ROADMAP			
TITLE OF THE INITIATIVE	A Space Strategy for Europe		
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A. Context, Subsidiarity Check and Objectives

Context

Space is a strategically important tool supporting a number of economic activities and policy areas. The Union only acquired a competence in the area of space policy with the Lisbon Treaty. In particular, Article 189 TFEU calls on the Union to draw up a European space policy in order to promote scientific and technical progress, industrial competitiveness and the implementation of its policies.

The political priorities of President Juncker highlighted the 'need to maintain and reinforce a strong and high-performing industrial base for our internal market which would ensure that Europe maintains its global leadership in strategic sectors such as space'. To this effect, the mission letter to Commissioner Bieńkowska foresees that, among other things, she focuses on 'establishing a coherent and stable regulatory framework for the service and manufacturing of space applications in Europe and exploiting the internal market and job-creating potential of space. This will include setting the conditions for the development of markets for space applications and services including the exploitation of space data, data from scientific missions and commercial applications of space data'.

The space sector provides an important contribution to several priorities of the Commission including:

- A deeper and fairer internal market with a strengthened industrial base
- Jobs, Growth and Investment (space and all industries building on satellite services);
- Energy Union (climate, transport, energy);
- The Digital Single Market (telecommunication, data economy);
- Migration, border control, global disaster and crisis management;
- The EU as a Stronger Global Actor.

The EU, through the Commission, is one of the biggest contributors to space programmes in Europe (1/4 of the ESA budget) and the biggest institutional user of the European launcher industry.

In the years 2014-2020, the Union will invest over €12 billion in the space flagship programmes (Galileo and Copernicus) and Horizon 2020 space research. These investments are expected to create substantial European market opportunities, in particular for European industry and SMEs, through the development of value-added downstream services and applications, which require continuous and sustained access to space-born data. In addition, the space industry is currently experiencing profound changes due to new technological breakthroughs and innovations spurring growing interest of the private sector in space. Space is increasingly attracting new companies that challenge the business models of the traditional space industry. It is important for Europe to stay at the forefront of these developments.

The economic rationale for an EU intervention on space policy is based on a desired return on investment through economic activities, innovation and new services that can be developed. At the same time, it is important to attract new players to enter the space industry and open up new market opportunities for space-based applications and services. However, for this to happen, a clear strategic vision must be proposed at EU level. This European Space Strategy will set out the vision of the Juncker Commission for the development of a strong European space policy and more precisely on how to maximise the societal and economic benefits of the EU's Space investments.

The development of a European space policy is a strategic choice for Europe. The Council conclusions on "Underpinning the European space renaissance: orientations and future challenges" adopted in December 2014, the Competitiveness Council invited the Commission "to seek the emergence of a long-term vision shared by Member States and ESA, which will meet the long-term needs of European users, particularly in EU and national policies, and which can be used by all actors as a planning tool for major space activities in Europe". There is an increasing expectation on the part of the space community in Europe that the Commission, working closely with all relevant stakeholders, will set out its strategic vision for a comprehensive European space policy.

The European Space Strategy would take into account the work started under the Communication 'Towards a Space Strategy for the European Union that Benefits Its Citizens' and the Communication 'EU Space Industrial Policy: Releasing the Potential for Economic Growth in the Space Sector'.

As regards the two space programmes, the European Space Strategy would build on the existing regulatory framework set out in Regulation (EU) No 377/2014 (the "Copernicus Regulation") and Regulation (EU) No 1285/2013 (the 'Galileo Regulation'). In 2010, the Commission also adopted an Action Plan on Global Navigation Satellite System (GNSS) (COM(2010) 308) which identified concrete actions to promote the use of GNSS.

The European Space Strategy will also launch a broader reflection on the possible obstacles faced by industry in commercialising space-based data and applications. To the degree appropriate, this will take into account the work started under the withdrawn proposal on the dissemination of Earth observation satellite data.

