

PRESIDENCY COMPROMISE PROPOSAL ON THE FRAMEWORK PROGRAMME

SPACE

1.6.1. SPECIFIC OBJECTIVE FOR SPACE

The specific objective of space research and innovation is to foster a **cost-effective competitive and innovative space industry (including SMEs) and research community to develop and exploit space infrastructure to meet future Union policy and societal needs**. Strengthening the European **public and private** space sector by boosting space research and innovation is vital to maintain and safeguard Europe's capability of access to and operations in use space in support of Union policies, international strategic interests and competitiveness amongst established and emerging space faring nations.

1.6.2. Rationale and Union added value

Space is an important, but frequently invisible enabler of diverse services and products crucial to modern day society, such as navigation, **and** communication, **as well as** weather forecasts, and geographic information—**derived from Earth Observation by satellites**. Policy formulation and implementation at European, national and regional levels increasingly depend on space-derived information. The global space sector is rapidly growing and expanding into new regions (e.g. China, South America, **Africa**). European industry is at present a considerable exporter of first class satellites for commercial and scientific purposes. Increasing global competition is challenging Europe's position in this area.

Thus Europe has an interest in ensuring that its industry continues to thrive in this fiercely competitive market. In addition, data from European science satellites **and probes** have resulted in some of the most significant scientific breakthroughs in the last decades in Earth sciences **and, fundamental physics, astronomy and planetology**. **In addition, innovative space technologies, e.g. robotics have contributed to the progress of knowledge and technology in Europe**. With this unique capacity, the European space sector has a critical role to play in addressing the challenges identified by Europe 2020. Research, technology development and innovation underpin capacities in space which are vital to European society. While the United States of America spends around 25 % of their space budget on R&D, the Union spends less than 10 %. Moreover, space research in the Union is ~~fragmented~~ **addressed** in the national programmes of a few Member States, **ESA programmes and the EU Framework Programmes for research**.

To maintain the **Europe's** technological and competitive edge **and to capitalise on investments**, Union level action is needed ~~to coordinate space research, to promote the participation of researchers from all Member States, and to lower the barriers for collaborative space research projects across national borders~~. **This needs to be done in conjunction with the European Space Agency space research activities of the Member States and ESA**, which has successfully managed industrial satellite development and deep space missions on an intergovernmental basis ~~with a subset of~~ **for the ESA Member States since 1975**. **Union level action is also needed to promote the participation of the best researchers from all Member States, and to lower the barriers for collaborative space research projects across national borders**. In addition, the information provided by European satellites will offer an increasing potential for further development of innovative satellite-based downstream services. This is a typical activity sector for SMEs and should be supported by research and innovation measures in order to reap the full benefits of this opportunity, and especially of the considerable investments made on the two Union flagships Galileo and GMES.

Space naturally transcends terrestrial boundaries, providing a unique vantage point of global dimension, thus giving rise to large scale projects which (e.g. International Space Station, Space Situational Awareness) are carried out in international co-operation. To play a significant role in such international space activities in the next decades, both a common European space policy and European level space research and innovation activities are indispensable. Space research and innovation under Horizon 2020 aligns with the Union space policy priorities **and the needs of the European operational programmes** as they continue to be defined by the Union Space Councils and the European Commission. **European Space infrastructure such as COPERNICUS and GALILEO are strategic investment and the development of innovative downstream applications is necessary. To this end, the application of space technologies shall be supported through the respective Societal Challenges, where appropriate, with the aim of securing socio-economic benefits as well as return on investment and European leadership in downstream applications.**

1.6.3. Broad lines of the activities

(a) Enabling European competitiveness, non-dependence and innovation of the European space sector

This entails safeguarding and **further** developing a competitive, **sustainable** and entrepreneurial space industry in combination with a world-class space research community to maintain **and strengthen** European leadership and non-dependence in space technology, **systems** to foster innovation in the space sector, and to enable space-based terrestrial innovation, for example by using remote sensing and navigation data.

(b) Enabling advances in space technologies

This aims at developing advanced **and enabling** space technologies and operational concepts from idea to demonstration in space, including navigation and remote sensing, as well as. **This includes technologies supporting access to space, technologies for the protection of space assets from threats such as debris and solar flares, as well as satellite telecommunication, navigation and remote sensing.** To develop and apply advanced space technologies requires the continuous education and training of highly skilled engineers and scientists, **as well as strong links between them and users of space applications.**

(c) Enabling exploitation of space data

A considerably increased exploitation of data from European satellites (**scientific, public or commercial**) can be achieved if a concerted **further** effort is made to coordinate and organise for the processing, **archiving**, validation and, standardisation **and sustainable availability** of space data, **as well as to support the development of new information products and services resulting from those data.** Innovations in data handling, and, dissemination **and interoperability**, in particular **promotion of access to and exchange of Earth science data and metadata** can also ensure a higher return on investment of space infrastructure, and contribute to tackling societal challenges, in particular if coordinated in a global effort such as through Global Earth Observation System of Systems (**GEOSS**), **namely by fully exploiting the Copernicus programme as its main European contribution**, the European satellite navigation programme Galileo or IPCC for climate change issues. **A fast introduction of these innovations into the relevant application and decision-making processes will be supported. This includes as well the exploitation of data for further scientific investigation.**

(d) Enabling European research in support of international space partnerships

Space undertakings have a fundamentally global character. This is particularly clear for activities such as Space Situational Awareness (SSA), and many space science and exploration projects. The development of cutting edge space technology is increasingly taking place within such international partnerships. Ensuring access to these constitutes an important success factor for European researchers and industry. **The definition and implementation of long-term roadmaps and the coordination with international partners are key to this objective.**

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