



Interdisciplinary Centre for Space Studies at K.U.Leuven



6th European Space Policy Workshop

A FIRST EUROPEAN SPACE POLICY: THE CHALLENGES TO COME

Rectoral salons, Leuven, 26 June 2007

Held with the kind support of the European Space Agency and the European Commission,
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WORKSHOP REPORT



The workshop brought together policymakers, experts and participants from across the space sector in Europe to review the recently adopted European Space Policy (ESP) and to identify main challenges now to be met. A full afternoon of high-level interventions and discussion gave the first opportunity to digest the ESP, in the independent academic forum ICSS provides.

Participants' extensive briefing material included:

1. ESP of 26 April 2007 (Commission/ESA Director General)
2. EU/ESA space Council Resolution on the ESP of 22 May
3. ESP Impact Assessment summary (Commission)

Session I: General review of the adopted European space policy

Prof. Marc Vervenne, the Rector of K.U.Leuven, welcomed delegates to the sixth in the series of workshops that formed the 'Leuven Process' – a dialogue between policymakers and the space sector conducted in an atmosphere of academic impartiality in the informal surrounds of this ancient university. The first workshop at Leuven in 2002 had proposed the establishment of a European space policy and investigated its fundamental issues. It was therefore particularly appropriate that the 2007 workshop should be the place for a first examination of the newly agreed policy with those who had made it. Referring to the progress made in policy studies and space education at Leuven through ICSS since the last workshop, Vervenne summed up the situation more broadly. The policy has at last opened new opportunities for all who make the link between space and scientific, technical and human progress. "We are in a new phase in which the new policy must grow", he concluded.

Event management:



Paul Weissenberg, Director for the aerospace, defence and security industry at European Commission DG Enterprise, began his speech on “The EU’s role under the policy” by welcoming the Leuven Process, agreeing that a new phase had indeed been opened. The hallmark of the ESP is that it unites space policy in Europe. It has now also been boosted by the new EU treaty principles, agreed only days before, which include a space competence.

The ESP was a “first for Europe,” he said, with all the main actors involved – the EU, ESA and their combined 29 member states – and ready to pool their activities. Each individual actor realised that for Europe to achieve the maximum in space they needed to cooperate and could not act alone. Space is effectively beyond the capacity of any European country. The ESP meant increased investment and stronger coordination of activities in space, including by reference to the EU’s multiple areas where space assets are put to use and can be in future.

A joint strategy for space brought up the question of civil and non-civil use of space. Both GMES and Galileo may have military applications. This raises issues for some Member States, but Weissenberg believed that an ESP “without a non-civil component is not a complete policy.”

Weissenberg looked forward to the French Presidency of the EU Council in the second half of 2008 to give a further impulse to space policy and, looking to think tanks like ICSS and others, he called for big ideas for European space projects. There was a need to invest in new ideas now Europe has a basis to pursue them.



Jean-Jacques Dordain, Director General of the European Space Agency, spoke on “A vision and the requirements for a European space programme”. He too saluted achievement of an ESP but warned that the policy needed a real programme and that if solutions to investment issues such as the Galileo project were not found then the ESP would lose credibility. However, he believed an appropriate solution would be found. ESA is already laying the foundations of a unified ESP programme by collating data on current European and national programmes. This is a necessary exercise in transparency so as to produce a planning basis. Following this phase a coordination mechanism will be put in place.

Coordination will require considerable effort and has already started in some areas under powers in the ESA Convention. New High Level Forums on exploration, launchers, GMES and space components will act as precursors for the comprehensive process the ESP envisages.

GMES is the flagship application for Europe today. Describing it as “a programme of services to citizens”, Dordain called for its swift implementation to avoid being overtaken by other nations in this area where Europe has established an initial lead.

