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Ministry of Economic Affairs

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Dealt with by

Date **- 21 JULI 2016 -**
Re Netherlands contribution to the EC- consultation on the Space Strategy
for Europe.

Our ref.
DGBI-I&K / 16111978

Your ref.

Encl.
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Dear Mr. Delasaux, dear Pierre,

Following-up from our recent bilateral exchange on Tuesday 14 June, attached I send you the contribution of the Netherlands to the EC-consultation on the "Space Strategy for Europe".

Moreover, for your information, I send you attached the conclusions of the Presidencies of the EU-ESA Informal Space Ministers Meeting (The Hague, 30 May 2016), as well as The Hague Manifesto on Space Policy.

I wish you wisdom and success for the rest of the process of drafting the Space Strategy for Europe in close collaboration with ESA and the Member States.

With kind regards,

Jasper K. Wesseling,
Dep. DG Enterprise & Innovation



Contribution of the Netherlands to the European Commission's consultation on the "Space Strategy for Europe"

This contribution is the national submission of the Netherlands. It does not follow the structure of the Commission's questions, but contains ten aspects (without priorities) which the Netherlands deems relevant for the future space strategy for Europe. By implication however, these aspects allude to a number of the questions raised by the Commission in its consultation.

1. Summary of the Dutch Presidency of the EU Council of Ministers.

On 26 May 2016, the Competitiveness Council/Space met in Brussels. At the initiative of the Netherlands EU Presidency, this meeting was dedicated to the uptake of satellite data, with a view to promoting optimum use of existing/future satellite infrastructure in space. The Ministers present were extremely positive about this initiative. When asked, they put forward a number of suggestions/proposals to further improve the utilisation of satellite data. Commissioner Bieńkowska promised that explicit attention would be paid to the uptake of satellite data in the forthcoming space strategy for Europe.

At political level, on 30 May 2016 the informal EU-ESA meeting of space ministers took place in The Hague. This meeting was attended by ministers from 30 EU & ESA member states (the 28 EU member states, plus Norway and Switzerland as non-EU member states of ESA), the Commission, ESA and a number of European organisations which are actively involved in the European space sector and were invited as observers. The ministers present unanimously indicated that they wanted to see a single European space strategy, drawn up jointly by the European Commission, ESA and the respective member states. They emphasised the importance that they placed on close collaboration between the Commission and ESA. In addition, the ministers said that they believed that it is crucial that in the future space strategy consideration will be spent to the following:

- strengthening of the European space sector (upstream and downstream);
- the guaranteeing of independent, autonomous, cost-effective and reliable access to space for Europe; and
- maximisation of the benefits offered by the investments made in space infrastructure (the European space programmes Copernicus, EGNOS and Galileo) and ensuring the continuity of satellite data and signals in the future by investing in replacement/new satellites.

Then, between Monday 30 May and Friday 3 June, the European Space Solutions Conference was held in The Hague. More than 1,400 experts attended this associated presidency event, mainly from European countries but also from outside Europe. There were a large number of sessions on a wide range of topics, with a total of 125 speakers. Here too the focus was on promoting the use of data, generated by the Copernicus and Galileo programmes in particular, wherever possible, particularly in sectors other than the space sector. Satellite data can be used to good effect in fields such as monitoring the application of subsidy conditions (CAP, regional policies, etc.), precision agriculture, e-mobility, navigation systems for vehicles, ships and planes, monitoring the quality & capacity of infrastructure (including dikes), energy exploration, healthcare, environmental monitoring, climate monitoring, rescue operations in the event of a disaster, security and a whole host of other applications.

Clearly there is a need to raise awareness of the potential which satellite data offer for all these sectors beyond the space sector. In addition, many companies, both in the space sector itself and in particular companies which convert satellite data into services for other companies, knowledge institutions and public authorities, have a strong requirement for easier access to public and private sources of funding, such as venture capital. The European Commission representative

expressly stated that particular attention would be paid to these aspects in the future space strategy for Europe.

The Netherlands has drawn up "The Hague Manifesto for Space Policy" and submitted it to Commissioner Bieńkowska. This Manifesto summarises the key outcomes of the aforementioned three space events organised during the Netherlands Presidency of the EU.

During the Netherlands EU Presidency negotiations have been initiated within the framework of the EU-Council on Transport with Norway and the United States of America on access to the use of the Galileo Public Regulated Service (PRS).

