The specific objective is to maintain and build global leadership through research and innovation in enabling technologies and space, which underpin competitiveness across a range of existing and emerging industries and sectors.

The global business environment is changing rapidly and the objectives of the Europe 2020 strategy present challenges and opportunities to European industry. Europe needs to accelerate innovation, transforming the knowledge generated to underpin and enhance existing products, services and markets, and to create new ones while maintaining focus on quality and sustainability. Innovation should be exploited in the widest sense, going beyond technology to include business, organisational and social aspects.

To stay at the forefront of global competition with a strong technological base and industrial capabilities, increased strategic investments in research, development, validation and piloting are required in ICT H2020-EU.2.1.1, nanotechnologies H2020-EU.2.1.2, advanced materials H2020-EU.2.1.3, biotechnology H2020-EU.2.1.4, advanced manufacturing and processing H2020-EU.2.1.5, and space H2020-EU.2.1.5.

The successful mastering, integration and deployment of enabling technologies by European industry is a key factor in strengthening Europe's productivity and innovation capacity and ensuring that Europe has an advanced, sustainable and competitive economy, global leadership in hi-tech application sectors and the ability to develop effective and sustainable solutions for societal challenges. The pervasive nature of such activities can spur further progress through complementary inventions, applications and services, ensuring a higher return on investment in these technologies than in any other field.

These activities will contribute to the objectives of the flagship initiatives ‘Innovation Union’, ‘Resource-efficient Europe’, ‘An industrial policy for the globalisation era’, and ‘Digital Agenda for Europe’ of the Europe 2020 strategy, as well as to Union space policy objectives.

Complementarities with other activities in Horizon 2020

The activities under the specific objective ‘Leadership in Enabling and Industrial Technologies’ will be primarily based on research and innovation agendas mainly defined by industry and business, including SMEs, together with the research community and Member States in an open and transparent manner and have a strong focus on leveraging private sector investment and on innovation.

The integration of enabling technologies in solutions for the societal challenges shall be supported together with the relevant challenges. Applications of enabling technologies that do not fall under the societal challenges, but are important for reinforcing the competitiveness of European industry, shall be supported under the specific objective ‘Leadership in Enabling and Industrial Technologies’. Appropriate coordination should be sought with the priorities ‘Excellent Science’ and ‘Societal Challenges’.

A common approach

The approach shall include both agenda-driven activities and more open areas to promote innovative projects and breakthrough solutions covering the whole value chain, including R&D, large-scale pilots and demonstration activities, test beds and living labs, prototyping and product validation in pilot lines. Activities shall be designed to boost industrial competitiveness by stimulating industry, and in particular
SMEs, to make more research and innovation investment, including through open calls. Adequate focus will be given to small and medium scale projects.

An integrated approach to Key Enabling Technologies

A major component of the specific objective 'Leadership in Enabling and Industrial Technologies' are Key Enabling Technologies (KETs), defined as micro- and nanoelectronics, photonics, nanotechnology, biotechnology, advanced materials and advanced manufacturing systems. These multi-disciplinary, knowledge and capital-intensive technologies cut across many diverse sectors providing the basis for significant competitive advantage for European industry, for stimulating growth and for creating new jobs. An integrated approach, promoting the combination, convergence and cross-fertilisation effect of KETs in different innovation cycles and value chains can deliver promising research results and open the way to new industrial technologies, products, services and novel applications (e.g. in space, transport, agriculture, fisheries, forestry, environment, food, health and energy). The numerous interactions of KETs and other industrial enabling technologies will therefore be exploited in a flexible manner, as an important source of innovation. This will complement support for research and innovation in KETs that may be provided by national or regional authorities under the Cohesion Policy Funds within the framework of smart specialisation strategies.

Innovation requires enhanced cross-technology research efforts. Therefore, multidisciplinary and multi-KET projects should be an integral part of the priority 'Industrial Leadership'. The Horizon 2020 implementation structure supporting KETs and cross-cutting KET activities (multi KETs) should ensure synergies and effective coordination, among others, with societal challenges. In addition, synergies will be sought, where appropriate, between KET activities and the activities under the cohesion policy for 2014-2020, as well as with the EIT.

For all the enabling and industrial technologies, including the KETs, a major aim will be to foster interactions between the technologies and with the applications under the societal challenges. This shall be fully taken into account in developing and implementing the agendas and priorities. It requires that stakeholders representing the different perspectives are fully involved in priority setting and implementation. In certain cases, it will also require actions that are jointly funded by the enabling and industrial technologies and by the relevant societal challenges. This could include joint funding for public-private partnerships that aim to develop technologies, foster innovation and apply such technologies to address societal challenges.

ICT plays an important role as it provides the key basic infrastructures, technologies and systems for vital economic and social processes and new private and public products and services. European industry needs to remain at the cutting edge of technological developments in ICT, where many technologies are entering a new disruptive phase, opening up new opportunities.

Space is a rapidly growing sector which delivers information vital to many areas of modern society, meeting its fundamental demands, addresses universal scientific questions, and serves to secure the Union's position as a major player on the international stage. Space research underpins all activities undertaken in space, but is currently addressed in programmes run by Member States, the European Space Agency (ESA) or in the context of Union Framework Programmes for Research. Union level action and investment in space research are required in accordance with Article 189 TFEU, in order to maintain the competitive edge, to safeguard Union space infrastructures and programmes such as Copernicus and Galileo and to sustain a future role for Europe in space.

In addition, innovative downstream services and user-friendly applications using space derived information represent an important source of growth and job creation, and their development represents an important opportunity for the Union.

Partnering and added value

Europe can achieve critical mass through partnering, clusters and networks, standardisation, promoting cooperation between different scientific and technological disciplines and sectors with similar research and development needs, leading to breakthroughs, new technologies and innovative product, service and process solutions.

The development and implementation of research and innovation agendas including through public–private partnerships, but also by the building of effective industry-academia links, the leveraging of additional investments, the access to risk finance, standardisation and the support to pre-commercial procurement and the procurement of innovative products and services, are all aspects that are essential in addressing competitiveness.

In this regard, strong links with the EIT are also needed to produce and promote entrepreneurial top talents and to speed up innovation by bringing together people from different countries, disciplines and organisations.

Union level collaboration can also support trade opportunities through the support for the development of European or international standards for new emerging products and services and technologies. Development of such standards following consultation of relevant stakeholders, including those from science and industry, could have a positive impact. Activities in support of standardisation and interoperability, safety and pre-regulatory activities will be promoted.
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