New approaches will be appropriate for the combined programme. One is a system of systems strategy for combining different kinds of applications within a common system approach. Another is to stimulate new applications in a coherent manner, notably under an Integrated Applications Promotion programme. Europe has often been only reactive to applications initiatives taken elsewhere, especially the US. Now is the time to focus on

Vision for Europe and General Strategy

Convergence among Member States, ESA and EC has been achieved on a variety of **Strategic Objectives**, recognising 'that the space sector is a strategic asset contributing to the independence, security and prosperity of Europe and its role in the world', by

- developing and exploiting space applications serving Europe's **public policy objectives and needs of European authorities and citizens**, including in the field of environment, development and global climate change
- meeting Europe's **security and defence needs** as regards space
- ensuring a **strong and competitive space economy** which fosters innovation, growth and the development and delivery of sustainable and cost-effective services
- contribute to the **knowledge-based society** (science and exploration)
- securing unrestricted access to **new and critical technologies, systems and capabilities**

Europe's space activities contribute to the goals and fully respect the principles set out by the United Nations 'Outer Space Treaty'.

entirely new areas, such as for air traffic management. In this context, security requirements too need a fresh look in defining new applications. And here it is essential to involve all relevant actors under the ESP.



Dr Karl-Friedrich Nagel, representing the German Presidency of the EU Council, spoke on “The Council space policy resolution and its rationale”. He saw the essence of ESP as enhanced cooperation, with its key focus on better delivery of Europe’s strategic goals in space.

Nagel underlined the political dimension of the policy, which is meant to act as a political framework for the years ahead. Unlike the ESP, the resolution was formally voted on in the joint EU/ESA Council and adopted by unanimity.

Above all, the resolution reflects the political will of Member States to see Europe as a leading space power, which in several respects it already is – Europe holds some 40% of the commercial market despite spending overall some 6 times less compared to the US. The resolution reveals no major shift of strategy or programme priorities, but the initiation of a common European space programme does bring a new strategic planning tool into being, accompanied by wide-ranging coordination and a structured dialogue on security and defence questions with a view to examining potential synergies. Coordination will henceforth also extend into a key area for space, international cooperation, under a specific mechanism.

Nagel stressed ESA’s continuing role within the bounds of the ESP. A fundamental change of the institutional system is not introduced. ESA’s legal status is unchanged. Correspondingly, the EC-ESA Framework Agreement will stay, though it will be revisited to see how it could be improved. He noted that the

ESA industrial return system remains applicable though, again, improvements may be made to it. He gave various justifications for maintaining this system, including the need to ensure that strategic national capacities were sustained and to preserve competition among space system suppliers in Europe over the long term. On the other hand, the implementation of ESP did require further planning and some innovation, in particular further thought on the kind of financial instruments that were appropriate for space within the EU system. The Commission was invited by the resolution to consider them in light of the specificities of the space sector, specificities that had indeed given rise to the ESA system.



Complementing Dr Nagel's remarks, a "National Perspective" on the ESP was given by **Dr Dominique Fonteyn** representing the Belgian Science Policy Office. He referred to Belgium's significant commitment to Europe's space effort through ESA and how it is essential to maintain a balance at national level, something which is assisted by the ESA system. Looking at Europe's overall choices, Fonteyn saw independent access to space as crucial but considered that the means of access must also be cost-effective.

Bearing in mind the current Galileo crisis, he felt Europe must complete both the Galileo and GMES projects and that this will be supported by the public.

Space is important for the general pace of scientific and technical progress. This does not end with the civil sector. He therefore also called for all Member States to recognise security and defence as legitimate areas for the ESP to operate in.

The competitiveness of European industry globally was directly linked to how far the EU was willing to back its independent capabilities. There was a need to maintain public investment where private investors were not ready to contribute.

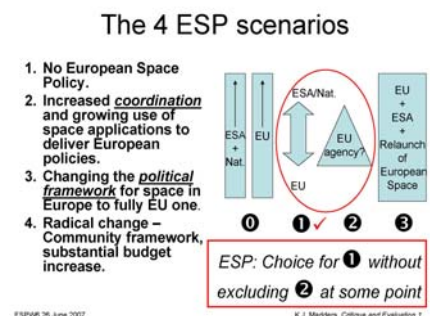
Dr Kevin Madders of ICSS provided an independent analyst's "Critique and Evaluation" of the ESP as the closing paper of the workshop's first session.



