



ACTIVITY REPORT



European Economic and Social Committee



BACKGROUND TO THE EESC PROJECT ON SPACE AND SOCIETY

In September 2014 the European Economic and Social Committee (EESC) decided to organise an initiative on space, and designated six members (Mr Lemercier, Mr Maciulevičius, Mr Manoliu, Mr van Iersel, Mr Wolf and Mr Iozia — the coordinator) to identify the most suitable means to achieve the project's goals, namely:

- to make activities involving space, and businesses and agencies operating in the field of space, more accessible to Europeans;
- to identify obstacles to the development of small and medium-sized enterprises, particularly in countries that are excluded from the major sources of financing for space activities;
- to attract the attention of young people and foster relations with university and research centres;
- to nurture best practices to support new and decent jobs in the space industry.

The EESC has been always involved in space issues and has set out a number of priorities in its opinions on space:

- putting in place pro-active policies for small and medium-sized enterprises (SMEs) and employment support;
- involving Member States that are currently excluded from the market;
- substantially improving European governance;
- involving civil society in defining strategic choices;
- investing in the sector and stressing the role of finance and investment funds;
- supporting research and promoting studies in the field of aerospace;
- developing cooperation between European, national and regional authorities, businesses and end-users.

An initial positive result achieved at the start of the project was seeing the following major institutions, agencies, research centres and satellite operator associations, the media and the European Commission itself take part actively and agree to be part of the project steering committee, coordinated by the EESC:

EMEA Satellite Operators' Association (ESOA)
Europe based association of space agencies (Eurisy)
European Association of Remote Sensing Companies (EARSC)
European Commission (EC)
European GNSS Agency (GSA)
European Space Agency (ESA)
European Space Policy Institute (ESPI)

European Umbrella Organisation for Geographic Information (EUROGI)
Geospatial Media & Communications
Network of European Regions Using Space Technologies (NEREUS).

The main pillars of the project were outlined during the preliminary discussions, along with the broad content of local initiatives – which were entirely the responsibility of EESC members, who were firmly committed to the success of local events. Many partners took part in local initiatives.

The following six topics were addressed:

1. Research, professional training and education. *(DLR) German Aerospace Centre, Cologne (Porz-Wahn, Germany)*
2. New job opportunities. *National centre for Space Studies (CNES) and Cité de l'espace (Toulouse, France)*
3. The development of small and medium-sized enterprises. *Netherlands Space Office (NSO) Headquarters (The Hague, the Netherlands)*
4. The inclusion of countries with a young aerospace industry. *University of Kaunas – Polytechnic (Lithuania)*
5. European policies. The example of Italy. *Italian Space Agency (Rome, Italy)*
6. Space and the younger generations. Vision and emotions. *EESC (Brussels, Belgium) School of Art (Bucharest, Romania).*

At the end of the project, during the final conference held at the EESC's Brussels headquarters in June 2015, the work carried out was summarised and, most importantly, ways of continuing the experience identified. All partners welcomed the prospect of designing a European platform, a community connecting civil society with the space industry. This would create a major virtual European "hub", or a meeting point, for information, knowledge, exchange, opportunities and debate in the area of space.

Perhaps the most important result of this initiative has been the realisation that what was missing was the opportunity for each stakeholder to develop activities of their own with the public, a chance to take stock, debate and exchange ideas.

Space policy is a veritable treasure trove of opportunities and emotions for mankind: when the starry sky lights up the night and our thoughts race towards unknown worlds, science and imagination unite. The privilege of being able to devote ourselves to space activities, research and to applying all the possible information gained from space must be shared with an increasingly wide public.

The EESC therefore decided, with this project, to test the waters and explore this specific area before stepping into the gap between the general public and the specialists involved in space activities. It is an area in which the focus will continue to be on bringing together motivated and active

stakeholders who share the same objectives and strengthening an innovative economic sector that makes Europe one of the key players on the world stage.

"Space and Society" is the first important step in setting up a **"European Space Community"**. This will be a regular and active place for meetings and exchanges between civil society and all stakeholders, intended to facilitate access to the market and to information. It will provide a platform for exchanging ideas, taking shared initiatives and building relations with and between authorities. It will be in keeping with the principles of an economic democracy and an advanced society where the convergence of interests becomes general practice, where competition, both internal and external, fully respects the rules of the market and where good ideas can attract financial support. Financing is in fact one of the most serious problems encountered by small and very small enterprises, despite the fact that they are often champions of innovation and intelligent, competitive solutions. Europe must make a clear commitment to growing more innovative companies with greater added value and must support them so that they can compete internationally.

KEY RECOMMENDATIONS

On governance¹

- The main stakeholders in the space economy should make every possible effort to reach a viable **agreement on responsibilities and duties**. The parties involved should each contribute by doing what they do best. ESA has a long experience in the field of research and space technologies, whereas the European Commission has the task of regulation and the political mandate to work towards a European industrial policy. Only close cooperation and clearly recognised roles can ensure that Europe achieves its ambitious goals.
- Ongoing **dialogue between all stakeholders** in the space sector is indispensable. Satisfactory arrangements and working practices between the institutions and business, notably SMEs, are all the more vital as the development of the space sector can only reach maturity with the full involvement of the private sector.
- Good **dialogue between industry and the European Commission** is a prerequisite for successfully developing space services in Europe as well as for bolstering Europe's position globally in this field. The business sector can be of assistance to the European Commission in defining short-term projects.
- A specific **industrial policy** for the space sector in the EU is needed. It should bring different Member State strategies under one umbrella and bring national characteristics into one framework.
- One of the handicaps for the development of the space market is the lack of (public) **launching customers** for applications/services, both nationally and at EU level, as they are usually not well informed about the potential benefits of space services. Incentives are needed to arouse greater interest on their part.
- **Methodology** can be improved by identifying the needs of potential users, followed by development of services (at the moment it is usually the other way around), thereby ensuring that products and services are in fact tailored to the needs of those users.
- In the case of smaller countries (such as the Baltics), **regional cooperation** is needed. Structures for creating links between regional partners are missing; the management of space policy also varies considerably in each of these countries. A specific regional project designed to establish infrastructure for downloading and pre-processing satellite data would facilitate the expansion of local government and commercial markets. Renewed efforts are needed to develop a ground segment providing all potential users with effective and easy access.