2. Strengthening of the position of European space companies and trend for smaller satellites

For decades space-related activities have primarily been driven by curiosity. The players involved have been governments. Nowadays, we are increasingly seeing commercial companies developing space-related activities independently. Whereas in the past this was limited to telecommunications companies, internet providers are now also actively building satellite capacity in space. At the moment these are mainly American companies owned by wealthy entrepreneurs. It is predicted that this trend will also be seen in Europe and will probably not remain limited to communications companies.

"Big data" is already being billed as the "new oxygen of mankind" with all the applications and apps which mobile telephony currently offers, which are often enabled by data from satellites. It is anticipated that private companies will gradually also become involved in other space segments, such as earth observation, meteorology and navigation, including the associated space infrastructure.

This will be facilitated by the trend for ever smaller satellites, compact satellite instruments and lower launch costs for satellites. Plans by companies/entrepreneurs for the launching of substantial constellations of small satellites are already at an advanced stage. These interlinked satellites will then be able to provide internet and other services in almost any location in the world. This would take care of a growing social requirement. Citizens want to be able to obtain and share all kinds of information in real time, even if they are "in the middle of nowhere". Companies also have a significantly increasing requirement for information. Being able to provide for this is an interesting growth market in which satellites and satellite data play a key role. Europe (Member States, the Commission and ESA) should consider how it can create conditions which will enable industry to respond proactively to these trends. This may involve, for example, identifying and tackling any unnecessary obstacles which currently hamper the activities of these companies.

In the Netherlands' opinion, European governments should respond to these trends by providing scope for private initiatives. At the same time, the government should bear in mind the existing European space infrastructure in order to guarantee the continuity of supply of satellite data/services. The Netherlands consistently argues for drafting one single European space strategy. This should include a widely supported industrial policy aimed to enhance the competitive position of European space companies and knowledge institutes. The Netherlands welcomes due attention to this aspect within the upcoming European space strategy.

Responding to the advent of demand-led activities is another relevant trend, particularly in the context of the need to tackle societal challenges. Satellites can play a key role in precision agriculture, deformation measurement, air quality monitoring, ice monitoring, water quality, etc. Unlike in the past, when space-related activities were determined by technological capability (supply), nowadays the choice of space programmes and activities should be defined primarily by the needs (demand) of science, knowledge institutions, companies or society as a whole, particularly where government funding is involved. Given the time required for the development, construction and launch of satellites, future requirements should be anticipated through a process of roadmapping with stakeholders.

Recently a major change have been effectuated in the governance of the European launcher industry in order to improve its competitive position. Arianespace SA has been privatized by selling the governmental stake to private shareholders. The role of ESA has been reduced substantially and will now focus on defining the requirements for launching capacity for the future institutional demand of ESA, the European Commission, EUMETSAT, as well as of governments of Member States.

In Europe there are two major consortia that build large European launchers (Ariane and Vega) which are of French/German and Italian origin respectively. Dutch companies supply components for the construction of these launchers. In addition, there are several companies in Europe, such as in Switzerland, Norway and the Netherlands, that build launchers or are keen to build launchers for launching small(er) satellites.

As a result of the increasing miniaturisation of electronics, instrumentation and consequently also satellites, in recent years a demand has emerged for a category of small launchers, which can launch satellites into their own orbit in a flexible and competitive way. Both ESA and the European Commission should facilitate this process by promoting the necessary technological developments. Harmonisation of these initiatives is crucial.

In the opinion of the Netherlands government, the Commission and ESA should leave the actual development and construction of launchers as far as possible to industry, clearly indicating however the type of launchers they require for future launches (their "demand").

As in the US, Russia and China, when launching satellites for institutional use, preference should be given to the use of "own" launchers, provided that these are offered at competitive prices. The objective should be to further limit the existing role of ESA in these areas and to transfer the responsibility and risks as much as possible to private companies concerned. The Netherlands does not foresee a special, new role for the Commission in this field.

6. Space and security

Security is a very broad term which includes a wide variety of fields.

On the one hand it concerns threats to the earth and the existing/future infrastructure in space, such as satellites and the International Space Station (ISS), from solar flares, meteorites and space debris. On the other, it concerns the role that satellites can play in improving security on earth.