Getting to the ESP had been an extraordinarily long and difficult journey. It was nearly 20 years since the Delors Commission had proposed such a policy and seven years since the landmark Wise Men report whose influence in the ESP is visible. At a practical level the Impact Assessment makes clear the ESP's limitations. Its achievement heralds no specific new expenditure, regulatory measures or programmes. All the ESP did at this level was essentially to reassemble existing programmatic elements to produce the European space programme as a synthesis. A new long-term vision is absent, including guidance on major unknowns, such as Europe's stance on Moon/Mars exploration.

This was hence a modest outcome from the space sector's point of view. However the ESP pursues a deliberate *political* purpose. It creates a new starting line based on a basic doctrine among all policymakers. Even if the ESP is in several respects only a lowest common denominator, an important element is the recognition, through adoption of the ESP and its welcome by the EU Council, that there is no lack of EU competence to deal with space. Indeed, compared to the 2004 EC-ESA framework agreement, the ESP and resolution extend the policy *process* – without changing competences – to Second and Third Pillar aspects through opening a “structured dialogue” on security and defence aspects of space. The ESP also makes a case for space that can ground new initiatives later.

“Coordination” is the key word for the ESP's modus operandi and the Commission's involvement in this longstanding ESA role potentially marks a major change. Institutionally, what ministers clearly opted for compared to previous debate was, for the present, a “cooperative” model for EU-ESA relations. The alternative was the “integrationist” model some, including Madders and Thiebaut in their recent [“Carpe Diem” article](#), have argued must eventually prevail. Work on “optimization” of Europe's space activities may give rise yet to deeper institutional convergence amounting to ESA becoming de facto if not de jure the EU's space agency. The resolution also calls for changes in the EU system that could help materially in this regard, notably through developing new EC financial instruments suited to space's realities; these would need to be accompanied by qualifications to the EC Financial Regulation. The ESP itself is, however, silent on this point. In any case, a precondition for decisive change on governance is to address strategic issues of industrial policy and management.



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When (and if) the new Treaty on the Functioning of the EU enters into force EU money for space that has previously been squeezed into other budgets ill-adapted for the purpose should find a better home under a specific budget heading. Madders believes that the broad strategic challenge of the ESP to the various institutions and players is now to create a virtuous circle of increased space investment through political action on programmes (perhaps under the 2008 French Presidency), better interaction and improved efficiency between all players and successful delivery of programmes and services.

The ensuing **discussion** Weissenberg reiterated how the ESP unblocked matters concerning the role of the EU in security matters related to space. Nagel, in relation to support for Ariane through limiting procurement to certain ESA country firms, defended this as a basis for facilitating competition on the world market. Madders clarified a point he had made on weakened motivation for space in Europe, explaining it was to date partly structural, partly due to absence of a sufficient “sub-culture” below the policymaking layer.

Session II: Stakeholder review of sectoral challenges



Gilles Maquet of EADS began this session with the theme “The challenge of a coherent sectoral industrial policy and the need for new funding and operational mechanisms”. He stressed that industry has to strike a balance between the exigencies of the commercial and the requirements of the institutional space market. In reality it is the commercial market which drives companies’ strategies, but institutional factor also have a profound impact, notably on planning. He suggested three areas of challenge to be met with some urgency under the ESP: First, a new business model for space needed to be defined that