On SMEs

- **Financing** is a crucial issue. It is necessary to involve financial institutions, including the European Investment Bank (EIB), the banking system and the European Investment Fund, to have a clear framework dedicated to innovation and applied research. SMEs feel that they

¹

Taking into account the main conclusions of the Competitiveness Council meeting from 5 December 2014 on space policy, which are quoted in Appendix 1

have no partnership with the capital market. It could be very useful to organise a conference on Space Technologies Financing. There are very good examples in Europe that could be taken as benchmarks for financial support, a prerequisite in order to create growth and decent new jobs.

- The EU should spend more on **product marketing** and not only on basic research: it is easier to find funding for innovation, but extremely difficult to find funding for activities that follow (product marketing and market support).
- **Support programmes for SMEs** should be longer. Support stops too soon after the establishment phase and there should be structures for the following phases (only 60% of SMEs still exist five years after they have been set up).
- SMEs cannot always respond to calls for tender due to their small size, and therefore smaller calls should be available for small companies.
- Implementation of "**pre-commercial procurement**" for local or European government markets and development of public products could be one way of boosting the involvement of SMEs. The development of technologies that are urgently needed and possibly not available at national or regional level should be specifically geared to SMEs with a small structure that are willing to take development risks.
- Near real time take-up of data from the satellite and data usage infrastructure is also lacking. The availability of pre-processed data would already help to support the development of different applications by a greater number of SMEs.

On education

- The space sector calls for a highly **qualified workforce**, employed on the basis of appropriate contracts. Continuous attention is needed to ensure a supply of appropriate skills: this will require up-to-date education and training, which will in turn facilitate mobility.
- **Science education programmes** should be put in place to encourage young children to take an interest in science and technology. Space is an extremely useful topic for raising the young people's interest in science in general, a vital step towards training the highly skilled workforce that Europe will need in the future. Space should be included in primary, secondary and higher education curricula with a special focus on concrete current job opportunities in the sector.
- Space agencies in some countries have very sophisticated education programmes (school labs, opportunities for young researchers, competitions for schools, etc.). These programmes should be developed in all the Member States, at European level.
- There should be more **interconnections between industry and universities** to enhance the space sector's attractiveness. Students' knowledge of the space sector could be enhanced with the assistance of professionals from industry.

APPENDIX 1

COMPETITIVENESS COUNCIL CONCLUSIONS Underpinning the European space renaissance: orientations and future challenges 5 December 2014

"Long-term vision and policy

4. *STRESSES that an ambitious long-term European space vision among the EU, ESA, their respective Member States and other relevant European actors should allow: responding to public policy objectives and user needs; enabling new economic growth and job creation in Europe; supporting world-class scientific progress; as well as securing the European capability to conceive, develop, launch, operate and exploit space systems at competitive conditions.*
5. *Given the long development cycle times peculiar to the space sector and the complexity of the decision-making processes, CONSIDERS that, while consolidating ongoing space programmes, the time is ripe to start reflecting on and preparing future initiatives by the Union in its fields of competence, in order to further enable and foster its sectorial policies.*
6. *INVITES, therefore, the Commission, on the basis of the results already achieved, in collaboration with the ESA Director General (ESA DG), to review, in consultation with Member States and other relevant actors, the European Space Policy and to identify to what extent it may require to be updated, having due regard to TFEU and ESA Convention provisions. Hence, INVITES 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, taking into account the orientations provided hereto and which can be used by all actors as a planning tool for major space activities in Europe.*
7. *NOTES the resolution on ESA evolution adopted at the ESA Council at ministerial level on 2 December 2014; INVITES the Commission to make progress, in cooperation with ESA DG, on the ongoing assessments of the institutional relations between the EU and ESA with a view to proposing further improvements for a reliable and sustainable partnership between the EU and ESA, which would facilitate implementation of the European Space Policy and its potential evolution, taking stock of the lessons learnt from the ongoing Union space programmes."*

APPENDIX 2

REPORTS FROM LOCAL EVENTS

The project group decided to organise six local events in six EU countries with the aim of sharing information, networking and discussing specific thematic subjects related to EU space policy. Each event and its specific objectives were tailored to the context of the hosting country and coordinated as appropriate with the national stakeholders.

15/04/2015	Brussels, Belgium	Exhibition: "So long ago in the future. Dreams for Future Odysseys"
20/05/2015	Kaunas, Lithuania	Conference: "Boosting regional success in space: the Baltic way!"
29/05/2015	Toulouse, France	Visit and workshop on new job opportunities linked to the use of new space applications
05/06/2015	Rome, Italy	Conference: "European space policy: are we on the right track?"
12/06/2015	The Hague, Netherlands	Workshop: Businesses, especially SMEs, in the space market
25/06/2015	Cologne, Germany	Visit and workshop on promotion of space in schools and universities

EXHIBITION: "SO LONG AGO IN THE FUTURE. DREAMS FOR FUTURE ODYSSEYS" BRUSSELS, BELGIUM, 20/05/2015

Exhibition of paintings by students at Nicolae Tonitza Fine Arts High School in Bucharest

So long ago in the future dreams for future odysseys ...

Twelfth-year art students (teacher: Lavinia Ioana Streinu) at the Nicolae Tonitza Fine Arts High School in Bucharest contributed to a very interesting exhibition entitled *A fost cândva, demult, în viitor. Vise pentru odiseele viitoare/Il y a si longtemps dans l'avenir. Rêves pour de futures odyssees/So long ago in the future dreams for future odysseys*. The opening took place in the atrium of the European Economic and Social Committee (EESC).

Space and society – a challenging topic for young Romanian artists

Part of the programme of the conference organised by the Space and Society group, the exhibition was proposed and organised by university lecturer Mihai Manoliu, President of the National

Confederation of Romanian Employers (CNPR) and secretary-general of the Alliance of Romanian Employers' Confederations (ACPR).

