenda for Europe, the specific objective of ICT research and innovation (R&I) is to enable Europe to support, develop and exploit the opportunities brought by ICT progress for the benefits of its citizens, businesses and scientific communities.

As the world's largest economy and representing the largest share of the world's ICT market, today at more than EUR 2600 billion, Europe ~~can~~ **should** have legitimate ambitions for its businesses, governments, research and development centres and universities to lead **European and global** developments in ICT, to grow new business, and to invest more in ICT innovations.

By 2020, Europe's ICT sector should supply at least the equivalent of its share of the global ICT market, today at about one third. Europe should also grow innovative businesses in ICT so that one third of all business ~~expenditure~~ **investment** in ICT R&D **in the EU**, today at more than EUR 35 billion per year, is ~~invested~~ **made** by companies created within the last two decades. This would require ~~an considerable~~ increase in public investments in ICT R&D in ways that leverage private spending, towards the goal of ~~doubling~~ **amplifying** investments in the next decade, and significantly more European poles **and clusters** of world-class excellence in ICT.

To master increasingly complex and multidisciplinary technology and business chains in ICT, partnering, risk-sharing and mobilisation of critical mass across the Union are needed. Union level action ~~helps~~ **should help** industry address a single market perspective and achieve economies of scale and scope. Collaboration around common, open technology platforms with spill-over and leverage effects **will** allow a wide range of stakeholders to benefit from new developments and ~~apply~~ **create** further innovations. ~~Federating and partnering~~ **Partnering** at Union level also enables consensus building, establishes a visible focal point for international partners, and ~~leads to~~ **will support** the development of Union- and world-wide standards and interoperable solutions

1.1.2. Rationale and Union added value

ICT underpins innovation and competitiveness across a broad range of private and public markets and sectors, and enables scientific progress in all disciplines. Over the next decade, the transformative impact of digital technologies, ICT components, infrastructures and services will be increasingly visible in all areas of life. ~~Practically unlimited~~ Computing, communication and data storage resources will **continue to spread over the coming years** ~~be available to every citizen on in the globe~~ EU. Vast amounts of information and data, **including real-time**, will be generated by sensors, machines and information-enhanced products, making action at a distance a commonplace, enabling global deployment of business processes and sustainable production sites ~~and bringing~~ **allowing the creation of** a wide range of services and applications, ~~always respecting the fundamental rights and freedoms of natural persons and in particular their right to privacy.~~

Many critical commercial and public services and all key processes of knowledge production in science, learning, business and the **culture and creative sector as well as the public sector** will be provided, **and thus made more accessible**, through ICT. ICT will provide the critical infrastructure for production and business processes, communication and transactions. ICT will also be indispensable in contributing to key societal challenges, as well as societal processes such as community formation, consumer behaviour, **political participation** and public governance, for example by means of social media **and collective awareness platforms and tools. It is crucial to support and integrate research which takes a user centred perspective in order to develop competitive solutions.**

¹ Proposal for a Regulation of the European Parliament and the Council establishing Horizon 2020 - The Framework Programme for Research and Innovation (2014-2020)_ Brussels, 8 May 2013.

The Union support to ICT research and innovation ~~is~~ **makes** a significant ~~component~~ **contribution** to ~~prepare~~ **the development of** the next generation technologies and applications as it makes up a large part of total spending on collaborative, mid-to-high risk R&I in Europe. Public investment in ICT research and innovation at Union level has been and remains essential to mobilise the critical mass leading to breakthroughs and to a wider uptake and better use of innovative solutions, products and services. It continues to play a central role in developing open platforms and technologies applicable across the Union, in testing and piloting innovations in real pan-European settings and in optimising resources when addressing Union competitiveness and tackling common societal challenges. Union support to ICT research and innovation is also enabling high-tech SMEs to grow and capitalise on the size of Union-wide markets.

It is strengthening collaboration and excellence amongst Union scientists and engineers, reinforcing synergies with and between national budgets, and acting as a focal point for collaboration with partners outside Europe.

Successive evaluations of ICT activities in the Union's Framework Programme for research and innovation have shown that focused ICT research and innovation investment undertaken at Union level has been instrumental in building industrial leadership in areas like mobile communications, safety-critical ICT systems, and to address challenges like energy-efficiency, **health, food security, transport** or demographic change. Union investments in ICT research infrastructures have provided European researchers with the world's best research networking and computing facilities.

1.1.3. *Broad lines of the activities*

A number of activity lines shall target ICT industrial and technological leadership challenges and cover generic ICT research and innovation agendas, including notably:

(a) *A new generation of components and systems*: Engineering of advanced ~~and smart~~, embedded **and energy and resource efficient** components and systems, ~~including quantum technologies~~;

(b) *Next generation computing*: Advanced **and secure** computing systems and technologies, **including cloud computing**;

c) *Future Internet*: **software, hardware**, infrastructures, technologies and services;

d) *Content technologies and information management*: ICT for digital content, **cultural and creative industries**; and creativity;

(e) *Advanced interfaces and robots*: Robotics and smart spaces;

(f) *Micro- and nanoelectronics and photonics*: Key enabling technologies related to micro- and nanoelectronics and to photonics, **including quantum technologies**.

(fa) Quantum technologies: next generation of ICT devices through the combination of quantum physics and information science;

These six major activity lines are expected to cover the full range of needs, **taking into account the competitiveness of European industry on a global scale**. These would include industrial leadership in generic ICT-based solutions, products and services needed to tackle major societal challenges as well as application-driven ICT research and innovation agendas which will be supported together with the relevant societal challenge. **In view of the ever increasing advancement of technology in all areas of life, the interaction between humans and technology will be important in this respect, and part of the application-driven ICT research mentioned above.**

These six activity lines shall also include ICT specific research infrastructures such as living labs for ~~large-scale~~ experimentation, and infrastructures for underlying key enabling technologies and their integration in

advanced products and innovative smart systems, including equipment, tools, support services, clean rooms and access to foundries for prototyping.

Horizon 2020 will support research and development of systems in full respect of the fundamental rights and freedoms of natural persons and in particular their right to privacy.

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