- Space weather and meteorites: this mainly relates to the early detection of and warning for the consequences of solar flares/winds and space radiation. In some solar flares, so much electromagnetic radiation is released that it can seriously disrupt the operation of satellites and can have an adverse effect on communications and energy infrastructure on earth. Providing early warning of such events and researching how vulnerability to these kinds of threats might be reduced are tasks which should be tackled at European level. The same applies also to early warning of the arrival of meteorites. Further international collaboration in this field between all countries involved in space is desirable.
- Space debris: with the presence in space of an ever increasing number of satellites and the remains of launchers, the risk of damage to regular satellites and space objects such as the ISS is increasing. Given the speed at which they are moving, even minuscule particles can have a significant impact on other space objects. The European Commission, in conjunction with ESA, industry and, if possible, countries themselves (including non-European countries), must develop a system for removing obsolete space debris from space.
- Satellites and security on earth: satellites are playing a growing role in facilitating/supporting various security tasks on earth:
 - territorial and social: support for the tasks of security organisations such as the Ministry of Defence and the police in the fight against crime and terrorism, and monitoring migration-related developments;
 - economic: helping prevent adverse economic effects from natural disasters or human actions;

- o disaster management: through monitoring and early detection, satellites can assist in ensuring a quick response in event of disasters, such as earthquakes, flooding's, droughts, etc.;
- o physical: satellites can be used to observe physical objects. This includes, for example, monitoring of dikes, high water levels and a rise/fall in the ground. This may be preventive or, in the case of earthquakes/tsunamis, it may involve the deployment of targeted assistance.

Consideration could be given to organising some of these functions at European level with the use of satellite data.

- Dependence on satellite data/images: greater dependence on satellite information also entails risks. These risks should be identified in a European context, and it must be established how these risks can be kept to a minimum.

7. Space science, exploration and exploitation

The space policy of the European Commission and ESA should continue to support the high quality of European space and earth observation research, in order to take our understanding of our solar system and the universe to a higher level and to further improve our understanding, amongst others, of climate and the earth's atmosphere, including the interaction with the oceans. The challenge is to arrive at an optimal efficiency in the cooperation between space policy and science. Continuation on the European level of the financing of space science programmes as well as of supporting activities (such as instrument-/technology development) is essential.

On space within the Netherlands three research areas are prioritized:

- Astronomies/astrophysics
- Earth sciences (atmosphere, surface and oceans)
- Planet research.

Earth observation is gaining in relevance, both within the context of climate research as well as for the development of downstream activities. The relevance will increase in the near future. In this area there is a strong synergy in demand management between earth sciences and non-scientific applications for governments and private activities.

More in general, the valorisation of science is gaining in relevance: that is the reason why the Netherlands is advocating the intensification of cooperation between science and space to promote the impact on society. Meanwhile, there remains the need to earmark financial means for innovative "blue sky" research projects at European level. That level is required to organize international exchanges, workshops, space-events and calls for international consortia and need to be promoted/facilitated. Scientific excellence should remain the essential criteria for the selection of activities to be supported.

As to satellite missions: the continuity of scientific missions should be assured. There remains the need for an adequate interaction between scientific and operational missions and avoidance of overlaps. Clearly defined demands from the scientific community should continue to define the selection of scientific missions. When starting new scientific missions there is a need to define a plan at an early stage for the distribution of and access to the data generated by the mission. Free, fast and easy accessibility to data is a prerequisite for the optimal development of scientific applications.

As far as space exploration is concerned, clear priorities must be set and, wherever possible, collaboration should be at the international level. Given the risks to human life, for long-term missions to Mars and beyond, robot technology should ideally be used. Space missions to the ISS and the moon may be made with astronauts.

Astronauts have a key role to play, not only in space but also on earth, in inspiring the younger generations to engage in science, technology and technology-related educational courses.

Commercial interest in exploration for minerals which may be found on celestial bodies such as planets, moons and asteroids looks set to increase. The existing international regulations for the use of space must be made more detailed in this regard, in order to create a clear legal framework within which companies and/or organisations can develop their activities. The Netherlands is the chair of the recently created working group for the development of an international legal framework for the exploration and exploitation of space materials.

8. Instruments for the implementation of space policy

Where issues relating to space policy and/or implementation are identified, we should look expressly to Horizon 2020 and its successor from 2021 onwards to devise questions and offer solutions. In this context, when defining both the space strategy and the implementation of Horizon 2020 (and in particular its successor), every effort should be made to link the two. In addition, it is essential that the EC and ESA properly coordinate their activities in the field of research and technological development.

On a different level, consideration should be given to the instruments which are available for raising awareness of the opportunities offered by satellite data amongst policy areas. This may, for example, be a system for streamlining reports including the use of satellite data.