50 paintings on this topic were produced specifically for this event by final-year students at the Nicolae Tonitza Fine Arts High School who, along with their teacher, Lavinia Ioana Streinu, impressed everyone.

Links to the **reports** by the **SENSO TV** team, media partner for the event, are given below:

<https://www.sensotv.ro/arte/Clipa-de-arta-6050/succes-obtinut-la-bruxelles-de-elevii-liceului-de-arte-plastice-nicolae-tonitza-bucuresti>

<https://www.sensotv.ro/arte/Clipa-de-arta-6057/a-fost-candva-demult-in-viitor-vise-pentru-odiseele-viitoare...-bruxelles-2015>

CONFERENCE: "BOOSTING REGIONAL SUCCESS IN SPACE: THE BALTIC WAY!" KAUNAS, LITHUANIA, 20/05/2015

The **objective** of the conference organized in Kaunas, Lithuania, was to discuss with the representatives of SMEs in the space industry in the Baltic countries the main obstacles they have encountered to establishing or expanding their business.

The conference was attended by approximately 60 participants, most of them representing SMEs and university researchers, in addition to representatives of the European Commission, the European GNSS Agency, EURISY, NEREUS, the Ministry of Economy of Lithuania and Kaunas City municipality.

The following **topics** were discussed during the conference:

- Financing SMEs (specific support for SMEs in Horizon 2020, Galileo Masters Award, national funding)
- Presentation of European programmes (Galileo, GMES, EGNOS)
- "Success stories" of European SMEs
- Construction of nanosatellites
- Use of drones
- Cooperation at regional level

Problems reported /general remarks:

- For many SMEs the market of the Baltic countries is too small and limited, which makes access to it even more complicated (many satellite data are used at continent level, whereas the Baltic region is too small).
- It is difficult to establish cooperation between the Baltic countries (many companies are looking for regional partners but there are few structures for creating links between them; space policy management is also very different in each of these three countries).

- For SMEs, it is difficult to participate in Horizon2020 as they do not have the human resources to manage the process (the administrative burden is too cumbersome).
- The government market in Lithuania is not open to research in general.
- SMEs cannot always respond to calls for tender due to their small structure (many calls cater for structures and resources on a very large scale).
- The EU spends too much on basic research and not enough on marketing of products resulting from this research.
- Preparation of applications is related to financial problems, because an investment in terms of human resources and consultants is needed, and the probability that the project will be approved is often slim. European Commission support procedures are complicated, hard to understand and long term. At the time of making funding decisions and in the initial stages of project implementation, the relevance of the planned tasks can change or there it might be necessary to change the topic and adapt it according to new needs (especially in R&D projects). The same applies to the scope of the project, when it emerges clearly after a year or a year and a half that the scope or timing of the project should be increased. By that time, however, there is no longer any possibility of making further changes to the project plan.
- Near real-time take-up of data from the satellite and data usage infrastructure is lacking. The availability of pre-processed data would already help to support the development of different applications by a greater number of SMEs.
- The development of nanosatellites has helped to raise public awareness in the Baltic States, legitimising further developments and public support for the sector in the eyes of the public. With a very low initial outlay, media coverage of the actual development, launch and results has been enormous. It can also contribute as an educational development for technical students.
- Remotely piloted airplanes together with satellite data can support each other in order to provide even more precise services.
- There has been a huge amount of interest from universities and research facilities and there is already a good knowledge of the topic.

Conclusions/recommendations:

- ✓ A regional data centre for downloading and pre-processing satellite data is being developed at the teleport facilities near Vilnius. A specific regional project designed to the establish infrastructure for downloading and pre-processing satellite data would facilitate the development of the local government and commercial market.
- ✓ Development of small satellite platforms in the 1-50 kg range in the Baltics has to be supported as these will help to increase the local competencies of the system design approach and perform quick space flight tests of the components and R&D experiments in a cost effective way.
- ✓ To successfully enter the market, an SME has to find a "niche" area, an innovative approach and good partners.
- ✓ To ensure real success, SMEs need international partners.

- ✓ It is not necessary to create new markets, but rather to optimise existing ones.
- ✓ Participation in the ESA and Horizon 2020 programmes can be very useful. The project ideas have to be discussed with the major European stakeholders at least six months in advance before applying to the official tender.
- ✓ The Commission and the local Agency for Science, Innovation and Technology (MITA) agency will organise an open day to present SME financing possibilities and B2B meetings with other EU players on the topics mentioned above.

Innovative initiatives to promote SME involvement:

One of a number of opportunities to boost the involvement of SMEs could be implementation of "pre-commercial procurement" for the local or European government market and development of public products. This would mean that the state could order the development of technologies which are urgently needed but which may not be available at national or regional level (such as non-dependence technologies etc.). These development purchases should be specifically aimed at SMEs with a small structure that are willing to take development risks. The scheme could be similar to the USA's experience of "SBIR" (Small Business Innovation Research) calls put out to tender by the Department of Defense (DoD), the Department of Energy (DoE), the Defense Advanced Research Projects Agency (DARPA) and the National Aeronautics and Space Administration (NASA) development support scheme, intended mostly for technological, rather than purely scientific, research and development. There are some pilot projects of the kind in Lithuania (MOD, Ministry of Education and Science and the MITA).