As regards the Union's space programmes, a mid-term review of Copernicus and Galileo is scheduled to take place in 2017. The results of this review will then be used in the context of the mid-term review of the current multi-annual financial framework 2014-2020 and the preparation of the next multi-annual financial framework. A targeted ex-post assessment of the actions in the 2010-2013 Action Plan on GNSS Applications has been carried out. While some progress was achieved on a number of actions (e.g. awareness raising, standardisation), the overall impact remained limited, in particular because of the rather early stages of Galileo development.

The EU space policy builds on the achievements of Member States and the work of the European Space Agency (ESA). ESA's technical expertise in developing space capability and infrastructure is crucial to the development of the EU space programmes, but also in the exploitation stage. Following the entry into force of the Lisbon Treaty and the new role of the EU in space, the Commission adopted the 2012 Communication 'Establishing appropriate relations between the EU and ESA' which launched the review of the relations between the EU and ESA. In 2014, the Progress Report of the Commission identified policy options for the evolution of the partnership.

Issue

In view of the developments concerning the Union's two space programmes, as well as the profound changes in the space industry globally, it is important that the Union adopts a new European Space Strategy. This would provide the overall strategic vision for the Union's activities in space while ensuring proper coordination and complementarity with the activities pursued by the Member States and ESA. Such vision would establish key objectives for European space policy and propose a number of priority policy and policy support actions for the years to come. It would also fully embed the space policy in the larger EU policy agenda of this Commission. A new European Space Strategy would boost the confidence of the industry and encourage new investments and growth in this strategic sector and in the downstream sectors for which it provides a range of new opportunities. The European Space Strategy would address the following areas:

1. Implementation and market uptake of Copernicus and Galileo

The full deployment and exploitation of the Union's space programmes is a priority of the European space policy. The deployment of both Copernicus and Galileo is well progressed and on track to achieve full capacity around 2020. While continuing to deploy the necessary infrastructure, both programmes are moving towards exploitation.

Copernicus, the world's 4th biggest producer of raw data, has already started providing its services. Four out of the total six services are already operational (land use monitoring, emergency management service, marine environment monitoring, atmosphere monitoring) and deliver valuable data to the users. Although it will only reach its full operational capacity in 2020, Galileo is expected to start delivering initial services before the end of 2016. EGNOS, the European Geostationary Navigation Overlay Service, has been available since 2009.

Both Copernicus and Galileo are expected to create new market opportunities through the development of downstream services and applications. This will benefit both industry, including the SMEs, and wider society. However, in order to reap the economic and societal benefits of Europe's investments in space, it is necessary to ensure a robust market and user uptake of the two programmes. The likely economic impact is significant - 6% of EU GDP depends on the availability of satellite navigation technology. The expected growth of global satellite navigation markets is around 7% a year. Supporting the market uptake will allow Europe to tap into existing and

new sources of economic growth.

It is also important to launch a more long-term reflection on the future of the EU space programmes, starting with the mid-term review of the two flagship space programmes. This would then be the basis for upcoming decisions on the specifications for the next generation of both Copernicus and Galileo.

2. New market opportunities for space-based applications and services

At the same time as Europe is looking to capitalise on its investments in space, the global space industry is undergoing profound changes. As a result of recent technological and business innovations, the costs of development and the launching of some types of satellites have substantially dropped, leading to an increased interest of the private sector and the emergence of new business models in space. In the US, particularly, the entrance of new players is revolutionising the launching services and facilitating access to space not only for governments but also for private operators. In addition, these developments offer new possibilities for instrumentalising space (e.g. for the provision of broadband internet) and open up the door for companies using space-borne data to develop new products and services. It is important that Europe does not miss these opportunities in space and encourages stronger participation of the private sector. These emerging areas could provide an important contribution to the growth and jobs agenda of the Commission.

In this context, it is important to identify and address any existing obstacles to the functioning of the internal market in the area of space-based products and services.

In addition, there will be significant downstream potential for further market development in various fields, for example in relation to the game-changing environmental monitoring facilities which Copernicus brings on-stream.