9. Space-related regulations

Collaboration in the field of space in Europe must primarily be based on programmes and specific collaborative projects with ESA and/or EU member states. Given the current developments in the EU, the Netherlands urges the Commission to exercise the utmost restraint with regard to proposals for further regulation in the field of space in Europe. Such regulation will only be acceptable if it is clearly beneficial to the realisation of the Internal Market within the EU. Legal agreements relating to the exploration and exploitation of space should ideally be concluded in a UN context. If this route fails to deliver adequate results, if necessary, new regulations in an European context may be resorted to.

10. Collaboration between the EU, ESA and Member States regarding space programmes

The European Commission and ESA should jointly elaborate the new European space strategy, taking into account the ideas, suggestions and wishes of their Member states. Jointly they should develop initiatives for new space-programmes. ESA should have the role of programme implementation agency in terms of science, development and realisation. The EU should remain responsible for the management of EU flagship programmes Copernicus, EGNOS and Galileo.

The Netherlands advocates an intense cooperation between the European Commission and ESA regarding space-related activities within the Horizon 2020 programme and the ESA Technology Development programmes.

At the outset the collaboration between ESA and the European Commission in the building of space infrastructure under the Copernicus and Galileo programmes have been confronted with setbacks due to an unclear distribution of roles in the management of these programmes and in the procurement activities related to the realization of these programmes. In recent years, both the Commission and ESA have invested a great deal of time and energy in the successful implementation of these programmes and in their bilateral relationship. We witnessed clear progress and call for further improvements. A joint European space and industry strategy should be one of the key results and prove of this substantially intensified cooperation.

Both institutions need each other if they are to achieve Europe's space objectives. Both the Commission and the ESA-Executive are beginning to realise that this is the case. During the Netherlands Presidency of the EU Council of ministers in particular, considerable progress was

made in the collaboration between the two organisations. During the informal EU/ESA Informal Space Ministers Meeting held on 30 May 2016 in The Hague, the European Ministers, the Commission and ESA explicitly expressed their strong desire to define a single European space strategy for both the EU and ESA and to collaborate closely with each other in defining it, as well as with the EU and ESA Member States. The Netherlands wholeheartedly welcomes this development. It urges both institutions to draw up clear working arrangements around the preparation and implementation of the forthcoming strategy, in particular around the division of tasks/roles and the tendering of contracts. Ideally, these arrangements should be generic and pragmatic in nature.

The Hague, 12 July 2016

22-7-2016



Ministry of Economic Affairs

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Verzendlijst

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Dealt with by

Date
Re Letter with conclusions of the EU-ESA Informal Space Ministers
Meeting, The Hague, 30 May 2015.

Our ref.
DGBI-I&K / 16086122

Your ref.

Dear Minister/Commissioner/DG.....,

Encl.

We, the Presidencies of the EU-ESA Informal Space Ministers Meeting, held at The Hague on 30 May 2016, express our sincere gratitude for the most valuable contribution of you or your delegation to this informal meeting. We highly appreciated the constructive and forward looking spirit of the interventions in the debate.

In line with the results of the informal Space Council meeting held on 30 November 2015, the Presidencies have summarized from the inspiring debate which took place on 30 May 2016 a number of highlights.

At the end of the debate we promised to share with you the Presidencies conclusions derived from the interventions in the debate. Although many relevant comments have been submitted, we have retained the following conclusions.

Ministers of Space of EU- and ESA-Member States largely expressed their clear preference for a single and coherent European space strategy to be elaborated by the European Union and the European Space Agency ESA, in co-operation with all their Member States, being a foundation for the space programmes of both institutions.

Ministers especially welcomed the reinforced dialogue between the European Commission and ESA Executive, in particular the progress in defining a set of common objectives and principles which would provide the foundation for a common overarching vision for the benefit of Europe as a whole.

Ministers invited the Commission and the DG ESA to continue their intensive cooperation to achieve this objective shortly and they further supported the proactive involvement of all Member States

Ministers identified inter alia the following three clear policy objectives for European space strategy”:

- **Developing a strategy to ensure that Europe will maintain a strong and globally competitive space sector** boosting innovation and reinforcing both its upstream and downstream industry; Ministers considered the further development of the use of space data and infrastructures, and the resulting applications and services, as a cornerstone for economic growth and societal benefits; Ministers mentioned also the need to attract more private funding as well as the need to increase the awareness of people in Europe on the potential of space to other socio-economic sectors.
- **Ensuring independent, i.e. autonomous, cost effective and reliable access to space for Europe;** in particular Ministers recalled the importance of using current and future European developed launchers by institutional European and national customers, and ask for granting preference to their utilization for appropriate payloads if this does not present an unreasonable disadvantage.
- **Maximizing the benefits of the investments done in the existing European space infrastructures,** i.e. by consolidating the Galileo and Copernicus programmes and preparing their next generation, thus ensuring the continuity of satellite-data for all kinds of downstream service activities.

