1.1. Information and Communication Technologies (ICT)[1]

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

1.1.1. A new generation of components and systems: engineering of advanced and smart embedded components and systems

The objective is to maintain and reinforce European leadership in technologies related to smart embedded components and systems. It also includes micro-nano-bio systems, organic electronics, large area integration, underlying technologies for the Internet of Things (IoT) including platforms to support the delivery of advanced services, smart integrated systems, systems of systems and complex systems engineering

1.1.2. Next generation computing: advanced computing systems and technologies

The objective is to leverage European assets in processor and system architecture, interconnect and data localisation technologies, cloud computing, parallel computing and simulation software for all market segments of computing.

1.1.3. Future Internet: infrastructures, technologies and services

The objective is to reinforce the competitiveness of European industry in developing, mastering and shaping the next generation Internet that will gradually replace the current Web, fixed and mobile networks and service infrastructures, and enable the interconnection of trillions of devices (IoT) across multiple operators and domains that will change the way we communicate, access and use knowledge. This includes R&I on networks, software and services, cyber security, privacy and trust, wireless22 communication and all optical networks, immersive interactive multimedia and on the connected enterprise of the future.

1.1.4. Content technologies and information management: ICT for digital content and creativity

The objective is to provide professionals and citizens with new tools to create, exploit and preserve all forms of digital content in any language and to model, analyse, and visualise vast amounts of data, including linked data. This includes new technologies for language, learning, interaction, digital preservation, content access and analytics; intelligent information management systems based on advanced data mining, machine learning, statistical analysis and visual computing technologies.

1.1.5. Advanced interfaces and robots: robotics and smart spaces

The objective is to reinforce European scientific and industrial leadership in industrial and service robotics*,* cognitive systems, advanced interfaces and smart spaces, and sentient machines, building on increases in computing and networking performance and progress in the ability to build systems that can learn, adapt and react.

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[1] Source: COM(2011) 811 final
http://ec.europa.eu/research/horizon2020/pdf/proposals/proposal_for_a_council_decision_establishing_the_specific_programme_implementing_horizon_2020_-_the_framework_programme_for_research_and_innovation_(2014-2020).pdf#view=fit&pagemode=none

1.1.6. Micro- and nanoelectronics and photonics

The objective is to take advantage of the excellence of Europe in this key enabling technology and support the competitiveness and market leadership of its industry. Activities will also include research and innovation on design, advanced processes, pilot lines for fabrication, related production technologies and demonstration actions to validate technology developments and innovative business models.

These six major activity lines are expected to cover the full range of needs. 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.

Included under each of the six big activity lines are also *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.