3. Governance of European space policy

ESA is the EU's key partner in the implementation of the EU's space programmes. The Treaty on the Functioning of the European Union calls on the Union to establish appropriate relations with ESA. Relations with ESA are based on the Framework Agreement from 2004, as well as the delegation agreements signed under both Copernicus and Galileo. The Framework Agreement does not take into account the changes to the role of the EU in space adopted by the Lisbon Treaty. The Competitiveness Council in May 2014 encouraged the Commission to look more closely into the options. Respectively, the ESA Ministerial Council mandated the Director General of ESA to come up with appropriate proposals in 2016.

It is important that the European Space Strategy provides a new impetus to this ongoing process. Any possible future proposals should be based on the greatest possible complementarity.

4. Other areas of action

The Strategy will also assess the political opportunity for further capacity development. Under the forthcoming Action Plan for European Defence Industry, the work will start on the preparations for the next generation of Governmental Satellite Communications (GOVSATCOM) in close cooperation between the Commission, Member States, European Defence Agency (EDA) and ESA. In the area of space surveillance and tracking, the Commission will continue implementing Decision 541/2014/EU establishing a Framework for Space Surveillance and Tracking Support. Where justified, other areas for further capacity development will be looked at, taking into account the political and technical feasibility.

The EU is the largest institutional client for launch services in Europe. Therefore, the Strategy will also address the need for a non-dependent, reliable and cost-effective access to space, guaranteeing the physical deployment of the EU space programmes and the competitiveness of the European space industry on the global markets.

In order to support market uptake of the two flagship programmes, as well as the development of new products and services based on space-born data, the Strategy needs to examine the need for appropriate flanking measures in areas such as research and development, standardisation, technical specifications, public procurement, skills, international cooperation. The strategy will affect the space and satellite based sectors of the economy, public authorities, citizens (as end-users), research organisations and stakeholders in various related areas (environment, transport, energy, climate). Furthermore, the Strategy will have implications for the EU's key partners in space, including ESA and EUMETSAT.

Subsidiarity check

Article 189 TFEU is the basis for Union competence in the area of space policy but this shall not prevent Member States from exercising their own competence. The Treaty further mandates the Union to adopt a European space policy and establish appropriate relations with ESA. In order to attain the objectives of the European space policy, the Union established its two flagship space programmes.

There is an effective coordination of space-related initiatives at EU and national level, as well as coordination with ESA initiatives. In addition, concerning Copernicus, the programme builds on the existing national and

European capacities (Article 2 of the Copernicus Regulation) and the Commission actively cooperates with Member States in the articulation of these capacities. Also, pooling and sharing practices underpin the activities in the area of space surveillance and tracking.

Main policy objectives

The main objective of this strategy is to set the strategic vision and key priorities for the development of space and space-based activities in Europe by 2020, maintaining the EU as a significant space player with a comprehensive, consistent and predictable stand over its space activities.

Through an open and inclusive process, involving consultations with all relevant stakeholders in the European space community and those engaged in developing new markets reliant on the new information the satellites generate, the Communication will identify key priorities and actions to enable Europe as a whole to reap the benefits of its space investments and allow the European space industry to remain a world leader in a dynamically changing global context. Such a shared policy can then be used by all actors (at European, national or industry level) to guide their respective investment decisions. The specific objectives of the Strategy are:

1. Implementation and market uptake of Copernicus and Galileo

The Strategy will confirm that the key priority for the European space policy will remain the implementation of Copernicus and Galileo. Furthermore, the Strategy will identify possible measures to support the market uptake by the European economy and public authorities. This will in turn benefit the broader public, as well as the economic operators in areas relying on space-based data. It is important to ensure that European industry is well prepared for the market uptake. The support of the market uptake may require various concrete measures. The content and scope of these measures will be carefully prepared in consultation with the relevant stakeholders and Member States. In view of the differences between Copernicus and Galileo, the measures will have to be targeted to the particular stakeholders.