Media coverage:

About 10 articles were published in major newspapers and there was television coverage in the main Lithuanian information programme:

- "15min.lt" <http://www.15min.lt/verslas/naujiena/geronomika/kosmoso-rinkoje-numatytas-vaidsmuo-ir-mazoms-valstybems-129-504712> (21/05/2015)
 - "Izinius.lt" <http://Izinius.lt/Izinius/Mokslas-ir-svietimas/kosmoso-rinkoje-numatytas-vaidsmuo-ir-mazoms-valstybems/202360> (21/05/2015)
 - "alfa.lt" <http://www.alfa.lt/straipsnis/49853982/kosmoso-rinkoje-numatytas-vaidsmuo-ir-mazoms-valstybems> (22/05/2015)
 - "Santaka" <http://www.santaka.info/?sidx=35203> (21/05/2015)
 - "Lietuvos naujienos" <http://viena.lt/category/mokslas-ir-svietimas/> (21/05/2015)
 - "Naujienos gyvai" Reference is made to 15min.lt (21/05/2015)
 - "skelbkites.co.uk" http://www.skelbkites.co.uk/lt/naujienos/kosmoso_rinkoje_numatytas_vaidsmuo_ir_mazoms_valstybems#cut (21/05/2015)
- TV: National public TV Station LRT programme "Laba diena, Lietuva"
Live from event 2015-05-20.
http://www.lrt.lt/mediateka/laidos/L/1579/laba_diena_lietuva from 83 min
- Radio: The report from the conference was broadcast on the LRT national public radio station primetime morning programme "Ryto garsai" (25/05/2015)

VISIT AND WORKSHOP ON NEW JOB OPPORTUNITIES LINKED TO THE USE OF NEW SPACE APPLICATIONS TOULOUSE, FRANCE, 29/05/2015

The mission of the Space & Society group was to meet representatives of the CNES (Centre national d'études spatiales/ National Centre for Space Studies), the French government space agency, the Cité de l'Espace, local elected representatives and SMEs to discuss new job opportunities in the space sector.

Programme:

Morning — presentation of the CNES, presentation of the *Aerospace Valley* cluster, presentation of space applications institute *InSpace*, meeting with the European GNSS Agency (GSA)

Lunch at the town hall and discussion with local elected representatives about the space industry in the region

Afternoon at the Cité de l'Espace — meeting with local SMEs, presentation of educational activities of the Cité de l'Espace

Topics covered:

- CNES activities related to education (funding of theses (100 per year), practical courses in schools)
- CNES action plan in support of SMEs - "SME Pact" - to facilitate access to public contracts, to keep them better informed, to reduce the payment period for SMEs, to share best practices, etc.
- activities of the *Aerospace Valley* cluster, link with the ESA BIC South France incubator (which facilitates the creation of start-ups - target of 15 new companies created each year - after 18 months of operation, already 19 companies created)
- how the *InSpace* institute helps to connect local authorities with SMEs to offer new services related to the use of space applications ("E-health", "e-security", risk prevention, etc.)
- cooperation between CNES, the Cité de l'Espace and companies to set up educational projects (creation of an operational replica of the lander InSight).

SMEs wanted to stress following points:

- it is easy to find funding for innovation, but extremely difficult to find funding for the activities that follow - product marketing and market support
- support for SMEs stops too soon after the establishment phase: we must develop structures for the following phases (only 60% of SMEs still exist five years after they have been set up)
- the usefulness of the Small Business Act (SBA) was mentioned, but there have also been problems with its application
- issue of opening up of public contracts to neighbouring countries
- the institutional market is very difficult to access for SMEs

- it is necessary to look for links between large companies and SMEs (which are complementary).

In addition to the engaging and user-friendly nature of our exchanges, we felt that this historic pole of the French and European aerospace sector is not resting on its laurels.

All the tools to pursue research and innovation are in place and the connection with universities and young people through start-ups is real.

Finally, the visit to the laboratory which contributed to the landing of the Rosetta probe on the comet Chury designed to connect with Philae was touching because we felt the strength of the passion of these researchers and a true fraternity between all the European partners of this project.

Aerospace is a promising sector for all European citizens.

It is a beautiful dream but also a reality that we discover during the day.

It is up to us to continue the dream with this space community.

CONFERENCE: "EUROPEAN SPACE POLICY: ARE WE ON THE RIGHT TRACK?" ROME, ITALY, 05/06/2015

The conference held in Rome at the headquarters of the Italian Space Agency (ASI) was a fascinating one. The speakers did not take refuge in "politically correct" niceties, but instead voiced even "inconvenient" opinions, which made for an extremely fruitful and thought-provoking debate. The topic was a thorny one. "European Space Policy: Are we on the right track?"

In his opening speech the President of the ASI, Professor Roberto Battiston, thanked the EESC for its initiative, remarking that: "to speak with a Committee whose mandate includes acting as link between top European Union bodies and civil society is extremely important. Society and space are inseparable, and we hope that this contact will continue in the future, both through public initiatives and direct relations."

On the subject of governance he said that:

"Bureaucracy still hinders relations between the European Commission and the European Space Agency (ESA). These difficulties have not yet been overcome - and they must be resolved. A general overhaul is needed - some files have been on the table for years because of two conflicting viewpoints. Full collaboration between the EC and the ESA will produce the best results. We need to enhance the positive aspects, without becoming mired in questions of detail."

And with regard to European competitiveness:

"Other economic and political systems are paying increasing attention to space and this poses a clear challenge. [...]. The ESA has shaped European industrial policy, and today we need to work towards establishing the best possible launching industry in this new overall, competitive context."

"The American challenge is unprecedented."

"This Space & Society initiative is very important and the coordination provided by the EESC is therefore a boost to efforts to create cohesion and coordination in our country. This could certainly help us to plan and, at certain significant moments, pass on messages that the complex, but unstoppable EU machine may then transform into policies that will change the set-up that concerns us, maybe in one, two ,five or ten years' time."

This was a speech of the highest calibre, one that did not steer clear difficulties and that looked positively to the future with a clear vision. It gave us unexpected, but much appreciated, recognition for the initiative taken and the future role that the EESC could continue to play in order to support change.

Antonio Bartoloni from Italian Ministry of Economic Development presented the Italian government's experience. It had set up a "space control centre" within the Prime Minister's office in order to reshape the medium- and long- term objectives of Italy's space economy at national, regional and European level.

In global terms, the production value (shareholder value added) of the space economy was around EUR 280 billion. It was expected to rise to EUR 500 in 2030, with significant growth rates financed by one quarter public resources and three quarters private resources.

A leveraging effect of 3 indicated that the space economy was a long way off and was not fully developed. In Europe, institutional purchasing was very prominent.

In Italy leverage was 0.6, and France and Germany also had low leverage, at 1.5. Only the United Kingdom had made a decisive start, with leverage at 9, a trend which could be attributed to communications and broadcasting.

