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Philippe Brunet, of DG Enterprise and Industry in the European Commission, sets out the role space will play in Horizon 2020 at the 2013 ESA 'Living Planet Symposium'

Collaborating space

The 2013 European Space Agency (ESA) 'Living Planet Symposium' took place in Edinburgh, Scotland during September 2013 and focused on disseminating the organisation's latest Earth Observation (EO) results through a series of forums and reports. The conference, attended by several EU R&D Framework Programme Projects, also saw researchers, politicians and representatives from the European Commission discuss Horizon 2020 and the impact of the EU's satellite navigation system, Galileo, and EO programme, Copernicus.

Philippe Brunet is Director for Aerospace, Maritime, Security & Defence Industries in the European Commission's DG for Enterprise and Industry. In an interview on the sidelines of the conference, Brunet began by providing an outline of the EU's Copernicus and Galileo programmes and the positive external effects of the space industry.

The worldwide competition in space technology is much more restricted compared to other industries. Space, by definition, is linked to innovative technology that can spin-off into other sectors. When talking about "space", we are not talking about space *per se*, but also about the effects of space-based technology.

For example, Copernicus is a programme that will boost innovation in the various sectors linked to space because of the way in which so many areas of industry are involved in the technology included in the satellites. It is primarily a service-oriented programme, of course, and we believe that the



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benefits from the programme will be both numerous and diverse, and these benefits will not be limited to the simple direct benefits expected from the development of space technologies.

An example of the way in which space activities can impact on other sectors, can be seen in the way that smartphone apps can be used to provide data on the atmospheric quality of a specific location thanks to merging of EO data provided by Copernicus and location data provided by Galileo. This has created numerous jobs in an area that was completely unexpected at the time the satellite system was launched.

Galileo is thus supporting a key sector of EU industry, and may even help this sector to acquire a leading role on the global stage. That is not only due to the spin-off effect that this mission is already having, but also to the fact that industry is in a prime position to be a driver of European innovation. The return on investments in the space sector in Europe alone is estimated to be a factor of five to ten.



To what extent does Europe have opportunities for partnerships and collaborations rather than competition in the space sector?

I have some doubts that we can readily switch from competition to collaboration. The goal of new, emerging economies is first to grow and then, after that, to contemplate collaborations. China, for example, is growing very quickly, and while there is the potential for possible collaborations in some fields (for example with compatible elements between Galileo and the Chinese system), in the field of EO, at least, it is difficult to say whether today's dreams of a significant Chinese presence in European space activities will come to fruition.

There are also numerous countries that want to develop their domestic industries, a necessary step before collaboration can be considered, and it is important that Europe does not try to halt that development for the sake of a potential collaboration that will be less beneficial for the developing region.

From an EU perspective, collaboration in the space sector assists the development of Union policies and the possible reindustrialisation of

Second Galileo IOV launch

Europe. It can create a more innovative, new type of industry, which could result in global European industrial leadership.

Given the fact that space has no borders, some co-operation is always going to be necessary in case there is a failure in one national or regional system. We also benefit from a complementary set of different systems in order to gain more precise data.

There seems to be a lot of crossover between the different objectives of Horizon 2020, with space appearing to straddle several pillars. Do you think this will help foster R&D collaboration with projects becoming more multidisciplinary?

I think so. Space has been recognised as one of the most important components of Horizon 2020, and is distributed among the different parts of Horizon 2020 – it is difficult to say which the best place for the sector is.

However, the EU's two flagships programmes, Copernicus and Galileo, are more user-driven than many other missions and activities, which may be the reason that they have been recognised as one of the priorities in this part of Horizon 2020.

The management of this new research programme still has to be fine-tuned, however, and to aid in this DG Industry has produced a work programme, the draft version of which will be discussed by the European Parliament and the Council and we will see how member states react – their input is very important.

European Space Agency

The European Space Agency (ESA) aims to develop the continent's space capabilities whilst ensuring investment in the sector delivers benefits to Europe's citizens and the wider world. The organisation is now closely working with its member countries, as well as the European Commission, to form a strategic space partnership.

Jean-Jacques Dordain is the director general of ESA. Speaking to Horizon 2020 Projects during the 2013 ESA 'Living Planet Symposium,' he described his optimism for the future regarding the European space sector and the impact of Horizon 2020.

"I am very confident that when you invest in space, you invest into an economy of competitiveness and growth – the starting point of something which will grow. I have no doubt that the use of space will be increasingly important for many economic sectors, for example transport, culture, development and the environment."

"Horizon 2020 will present significantly increased investment compared to FP7 and will give us greater capacity to develop new technology and to drive innovation. I am confident that by joining forces in Europe, namely by bringing together national space programmes, the ESA programme and the EU programme, we will develop a much more competitive set of European industries."

"The European space sector is not in recession – it is in a period of growth, and that is good news for the region. The increase in co-operation and collaboration between ESA and the Commission will help to boost growth even further."

Overall, I am very confident that Horizon 2020 will work better compared to FP7 and will be more functional than the previous programme. We have been working to modify and streamline Horizon 2020.

Nevertheless, I think we must also wait and see what happens. The first two years will be critical – it is a brand new programme and we will need to see how the overall programme will pan out. There is more flexibility available for the research teams, so there is some room for discussion and improvements.

Galileo and Copernicus are already quite well established and the groundwork has already been done. As such, where do you think future priorities should lie?

That is certainly true for Galileo, but with regard to Copernicus it is important to demonstrate the sustainability of the programme: it is not just a programme which will run during Horizon 2020 or the next seven-year MFF period. You cannot ask industry to invest in a project when you do not know what will happen in the next couple of years. Therefore, sustainability, both financially and technologically, is very important.

Financially, we will try to find ways to accommodate the long-term nature of the programme with budgetary cycles of seven years. On the technological side, it is very important to continue to conduct research, and that is why the space research programme is devoted to Galileo and Copernicus – we should not stop innovating – a satellite launched tomorrow with the most up to date payload will be completely out-of-date in just a couple of years.



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Engineer working on one of the first six Galileo FOC satellites at OHB

The EU's work in the space sector will also need to be very much in line with that being undertaken by ESA and the rest of the European space community.

A conference in Washington, DC in January 2014 will tackle the topic of space exploration, and while traditionally this has not been a major part of the EU's research priorities, we will nevertheless contribute. This contribution will be discussed with ESA, EU member states and other national agencies in order to ensure effective co-ordination.

HORIZON 2020

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