In accordance with the interest they expressed on 30 November 2015 to meet regularly as defined in the EU-ESA framework agreement in force, EU and ESA Ministers expressed their satisfaction with the organization of this meeting and agreed on the importance of continued exchanges on space activities.

We are of the opinion that this synthesis do reflect both the debate and the main messages that have been exchanged on 30 May 2016 at The Hague.
We look forward to continue the discussions with you on the European space strategy and programmes.

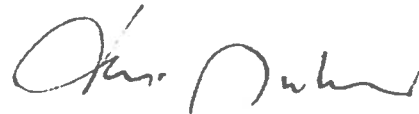
Yours sincerely,



Henk Kamp
Minister of Economic
Affairs of the Netherlands



Étienne Schneider
Dep. Prime Minister
Minister of Economy
and Trade of Luxembourg



Mauro ell'Ambrogio
State Secretary for
Education of
Switzerland



The Hague Manifesto on Space Policy

The Hague Manifesto on Space Policy covers the following subjects: context, challenges, concrete topics, competitiveness, continuity, creating awareness and constructive cooperation.

Context of the Manifesto

- This Manifesto presents the main findings on space policy of the 2016 Netherlands Presidency of the Council of the EU,¹ with the intention of serving as input for the forthcoming Space Strategy for Europe and the joint ESA-EU statement on this strategy.
- The space domain - with its technological developments and the use of space data, signals and applications - can stimulate sustainable growth and jobs in the European Union and can help find solutions for global societal challenges. The use of space data, signals and applications also provides an opportunity for citizens to obtain more information and for public authorities to increase citizen involvement.

¹ These findings are the combined results from the Competitiveness Council on Space meeting on 26 May 2016, the EU-ESA Informal Space Ministerial Meeting (ISMM) on 30 May 2016 and the main messages of the opening and policy days of the European Space Solutions Conference (30 and 31 May 2016).

- To fully benefit from the potential of space programmes and systems, a shared, coherent vision and strategy on EU and ESA space policy will help chart the course for the years to come, thus guiding the development of the European space programmes in the period until 2030.

Challenges for European Space policy

- Accomplish full integration of space into the European economy and society, involving public authorities, the research community, the private sector and citizens. This includes removing the obstacles to an optimal uptake of space data, thereby contributing as much as possible to tackling societal challenges (such as climate change) with the use of space data, as well as providing a testbed for digital/big data challenges. It also involves enabling potential public and private users of space data, signals and applications by raising awareness and providing tools (e.g. training) to maximise the uptake of space data. Another element is connecting the relevant EU policy areas to the potential benefits of space applications in the field concerned.
- Support Europe to remain globally competitive in the space domain.
- Ensuring independent and affordable access to space.
- Follow the developments and seize the opportunities offered by the trend "New Space", such as the focus on small satellites, large satellite constellations and solving societal challenges.

Concrete topics on uptake data and security

- Foster a solid uptake of space data by the market, public authorities and citizens, providing an increased return on investment in space infrastructure and space programmes. To achieve this, assess how to

This is also important in connecting Copernicus services to the downstream sector in order for this sector to further develop commercial activities based on satellite data.

Create awareness

- Set up a three-pronged strategy for raising awareness:
 - 1) Make public authorities, the research community and the private sector aware of the (economic) opportunities of using space data, signals and applications. Invest in the development and sharing of good practices and business cases in the EU and ensure sufficient skilled people are trained.
 - 2) Promote the use of space through EU programmes, principally Horizon 2020 and future Framework Programmes. Work towards synergy in the development of the European Space Strategy, Horizon 2020 and future Framework Programmes on the topic of space.
 - 3) Actively involve citizens.

Constructive cooperation

- Make efficient, reliable and consistent European cooperation between the EU, ESA and their Member States, based on existing expertise and capabilities, a essential precondition for the strategy, with collective action on multiple aspects of the space strategy.
- Work *on* and *in* space clusters, with the research community, public authorities and private organisations/businesses, in order to establish an integrated approach and learn from one another.

The Hague, June 2016

The Netherlands Presidency of the Council of the European Union