Roya Ayazi from NEREUS (Network of European Regions Using Space Technologies) made the point that European people were at the centre of their activities in terms of growth, jobs and business opportunities. SMEs were an integral part of space policy in the regions and she highlighted the significant opportunities offered by the sector.

There was a need for more and better information on the opportunities for space companies in terms of jobs and activities.

Massimo Comparini, Chief Technical Officer of Telespazio stressed the need to raise awareness among a wider public. "An enormous amount of data comes from space and businesses – also with the support of venture capital – are gearing up for global connectivity, which will be established through the development of small and mini satellites.

It is essential that we have the ability to promote understanding of what space can do for all of us. The European innovation partnerships are extremely important mechanisms. For example, in the agricultural sector there was no awareness of how earth observation could contribute to sustainable agriculture. The use of the Galileo Global Navigation Satellite System (Galileo-GNSS) will help us to increase certainty over food certification.

The United Kingdom has set up the first European investment fund specialising in SMEs involved in space activities.

With regard to financing, the complementary nature of different financing options should be exploited, e.g. structural funds used alongside regional funds. Over the last 18 months there have been four venture capital rounds in the space sector in the United States."

David Zolesi, CEO Kayser, stated that: "timeframes are a critical point: they do not match the needs of SMEs. Large groups have the opportunity of a longer time frame – also as regards financing – whereas this is more difficult for SMEs. A specific support policy is required: those companies that have clear development prospects should be selectively rewarded. There has been a lack of proper communication with the public and decision-makers. Supporting the growth of new companies, using the infrastructure that has been created, making the most of the benefits for society and businesses and raising awareness of the advantages of a European industrial policy that aims to support SMEs: these were the priorities, and the "control centre" should help the government to produce an industrial policy plan."

With regard to the role of the public, Antonio Bartoloni said that "the weight of institutional activities will be essential as a driving force. Radical innovation is linked to public policies. There is a need for this impetus, for the entrepreneurial role that public action has on the economic system."

For Roya Ayazi it was necessary "to check which resources we can allocate at all levels in order to develop the downstream sector, to find out what mix we can use. At regional level, Puglia, Basilicata and Lombardy have developed excellent programmes, but there must be many more, in other European regions. What can be done for SMEs? Access to capital is a problem: it is not like the USA, where financial incentives are available to the innovative sector. The difficulty is not having good ideas, but establishing a market presence. We need greater vision in Europe in order to understand what we can do. Standardisation is a problem: clients are global."

"Small businesses want, and aim for, growth – they do not want protection", David Zolesi concluded. "They want a stable framework that works for small businesses too. The policy's task is to facilitate growth. In terms of relations between large and small companies, we need to shift the focus from supply to subcontracting. Small businesses can offer specialisations that cater for the needs of large companies. The ESA has always adopted the "Geo Return" criterion, which has worked well but needs to be corrected. One possible corrective mechanism could involve reserving a percentage of the amounts allocated to the major programmes for SMEs that exceed the geographical return".

On this point, Roberto Battiston said that "protected quotas are at odds with the notion of competitiveness. It is better to focus on specialised investment funds that co-invest in specific programmes. It is important to consider which instruments are missing and to try and solve this problem." On the subject of quotas, he continued, "if we want to consider international or national quotas I would agree, but it is not enough - good ideas must have legs, along with the critical mass to survive and create a market. On the issue of Geo Return, he remarked that "it is pointless to change one of the pillars that has made the ESA possible. I know that the Commission does not support it. At the ASI, we have established a permanent panel with companies in order to be able to discuss things together. We are working to create a stable environment with sufficient financial prospects. We want to create a genuine systemic strategy within industrial policy: each country should identify the conditions that enable all players to play." On the subject of financial resources, he said "the elephant in the room is missing: the banks, financial capital."

In relation to this point, Mr Bartoloni added that "innovation finance is not part of the European mindset. We need to consider a public guarantee." According to Roya Ayazi, "existing measures must be linked at the various levels – this is one of the regional objectives – and cooperation between different stakeholders enhanced." Massimo Comparini agreed with "shifting guarantees to the institutional level," adding that "technological development must be cutting-edge and we must accept that two in three or three in five companies fail, otherwise we will only have followers or at best subcontractors."

Rosario Pavone from SME4SPACE said that "the problems that small businesses face are not that different from those faced by large companies. We are only looking for consistency with the Small Business Act and its "Think Small First" principle. This translates into simplifying procedures, streamlining practices, speeding up payment times and cutting red tape – aspects that are for the benefit of both large and small companies. There is a need for instruments that aim to provide easier access to finance, venture capital and, in the same way, to information. The banks are not partners working side-by-side with SMEs: they must get involved in our panels and in financing – we are, after all, talking about business opportunities. We need to establish closer relations with the regions and with end users. We call on the Commission to ensure that technological development is not driven from above, but is instead based on consumer needs."

Gian Gherardo Calini, Head of Market Development in GSA, pointed out in his speech that the European GNSS Agency (GSA) had seen 30% of projects won by SMEs, ahead of the European average of 15%. He explained as follows: "I see two factors that account for the success of SMEs. The first is clear information that is accessible to all. We have simplified access with a pre-screening form and a guide to funding. We are trying to simplify this guide with the help of NEREUS, to provide SMEs with a choice of options. And secondly, we have insisted on ruling out a specific call for SMEs, thereby protecting them and enabling them to present projects that have large companies in their consortium."

Alberto Bigazzi, an EESC researcher and expert, noted the difficulties that young graduates have in seeing future career openings in SMEs, the only companies where they may find some opportunities. "Unfortunately they cannot commit to a period of three/five years, due to a lack of funding continuity. It is a captive market: the national agencies and the ESA have a responsibility vis-a-vis SMEs and, as a consequence, to young people in closing the circle that begins with young people, extends to SMEs and the agencies and returns to them.

Stefan De Mey, from Eurisy, believed that the biggest returns would be gained downstream, and that SMEs involved upstream should consider developing initiatives on applications. "With regard to finance", he said, "we should combine public with private investment, and tech clusters must be placed close to venture capital clusters."

