

European and National Space Programmes

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Honourable Parliamentarians, Ladies and Gentlemen.

First of all, what I present in this intervention is my own responsibility and may not overlap with the views of neither my Government nor the majority of the ESA Member States.

The Space Age is short, many of us here remember spotting Sputnik 1 and the momentous landing of Apollo 11. Last year the collaborative efforts in Europe celebrated its fiftieth anniversary. It is clear that without these collaborations Europe would have been much weaker today. None of the European nations have neither the will nor the capability to develop broad programmes by themselves.

Extending this to a Global scale, we can clearly claim that *In Space all nations are small*. No nation today can cover all its space requirements alone, international collaboration is a prerequisite. The collaborations in Europe show that this type of collaboration is both possible and quite effective. On a near Global scale the ISS and GEO collaborations indicate the possibilities at this level.

Congratulations Parliamentarians, without the will and capability of You and Your predecessors we would not have had the relatively strong European Space Programme we now have. I emphasize European, as the programme is the combination of programmes through the R&D organization ESA, national activities of ESA's Member States, and operational activities through EUMETSAT and the EU. The total public expenditure in Europe is around 7.5 Billion € per year. Out of this about three Billion are through ESA and about 1.4 Billion through the EU.

The space programmes of Europe today have competitive capabilities on all fields except bringing humans to space. We will have, through the Copernicus, EUMETSAT and Galileo/EGNOS programmes, the best civilian operational Earth observation and navigation programmes globally.

It is now up to You Parliamentarians and your successors to ensure the further development of and societal integration of European Space Activities. To give advice on how to do this, it is my opinion necessary to look into how we have arrived to where we are now.

The technical, scientific and implementation capabilities of ESA are unquestionable world leading. And Europe through ESA is a clear number one in several fields of space science; astrometry, cometology and microwave observations are but a few examples.

The public investments of space in the US are more than six times that of Europe. So even with higher European efficiency, there are fields that cannot be covered in Europe alone, thus requiring collaboration. ESA and NASA are mutually their biggest collaborative partners. This success has only been possible through a will from the Member states to finance the missions through ESA and additionally fund the space science payloads nationally.

The now 22 member states of ESA have seen the R&D organization ESA as an excellent tool to fulfil their space ambitions. Through the membership they participate in a large number of outstanding science and exploration missions, the industrial return rules have been essential in building up a broad and competitive space industry.

The common effort has built up the technological foundation and implementation capability for the existing European operational missions in meteorology, satellite navigation and environmental monitoring, as well as being competitive in launcher and telecom industry. The ESA tool has provided an excellent balance between national and pan-European R&D and implementation capabilities.

The “juste retour” rules of ESA are essential to build up this broad technological base in national industry and give the smaller member states an extra reason for investing in the ESA collaborations. Additionally, this supports their potential wishes to implement national initiatives.

It is essential to understand that the space industry environment is much closer to the defence market than car or mobile phone industry. It has never been a real “free market”. A strong public interaction in the technological build up phase or a long term guaranteed public contract is required.

In a build up phase, no space industry is competitive by itself. The public is there directly or indirectly.

In the US this is done by “fat” initial technology contracts and/or highly priced services. The latter is the foundation for the “private” initiative in Space X. Here the prices for the guaranteed US public customers are significantly higher than the prices on the commercial market.

In Europe specific development contracts are done nationally or through ESA, but there is no acceptable “over pricing” for the public to ensure competitiveness commercially. Launchers that ESA buy from Arianespace are according to the running commercial market prices. Europe funds the major part of the development up front.

The balance between ESA programmes and national programmes continues to function well in a complementary manner.

The collaboration between the ESA organization and its member states, including research institutions and industry, is an excellent example of building and international R&D institution. However as an R&D institution it is not suited for doing societal important operations.

EUMETSAT was established for providing services for the weather forecasting. ESA develops the initial satellites and EUMETSAT funds the further copies of the satellites and all the operations.

This has worked well!