In the case of Copernicus, the major challenge is to enable users to easily, fully and rapidly access Copernicus data so that these are disseminated and used as widely as possible. Copernicus will play an increasingly important role to support EU polices and legislation in various fields (e.g. environment, climate, development, agriculture, security) improving their efficiency and effectiveness.

Concerning Galileo, the intention is to develop a strategic approach based on a set of technical, sector-based and carefully chosen initiatives, selecting key sectors for the general interest with a maximum spill-over effect for market impact. The objective is that the use of Galileo and EGNOS is maximised and contributes to technological development, economic growth and job creation.

The actions may be accompanied by appropriate communication and information activities aimed at raising the awareness of the public and private sectors.

2. New market opportunities for space-based applications and services

The Strategy will identify possible obstacles to the increased involvement of private sector in space activities, as well as the commercialisation of space-based applications and services. This may result in possible future actions aimed towards improving the framework conditions promoting a competitive European internal market for space-based applications and services. Where necessary, concrete measures may be proposed in the Strategy to improve the functioning of the internal market. Furthermore, the Strategy may formulate ideas on how the participation of private sector could be strengthened. The institutional needs of the EU as regards access to space will be taken into account. The Strategy may also identify other support measures.

3. Governance of European space policy

The Strategy will reiterate the importance of the partnership with ESA. The Strategy would be expected to provide clearer guidance for further work, including how to ensure the greatest possible complementarity.

4. Other areas of action

The Strategy would - if justified - identify the need for other actions in areas not covered above. On one hand, it will consider space research and other possible technical support measures aimed, in particular, at intensifying the link with space policy with a view to supporting the uptake and evolution of space programmes and strengthening the space industrial base in Europe and its non-dependence in critical technologies. On the other hand, it may cover questions of possible need for further capacity development in space, taking into account its dual-use dimension. The possible initiative on GOVSATCOM under the Action Plan for European Defence Industry is a good example.

B. Option Mapping

Option 1:

The Commission will take no further action beyond implementing the existing policy and legislative framework including the two space programmes. This would mean that there would be no further support provided on the market uptake beyond what is already foreseen. It would also mean that the development of products and services based on space-data would take place in the context of the existing rules/conditions on the internal market.

Option 2:

The Commission will adopt the European Space Strategy with the objective to establish the overall vision of this Commission for future European space policy. This would likely take the form of a Communication. The Strategy would launch a broader discussion with all relevant stakeholders, including Member States, ESA and industry. Depending on further analysis, the Strategy may be accompanied or announce further measures implementing the political orientations set out in the Strategy. The concrete form and content of such measures will, however, be decided separately and, where appropriate, after having carried out an impact assessment.

The follow-up to the Strategy may require the combination of both legislative and non-legislative instruments. The concrete measures would be proposed in the above-mentioned four areas (see point C).

What are the benefits and costs of each of the policy options?

Option 1: The problems outlined in section A, in particular as regards supporting a broad market uptake of the EU space programmes as well as the removal of any potential obstacles to further development of space-based applications and services and the relations with ESA, would not be addressed beyond the implementation of existing legal and policy framework and further steps already foreseen. As regards the market uptake in the area of satellite navigation, this may mean that the uptake remains limited in view of the competition with the US, Russian and Chinese global navigation systems. As regards the market uptake of Copernicus, the volume of acquired data (ca. 3 petabytes per year by 2017) would likely exceed the existing data management and dissemination capabilities and therefore create a serious bottleneck to the effective implementation of the programme. In both cases, non-action would limit the exploitation potential socio-economic benefits from the programmes. In the area of internal market with products and services based on space data, any potential obstacles could only be addressed in the framework of the existing internal market legislation. Similarly, the relations with ESA would continue to develop on basis of an outdated Framework Agreement without addressing some of the underlining structural issues.