Speaking on behalf of the Commission, Iulia Simion added that "coordination and cooperation between different stakeholders is essential to ensure that they are heading in the same direction. Dialogue on key issues should be enhanced, particularly between institutions and companies, by outlining a shared path that enables Europe to maintain its technological independence, development and innovation and its access to the global market, as well as increasing participation in the European market.

"How can we improve planning in the ESA and the EU?" According to Giulio Barbolani from ESA, "reference should be made to the important conclusions set out by the Competitiveness Council in December. Between the ESA and the EU, the annual resources available total EUR 5.2 billion and it is difficult to see how this can be improved, given the economic situation. The ESA is an intergovernmental research and development organisation, and the European Commission is a supranational regulatory body. I wonder why the Commission allocates so many resources to researching and developing the second generation of Galileo satellites and not for example, to integrating navigation with earth observation and telecommunications? It is as if the ESA were to submit a proposal for a directive. Everyone should stick to what they can do. This would make for much better use of available resources."

Mr Calini explained that "the GSA places efficient use of resources and maximising benefits for the economy and the people at the heart of its work. We estimate that, when the Galileo system is up and running, we will:

- prevent 15 000 tonnes of CO₂ emissions;
- avoid cancelling 80 000 flights;
- save three and a half billion litres of petrol;
- avoid using 4 500 tonnes of pesticides;
- create 50 000 new jobs.

The management of activities – taking into account the political complexity and market development – will be a factor in the success of these returns. We need an integrated set of strategies for each market segment."

According to Stefan de Wey, Eurisy set out its priorities some time ago: "The final users are not interested in who provides services, they just want the services. A better space programme is needed. Copernicus should work more closely with Galileo. Joint efforts lead to the best results."

The debate offered an abundance of information and did not fail to bring problems out into the open. Excellent examples were given of how it is possible to address the relationship between space and society as part of an integrated vision. A major effort was needed – a European policy approach that managed to reconcile a very complex governance framework, a single market that still had to be built, the effective use of resources and the involvement of banks and financial institutions to help European businesses. All the speakers, from both the private and the public sectors, from the Italian government to the representative of small businesses, highlighted the need to move forward by including the whole of society in the debate on the importance of Europe's role in the space sector. European society must be given due attention in order to understand its expectations and needs. The interest and attention given by all speakers to the EESC's initiative highlighted the work and commitment that went into presenting the added value of including civil society in the major challenges of development and progress facing Europe.

WORKSHOP: BUSINESSES, ESPECIALLY SMES, IN THE SPACE MARKET THE HAGUE, NETHERLANDS, 12/06/2015

On 12 June a group of seven Dutch SMEs in space – upstream and downstream - met with the European Commission (EC) at Netherlands Space Office (NSO) headquarters in The Hague to discuss the EC and ESA space programmes and possible ways of improvement of practices in this field. Although ESA was unfortunately not represented at the meeting, the business participants stressed that most observations below were equally valid for both the EC and ESA.

The overall opinion of the programmes is positive. They are considered to be of better quality than any national programme was or could be. Despite this positive assessment, the discussion in the brainstorming meeting in The Hague resulted in a range of critical points that arose from practices of awarding contracts by the international institutions, the unfamiliarity of these with markets, and the limited capabilities of SMEs to cope successfully with ESA and the EC.

Business representatives fully acknowledge that, due to the specific characteristics of the space market, dilemmas arise for decision-makers and SMEs in dealing with European programmes and procurement policy in view of developing successful markets. They therefore **consider an ongoing dialogue between all stakeholders as indispensable.**

Satisfactory arrangements and working practices between the institutions and business, notably SMEs, are all the more needed as various studies make it clear that the development of the space sector can only reach maturity with the full involvement of the private sector. **Specific arrangements concerning the involvement of SMEs should be duly set up.**

The business sector considers the role of the EC essential. Independent from its limited role in certain areas of space policy, a good dialogue between industry and the EC is a prerequisite for **successfully developing space services in Europe** as well as for **bolstering Europe's position globally** in this field. Given the dynamics in the market and the exponential progress in the US and corresponding efforts elsewhere in the world – something that no single European company can keep pace with – the dialogue at EU level should be deepened.

It is a bad sign that business has not developed as originally expected. The business sector regrets that, although EU public procurement rules are applied, there is **no specific industrial policy for the space sector in the EU**. It works primarily country-by-country.

The prospects do not look better from an R&D perspective, as R&D institutions tend to overlook SMEs. The phenomenon of the *valley of death* is also manifest in this field.

It was acknowledged, however, that **new instruments in Horizon 2020**, such as the SME-instrument, Fast Track to Innovation, and new financial instruments, **look promising**. Their actual impact has to be assessed at a later stage. The commitment in Horizon 2020 to devote 20% of the funding to SMEs is welcomed.

Space is primarily an institutional market. Development of these markets depends heavily on cooperation with public bodies. **A major handicap is the lack of (public) launching customers for applications/services, both nationally and at EU level.** The response of the EU to that criticism is that, in general, the EU itself has little possibility of being a launching customer, apart from the fact that it could support "buyers groups" in Member States through tools such as the H2020 and pre-commercial procurement. However, the EU is not in the position to force national bodies to play a pro-active role in that regard.

Businesses point to a lack of pro-active interest on the part of public bodies. One example that was mentioned was that the Ministry of Defence could play a prominent role as a launching customer. Previously, MoD had, according to the business sector's experience, been unwilling to cooperate with the private sector due to a lack of trust. As a result of financial constraints, change is now on its way. Given the national competences in defence in Europe, opportunities will remain limited in any case. MoDs could be encouraged to ask consortia to make proposals. The EC cannot be very supportive in this respect. Its competence does not go further than financing dual-use projects (which is already a considerable step forward).

A general weak point is the **lack of interest on the part of national, regional, and local authorities as launching customers**. They are usually not well informed about the potential benefits of space services. There are no incentives to arouse greater interest on their part. The agricultural sector and its cooperation with the space sector demonstrate that the search for common projects on the basis of supply and demand generally produce successful results.