There are three important limitations concerning ESA:

1. It can only do what the dominating part of its Members want and are willing to finance.
2. Its activities are for “peaceful purposes”.
3. As a space related R&D organization, its political impact and contacts in most nations is quite low.

The real entry into space activities of the EU was with the 2003 Green Paper on space. Here the EU role was defined as “demand driven”, while ESA was defined as “technology driven”. The “EU demand” was then and later defined as the utility to the European Citizen, that means operational services requiring space to serve non-space demands. Space as tool, not a goal is the short version of this.

On the basis of the following EU White Paper and the Framework Agreement with ESA, the EU space activities were out of the starting blocks with the Galileo/EGNOS and Copernicus programmes.

It is clear that the technological satellite navigation developments done under the auspices of ESA starting in the 1990s was the foundation of the EGNOS and Galileo programmes. Without this and the initial will of the ESA Member States to fund the start-up of Galileo/EGNOS as normal ESA programmes, we would not have been in the deployment phase of Galileo today.

It is equally important to state without the strong demand driven political support created by the EU, Europe would only have had a couple of Galileo demonstration satellites and a semi-functioning EGNOS.

Even more clear and dominant was the need of ESA technological expertise and Member States will to finance in the development of the instruments of ENVISAT. It is on this basis as well as the French technology for the SPOT imaging satellites that is the foundation for the current and upcoming Copernicus space segment. Without the political will of the EU and its Member states this would not have had the finances to become the world leading operational space monitoring system in the service of the European citizens.

In my language “competence” means more having the deep knowledge about an issue, rather than having the right to say something. ESA and the Member states have this on the technical side providing space infrastructure while the EU does not have this. ESA is the space agency of Europe. Any attempts to discuss this or change it will have a detrimental effect on European Space Capabilities.

A conclusion is that the success of the Galileo/EGNOS and Copernicus could only happen because of the technical expertise built up through ESA and the political strength of the EU. The ESA technical competence is there because of the R&D support from you the Parliamentarians and your Governments.

In spite of both initial and running problems the collaboration between the Member states through ESA and the EU, the collaboration has in the end functioned and is producing the wanted results.

The Framework Agreement (FA) between the EU and ESA has functioned and have give acceptable compromises in the collaborations. This in spite of the EC’s claim that the

Lisboa Treaty has made the FA invalid. However the EC has not used its possibility this year to cease it. Because if they did, every issue on ESA/EU collaboration would require unanimity decisions in the ESA Council. An according to some rumours this would give the well known rogue states, Norway and Switzerland, too much power over the EU/EC decisions.

I am luckily not a Lawyer, but as a physicist I cannot see any discrepancy between FA and the Lisboa Treaty. There is a shared competence between the EU and its Member States. And politically and financially ESA is just a tool of its Member states. Additionally the Lisboa Treaty requires the EU to find appropriate relations with ESA.

For further development, it essential that the consultative part of the FA is reopened as the EC has not supported this since 2011. However, the ESA Member States, the ESA staff and the EC should be open for necessary revisions of the FA, if this is required to make the collaboration run even smoother.

The future positive development of Space in Europe requires the following.

1. That You the Parliamentarians continue to support space, nationally and in Europe.
2. That ESA continues as an intergovernmental organization representing its Member States and with the specific industry- and capability building industrial rules.
3. That ESA focus on the missions that none of the Member States can do alone.
4. ESA is the only broad European Space Agency.
5. That ESA and the EU both follow the guidelines of the Framework Agreement, potentially with revisions to smoothen the functioning of the collaborations.

On the top of this both ESA and EU must quit their mutual competition, as they are not really playing in the same game:

- ESA should focus on being an R&D organization, funded by the Member States and sometimes the EU. And should leave the operational politics to where it belongs.
- EU should cater for the operational needs of its citizens and adjust to the fact that it has political competence and no technical and implementation competence for space infrastructure.

Both Organizations and their Member States must use their rules in order support collaboration and not something to hide behind to hinder effective collaboration.

Lastly both ESA and EU have a dominant overlap in Membership and is run by its Member States. The overlapping states must have the same policies in both organizations.

Thank You.