Option 2: The Strategy will allow the Commission, in cooperation with ESA and the Member States, to formulate a coherent vision for the future European space policy. The Strategy would send a clear political signal to the space industry and related industries which would boost their confidence to further invest in space. On the market uptake under Galileo, this would encourage the industry to expedite its efforts to develop Galileo enabled chips and receivers, as well as propel the development of new applications and services based on Galileo. Similarly, as regards the market uptake under Copernicus, this would help maximise the socio-economic benefits from Copernicus for coherent policy-making and research activities as well as for the wider public. In the area of internal market with products and services based on space-borne data, the Strategy would help identify any possible obstacles and announce corresponding action. Support to other space-based activities shall also be considered. As regards the relations with ESA, the Strategy will be instrumental in providing a coherent political vision for the partnership and would strengthen the confidence of both ESA and the Member States in this respect. While the Strategy itself will not result in any costs for the public authorities or industry, any possible costs associated with the concrete measures announced in the Strategy or accompanying it would be assessed separately.

Proportionality check

The options are considered proportionate in terms of the costs and the benefits in view of the objectives to be achieved. The European Space Strategy will be elaborated based upon the experience of the EU Member States and ESA, within their respective competences, and taking into account the specific challenges faced by the sector aiming to maintain and increase its competitiveness on the global market.

C. Data collection and Better Regulation instruments

Data collection

The Strategy will take account of the existing information on the implementation of the two space programmes, as well as other information. In particular, the following information will be considered:

For Copernicus there are a number of ongoing and planned activities:

- Requirements Framework for Copernicus next-generation space component, in order to provide ESA with a User Requirements Document by mid-2017 (ongoing).
- Study to examine the GDP impact of Copernicus in the EU.
- Study on Engaging with public authorities, the private sector and civil society for Copernicus user uptake.
- Task Force on Integrated Ground Segment and Big Data (ongoing).
- JRC Working Groups on Big Data/Dissemination Platform solutions.
- Study on Earth Observation Dissemination Platform support and Services.

In the case of Galileo, technical data regarding the use of different GNSS constellations was provided by ESA. A technology penetration monitoring study was done by the GSA, along with Key Performance Indicators on the implementation of the Action plan on GNSS applications and an updated value of the EU market share of the global GNSS market. In addition, a specific study on GNSS in critical infrastructure was undertaken for the GSA by an external contractor.

The existing impact assessment and evaluation work, notably in the context of the two space programmes and the review of the EU-ESA relations, would be taken into account.

Specific communication and information activities are likely to accompany the adoption of the Strategy as well as the possible concrete measures.

Consultation approach

A broad public consultation process is envisaged.

DG GROW has an ongoing stakeholder dialogue with Member States through a number of established expert groups which will be used in the preparatory process.

An increased dialogue between the Commission and the space industry shall be developed as part of an inclusive consultation process along with all the relevant institutional space stakeholders at European, regional and local levels on key space policy activities of common concern, both in relation to the flagship programmes Galileo and Copernicus, or in EU space industrial policy and space research.

For Copernicus, participating countries, entrusted entities and stakeholders are continuously consulted through the Copernicus Committee and the Copernicus User Forum. It is envisaged that public consultation will further be achieved via the use of the Copernicus Inter Service Group in order to consult other services.

For Galileo, a 2-stage public consultation has taken place in 2013 in written form followed by a public consultation meeting. Furthermore, continuous consultation takes place through the Galileo Programme Committee, as well as through the different user group fora established by the European GNSS Agency.

'The consultations related to this initiative will be published on 'your voice in Europe': http://ec.europa.eu/yourvoice/index_en.htm

Will an Implementation plan be established?

☐ **Yes** **X No**

Due to the nature of this initiative, an Implementation Plan is not required. The Communication will include an Action Plan that will outline the foreseen follow-up actions and timing.

Will an impact assessment be carried out for this initiative and/or possible follow-up initiatives?

No impact assessment is envisaged in view of the Strategy, although some individual follow-up actions may require an impact assessment at a later stage. Preparatory work is already on-going through a series of stakeholder engagements and technical studies. All relevant Commission DGs will be involved in the preparation of the Strategy and any possible individual initiatives under the Strategy.