According to business representatives, the **methodology can be improved by identifying the needs of (potential) users, followed by development of services**. At the current time it is usually the other way around. Public demand is needed to develop reliable business cases. Owing to lack of public demand, businesses are compelled to turn to private demand.

A recent Dutch initiative is to work on a *launching customer attitude*. Ministries are cooperating in the initiative. Awareness is increasing, and demand is expected to follow.

One special issue is the **development of standards, an area** in which European industry is not sufficiently involved. This can be achieved by means of **common platforms**.

The business sector considers steady **fragmentation of the European market** - unlike the American market – to be **a serious handicap for broader development**. On the other hand, SMEs depend on geo return to survive. Solutions to this dilemma are not easy to come up with. Fragmentation results largely from (implicit) protectionism and from privileged treatment of the public sector. It goes without saying that fragmentation hampers European performance in export markets.

The EC acts originally as a **subsidy organisation**. Industry representatives believe the EU should learn to think in terms of projects and project requirements. **ESA is better equipped in this respect**. The fact that the EC is not a project management agency leads, for Copernicus services, to a preference for working with public entities as a safer choice. The EC is fairly optimistic concerning the involvement of industry in Copernicus. SMEs, however, are somewhat sceptical. A user forum in Copernicus has been set up. The EC is asking for new ideas. Moreover, **Horizon 2020** is devoting in the order of **EUR 50 m/year to space-based applications** (e.g. Galileo, Copernicus and SATCOM). The EC is also endeavouring to activate **pre-commercial procurement** under Horizon 2020 and the regional funds. But industry representatives point to the fact that in Copernicus, only 2% is at present devoted to applications, while 98% is still invested in infrastructure (this includes investments in the six Copernicus services as well as hardware investments).

The business sector can be of assistance to the EC in defining short-term projects. Although national markets are predominant, the EC could help to "Europeanise" the sector. In this framework, long-term perspectives have also to be taken into account: how will this world look like in 15 years? An analysis of this kind would have consequences for certification, for all sorts of possible services, and could generate workable schemes. It should support the definition of the right kind of business case.

On the **financial side**, the discussion revealed three sorts of problems with detrimental effects to contracts with SMEs. First of all are **the lengthy procedures** prior to winning a contract. A case in point is the procedural mechanism consisting of multiple checks, each one lasting three weeks, according to the experience of SMEs. This is often a hopeless task for small companies with limited financial resources. One consequence is that potential new production fails to get off the ground.

A **second hurdle consists of pre-financing payment delays**, in particular towards the end of projects, sometimes lasting for more than a year. The EC acknowledges that red tape and payment delays are very problematic for SMEs. The EC points to the fact that there is more simplification in Horizon 2020, shortening delays in payments and signatures. With the pre-financing of projects, participants will still have a positive cash flow for the bulk of the project.

There are significant differences in management style between ESA and the EC. One lay in the fact that the **Member States push for more financial controls (red tape)** despite the official language of putting the emphasis on SMEs. However, the new SME instrument in Horizon 2020 takes into account the fact that SMEs are fast movers, contrary to the Framework Programmes.

Thirdly, business suffers from a European mind-set that does not allow for financial failures. There are continuous checks to guarantee successful outcomes of public investment. Businesses argue, on the contrary, that success should sometimes be preceded by initial failures that reveal shortcomings that will be corrected at later stages. Consequently, a reasonable acceptance of failures would make the system more effective and promote successful outcomes, corresponding to actual real potential. Practical experience with contracts in the past, when there were no tenders as under the present system, proves that results, including occasional errors, turned out on the whole to be more successful.

To put it more bluntly: if everybody avoids risks, there will be no development. The EU can be of assistance in supporting businesses in making this clear to Member States. National financial providers are usually very conservative.

VISIT AND WORKSHOP ON PROMOTION OF SPACE IN SCHOOLS AND UNIVERSITIES COLOGNE, GERMANY, 25/06/2015

- A. In the context of the activities being carried out under the EESC space project, the specific objectives of this visit, initiated by EESC member Gerd Wolf, were:
1. To obtain information about German activities aimed at motivating, educating and training children and young people in science, technology and space, whilst at the same time encouraging the next highly qualified generation to enter the space-related professions.

2. To obtain an overview of role of the German Aerospace Centre (*Deutschen Zentrums für Luft- und Raumfahrt* - DLR) in space activities and its relations with ESA, and to gain experience in the form of a "hands-on" visit with these twin objectives in mind.

The DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, the DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. Consequently, DLR represents Germany as partner of the ESA Agency and the ESA programmes.

The DLR has approximately 8000 employees at 16 locations in Germany. Its mission comprises the exploration of the earth and the solar system and research in the area of environmental protection. This includes the development of environment-friendly technologies for energy supply and future mobility, as well as for communications and security. The DLR's research portfolio ranges from fundamental research to the development of products for tomorrow. In this way, it contributes the scientific and technical expertise that it has acquired to the enhancement of Germany as a location for industry and technology. The DLR operates major research facilities for its own projects and as a service for clients and partners. It also fosters the development of the next generation of researchers, provides expert advisory services to government and is a driving force in the regions where its facilities are located.

- B. The delegation's specific and general expectations were fully met by the very impressive visitors' programme. Amongst other things, participants were able to take a look at the school lab where young pupils were carrying out experiments and to see from practical examples the impressive range of subjects covered by these experiments.
Not only do the school labs set up by the DLR in a large number of locations welcome and teach some 36 000 pupils every year with hands-on experiments, but - with the help of senior DLR scientists linked to German universities - the DLR at the same time employs around 800 doctoral candidates, who are carrying out high-quality research on space-related topics and gaining further qualifications in the process.
- C. In addition, there was an opportunity visit other DLR establishments, and particularly the ESA installations at the same location.

Particularly impressive was (i) watching the PHILAE landing on the comet Chury, which had already been shown at the CNES in Toulouse. The lander has since come back into the news with its "re-awakening".

Equally important was the opportunity (ii) to go into and look around the "EAC-European Astronaut Centre", i.e. the International Space Station training centre.

