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From:	Presidency
To:	Permanent Representatives Committee/Council
Subject:	*Preparation of the Council ("Competitiveness") of 26-27 May 2016* **Uptake of space data** - Exchange of views

Presidency Initiative on stimulating the uptake of space data

I. FOCUS

The main goal of this Presidency initiative is to stimulate the uptake of space data, by promoting its optimal use and exploring its potential, while trying to reduce barriers. Space data in this context refers to data and information produced by Copernicus and signals stemming from the European Satellite Navigation Programmes (Galileo and EGNOS).

Such data even more so when coupled with data and information from other terrestrial sources and ICT solutions can produce valuable contributions to numerous markets.

The Presidency invites you to take action in stimulating the uptake of space data.

II. CONTEXT

The Presidency has, through the use of the illustrative themes in the domains of agriculture, air quality and automated transport, identified and further described the context, benefits, challenges and barriers encountered in leading its initiative. These are reflected in this document.

In addition, the Presidency has collected best practices from Member States which have been assembled into a booklet.

III. INTRODUCTION

Space data, applications and services, coupled with the rapid development of the digital economy, offer enormous potential benefits for more effective and efficient public policies, as well as opportunities for science, the private sector – especially in the business of value adding - and society. Many of these activities can be improved through the use of space data. It is worth noting that the largest impact can be found outside of the space domain.

As the EU space programmes (Galileo and EGNOS, Copernicus) gradually unfold their operational capability, a wealth of data and services is becoming available for the economy and society. European companies and users in general should be able to reap the benefits of the large public investments made over several decades into European Space programmes.

In this way space can contribute to sustainable growth, jobs and tackling societal challenges in the EU. In addition to the investments in upstream space infrastructures, investments in downstream developments are also necessary to demonstrate the important role of space in achieving the key objectives of the EU policies and for paying off the investments made. Thus underlining that investments in the space sector are investments in science, business and society.

New initiatives with the use of space data are arising gradually, however, until now at limited speed. The wide potential of the use of space data, services and applications is technically proven but not necessarily well integrated in other policy domains outside the space domain.

With some milestones in place, it is time to exploit this potential to its fullest.

IV. BENEFITS

In general, the (potential) benefits can be found in more effective and efficient monitoring, large and continuous availability of homogenous data covering the wide surface of Earth (including oceans) and a safer environment. Furthermore, it brings more flexibility and a great approachability for citizens as well as in fostering public health, economic growth (also for SME's) and competitiveness of the EU.

Indicatively, examples include the improvement of traffic safety and traffic flows, more efficient and cost-effective manners of complying with regulations and the timely availability of information on the transport of air pollutants.

To underpin the space economy and facilitate the envisaged socio-economic impact, there are actions to be considered at European, national, regional and local levels. Such actions are discussed in the following sections.

V. CHALLENGES AND BARRIERS

Even though the benefits of using space data have been recognised for multiple purposes, this has not (yet) resulted in an optimal uptake of space data in many of the targeted domains. Both the user and market uptake are much smaller than expected based on the available resources. In conclusion, the mere availability of data is not enough to unleash the envisaged socio-economic impact.

Different disciplines and domains face different problems and challenges or combinations thereof. Indicatively, these vary from legal constraints (e.g. space data are not perceived as a validated monitoring resource, their use is not foreseen by law, space data are *de facto* excluded) to cultural constraints ("we always did it this way and it works") and to quality constraints (e.g. the available data does not meet the required standards).

The challenges and barriers encountered can be divided in several categories, namely:

- *Legislative:*
    - legislation may either provide (some) room for using space data, or tend to be less favourable to new developments;
    - observation requirements may not include requirements for specific legislative purposes, e.g. limitations/thresholds in certain aerosols are not measured as such.
- *Technical:*
    - there is a need for coordination of common technical specifications to allow the streamlining of methodologies, even in areas where legislation provides for the use of space data;
    - technical barriers can be encountered when processing rough data/signals into useable applications;
    - available observation capacity may not address the needs for all types of applications directly (e.g. measurements are at fixed times, dependent of cloudiness and not intensified at “hotspots”).
- *Policy:*
    - existing Union policies and programmes do not sufficiently support the uptake of space data yet;
    - attention is needed to focus beyond what can be done with these data (supply) and identify what needs to be done (demand);
    - considering the European policy goals and cross border effects, an unfavourable international environment (where non-EU countries put rules in place that favour their own space data) could provide problems.
- *Organisational culture :*
    - personnel that process data or monitor are not always sufficiently trained, might not be provided with the appropriate tools, or do not have access to space based services (yet).