It can be summarised as follows:

- The cooperation and interdependence between the European space sector and its stakeholders an/with ESA is an essential prerequisite for the success of the European space programme, without prejudice to the need for global international cooperation.
- The interdependence between first-class school education, higher education, research and technology can only flourish on a broad foundation of good scientific and technical education, research and development. The author refers to Opinion INT/749.

D. **Conclusion: The perfectly organised DLR visitors programme completely fulfilled the aims of the visit.**

APPENDIX 3

PROJECT PARTNERS FEEDBACK



The European Commission appreciates very much the efforts made by the European Economic and Social Committee within the context of the "Space and Society: bridging the missing links" project. Special thanks also go to the coordinator of this initiative, Mr Iozia, as well as to the associated members: Mr Jacques Lemerrier, Mr Mindaugas Maciulevičius, Mr Mihai Manoliu, Joost van Iersel and Mr Gerd Wolf.

The Commission has actively supported this project, including the events organised around Europe, and welcomes the positive feedback received. The discussions have been fruitful on a wide range of topics – from raising awareness of space solutions and their take-up by regions, promoting space in schools and universities and boosting economic growth and job creation with emphasis on the role of SMEs, to discussing broader space policy issues. These debates have generated many ideas which will feed into future reflections on the European space policy.

The European Commission remains committed to pursuing a space policy which puts the interests of citizens at the centre. The Commission also recognises the importance of inclusive cooperation and transparency with all space stakeholders in order to structure the dialogue on major issues affecting the sector, and to define a policy which reflects the shared goals and objectives of the space community. This is why the Commission appreciates the active support of the European Economic and Social Committee as well as the European Committee of Regions in relation to initiatives on the EU space strategy, space industrial policy and Copernicus, and counts on their support for future space related initiatives.



The downstream earth observation sector in Europe is still very fragmented and composed of more than 90% of small and very small enterprises. They may therefore lack visibility or coordination when working at European level.

The EESC's space project plays a positive role in stimulating interest amongst different stakeholders and addressing the multiple fields of the sector. The EARSC welcomes the initiative of the EESC as a strong vector for raising awareness amongst civil society and for engaging the young generation.



The project has been indeed a great success. As ESA is a purely intergovernmental Research & Development organisation, links with the end users of space services have always been a matter of concern. Cooperation with the EU, which started more than fifteen years ago, was supposed to bring some solutions and to fill some of the existing gaps.

In our view, the EU Institutions were, and still are, entitled to promote the use of space services to implement their own policies (from transport to farming, from fisheries to borders control, from environment to security, etc.) and interact with communities of users in order to better understand and respond to their demands. This has happened only partially and lot still has to be done.

For this reason, a sort of "space platform" or "space forum", where the representatives of society and of the space community can pursue a dialogue is useful and meets to a real need. This is particularly true for small enterprises developing technologies and applications.

At ESA we are ready to support EU initiatives in this direction especially if and when end users, or their representatives, are involved.



Eurisy sees the EESC as a unique focal point for professional communities who could benefit from space, and in particular from Europe's satellite infrastructures – Copernicus and Galileo.

The Space & Society project has been a useful window for promoting space related activities in Europe, bringing together some of the main stakeholders in the European space scene

The idea of organising several events in different countries is an efficient way of reaching out to a varied audience on a grassroots level.

To really complement existing activities in the space community, it could have been interesting for the EESC to leverage its unique reach to involve more non-space stakeholders and professional communities from outside the research community.

Indeed, one of the greatest current challenges facing the space community is to disseminate the benefits of satellite applications to an ever wider pool of operational users (outside research communities).

More focus could thus have been placed on making the benefits of satellite applications known to both the public and private sectors. Satellite applications are beneficial to society through innovative solutions to today's challenges, but also because they generate jobs outside the space sector (i.e. not only in the space industry).

Eurisy's partnership with the EESC and the other project partners was an excellent opportunity to increase the multiplier effect of common activities promoting the use of satellite applications by society.



- The project was a very valuable initiative for the NEREUS-community as the strategic objectives of Space & Society correspond to the mission of the network;
- The variety of different events e.g. conferences, workshops and technical visits that contributed to introduce different communities/stakeholders was definitely one of the initiative's strong points, enabling us to gain new impressions/experiences;
- The initiative managed to mobilise renowned speakers and organisations (e.g. ASI etc.) – which in our view contributed again to bringing the societal dimension of space to the attention of the space community in Europe;
- The initiative helped to mobilise and bring together space communities in different Member States (in particular those that do not have a large space industry e.g. Lithuania etc.) and make it more transparent to other space players;
- Recommendations for future activities:
 - The initiative should build on the EESC's broad societal communities and should target bringing the dimension of space increasingly into societal debates on economic growth, innovation, employment (here the closeness of the EESC to different multiplier groups and trade unions is unique), migration, environment, transport etc.;
 - The main asset of the EESC is its access to a broad range of different stakeholder groups in society – this should be the cornerstone and key feature of future activities; the EESC could envisage partnerships with ESA and relevant organisations, including NEREUS, EURISY and the EARSC, to promote space among different societal groups (by means of roadshows, debates, astronauts, space4young people etc.);
 - Another important asset of the EESC is its access to local/regional politicians. This could also be an interesting factor for future activities with respect to launching policy debates and including a space session in EESC meetings;
 - Creating an online community together with one key annual event providing an opportunity for face-to-face encounters and discussions are considered a good starting point; the Space & Society community could then discuss how space could be integrated into other EESC events/activities;



European Economic and Social Committee

Rue Belliard/Belliardstraat 99
1040 Bruxelles/Brussel
BELGIQUE/BELGIË

Published by: "Visits and Publications" Unit
EESC-2015-89-EN

www.eesc.europa.eu



© European Union, 2016
Reproduction is authorised provided the source is acknowledged.



Print
QE-02-15-975-EN-C
ISBN 978-92-830-3028-7
doi:10.2864/50679

Online
QE-02-15-975-EN-N
ISBN 978-92-830-3027-0
doi:10.2864/3674

EN