- preference for the status quo: a working classical non-satellite based solution already in place can hinder the development of new techniques. Also the realisation that satellite data cannot completely take over the current methods, can lead to demotivation to work with these newer methods.
- a better integration of the use of information derived from space in proceedings of different markets, is necessary before it can become an operational tool.

- *Security:*
  - when depending on space data, accuracy, continuity and reliability are important preconditions;
  - there is a need for the security of radio navigation services against (un)intentional threats (e.g. spoofing, replay attacks, jamming etc.) and an improved robustness of such services;
  - for the prevention of natural disasters and in terms of security proven instruments seem to be preferred.
- *Privacy and liability:*
  - there is a need to address the ethical and privacy issues when the behaviour of people in a certain field is monitored through the use of satellite data;
  - liability aspects may come into play if the use of space data becomes an integral part of specific services.

VI. POSSIBLE FOLLOW-UP ACTIONS

Consequently, collective and inclusive objectives will be necessary at European, national, regional/local levels:

- to tackle technical barriers (notably those associated with the access, combination and use of big data for Copernicus or receivers and chipsets for Galileo);
- to tackle market barriers by establishing appropriate framework conditions;
- to stimulate the private sector by supporting innovative companies;
- to foster and structure public demand on feasible levels.

The Presidency has therefore identified the following possible follow-up actions, which can be taken on by either the European Commission, the Member States or in cooperation between both:

- *Obtain business cases*

  The likelihood of one or more of the barriers listed above actually being barriers that prevent the optimal uptake of Space data has to be examined. Business cases can bring such information, e.g. through the use of Horizon 2020 projects and innovative procurement schemes such as SBIR (Small Business Innovation Research), with the added benefit of automatically getting businesses more involved.

- *Work on a vision for the longer term and the next generation of satellites*
  While working on requirements for the next generation of satellites on both Copernicus and Galileo, anticipate the technical adjustments needed to maximise the uptake of satellite data in certain areas into account.

- *List opportunities and bottlenecks in the current regulations*
  It would be useful if the European Commission could perform a check on the current regulations which prescribe monitoring to identify whether the regulation leaves enough possibilities for innovation and to identify other possibilities in monitoring or reporting activities.

- *Work on a holistic approach – combine data from different sources*
  Space data is not a panacea for all monitoring requirements. Further efficiency is likely to be attained by combining information from several monitoring instruments (classical field inspections, drone information, aerial information and satellite information).

- *Run pilot cases with a view to structuring user communities*
  - On the basis of opportunities identified, the European Commission could propose pilot cases involving public authorities and service providers ready to test common specifications, either demand-driven or market-driven;
  - Call upon the different private and industrial sectors, including the space, ICT and insurance sectors, to work together on developing new technologies and services. The industrial sectors to involve can be broad: agricultural, transport, automotive, ... etc.;

- Start and facilitate, by the exchange of good practices, the dialogue and cooperation between industry, research institutes and governmental bodies on the establishment of minimal requirements in the field of accuracy, availability and authentication of different satellite systems.

- *Promote space clusters across Europe*
  - On the basis of existing initiatives at some Member States (e.g. boosters, space clusters or innovation clusters), establish a set of common functions, which should be provided by such a cluster (e.g. support to start-up's, involvement in innovation procurement);
  - Promote cooperation across space clusters both in terms of tools, policies or programmes but also regarding projects referred to above.
- *Identify how the uptake of space data can be supported in Union policies*
  - Promote the use of space in Union policies (e.g. Single European Market, Digital Single Market, Capital Markets Union);
  - Identify synergies with other Union programmes (e.g. European Structural and Investment Fund).
- *Involve citizens*

  Use the communication-power of satellite maps to convey improvements on different (policy) levels through the use of satellite data to citizens and provide them with approachable information.

VII. QUESTIONS FOR THE EXCHANGE OF VIEWS

In the light of the overall context described above, the Presidency invites the Council ("Competitiveness - Space part") on 26 May 2016 to address the following questions:

1. What do you perceive to be the two most significant challenges/barriers preventing the optimal uptake of space data?
2. Which two of the possible follow up actions do you consider the most promising and would you be ready to take these up in your own country?
3. Which actions should be prioritised in the European Space Strategy?