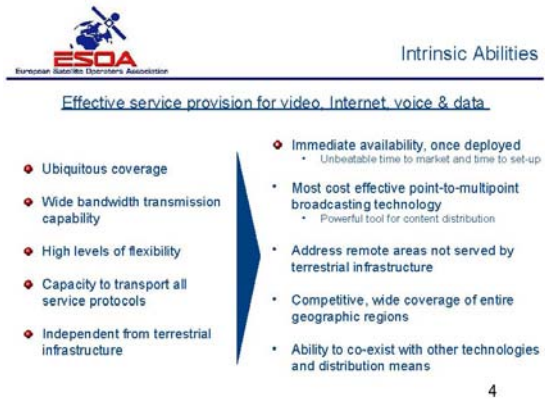
assigned roles for the various partners funding and overseeing programmes. This needed to include new operating bodies for services such as under GMES. Second, a European industry policy for the sector needed to take a close look at its structure in terms of functional performance. The principles to be emphasized here are necessary autonomy, interdependence and efficiency. Third, new EU Member States needed to be full partners for ESP but guidance is necessary on how this should take place. Maquet suggested this should be through cutting out their own niche, e.g. in developing new service applications and software based on their own requirements and capabilities, rather than attempting to add yet more duplication.



“Possible ways to meet the challenge of strengthening commercial exploitation” was the challenge discussed by **Ignacio Gonzalez-Nunez** of the European Satellite Operators Association and special adviser at Eutelsat. The role of satellite operators was frequently not understood. Not only did it produce a bulk of space sector revenue and fuel the European space manufacturing industry, but it also provided an essential overlay infrastructure for many terrestrial services. It was also the handmaiden to innovation in many areas. These features called for it to be recognized as a fundamental infrastructure for European development and cohesion. Any approach based on “technological neutrality” was in

this context out of place and neglected the key enabling potential that only satellite communications can provide. This is most easily evident in the deployment speed and vast geographical coverage satellite permits, plus the integration of the full set of data and other services in highly adaptable configurations. On this basis, the ESP in its implementation should see satellite operators as a key bridge between space and society. Their development and international competitiveness should moreover be supported and sustained in similar measure to operators in other parts of the world.

The long lead times and high value of individual investments imply unique vulnerabilities for satellite operators. However, these are compounded by their reliance on appropriate frequencies. Special care needs to be taken to ensure access to frequencies, especially those already assigned to satellite communications. A reform that is needed is accelerated authorization within assigned bands to enable new business services.



“The operational and structural challenges of tackling the security dimension of space” was possibly the most controversial of the session, addressed by **Prof. Kai-Uwe Schrogl**, incoming Secretary General of the European Space Policy Institute in Vienna. Constructing a unique European identity in space for security would be difficult, involving the transformation of a collection of modest, dispersed programmes into a coherent military space architecture synchronising ESP with the Common Foreign and Security Policy (CFSP) and the European Security and Defence Policy (ESDP). This required coordination and coherence amongst actors with divergent interests.

However recent events, such as the Chinese anti-satellite test in January 2007, had shown Europe to be without a coherent political response in an area of utmost strategic significance. The recent fracas over a US-led missile shield has shown similar disarray, with “old” and “new” Europe taking different stances.

Schrogl suggested that synchronisation between ESP and ESDP was essential and was a genuine political challenge. The competences of various players in this area needed to be defined as did an unambiguous role for ESA. The challenge is receiving attention. Notably, a conference took place in Berlin on 21 and 22 June on security in space, arms control and the contribution of the EU.

A useful first practical step would be to build autonomous capability in Space Situational Analysis (SSA) – the ability to “know what is going on out there”. In fact SSA competence was a precondition for being a truly independent actor in space. It would also permit action on a space traffic management system.

Finally, Europe currently does not speak with one voice in international fora concerned with aspects of space and security, for example the Conference on Disarmament. Again, work on effective coordination is called for here.



In a joint presentation on “Defining a European vision for exploration and space”, **Prof. Christoffel Waelkens** of ICSS discussed the role of space science. He explained the concept for the next fifteen years and beyond, encapsulated in the Cosmic Vision elaborated by the science community in ESA. Space science is of fundamental importance for the long term, not only in terms of scientific output but because so much of

the innovation in space technology needed for applications is generated by the extreme demands of scientific missions. He described the breadth and strength of European space science, which has increasingly scored visible achievements in planetary and solar system studies. These will continue, but he stressed that as projects got bigger the need for international collaboration also became greater.

The maturity and scope of European space science is evident by the nature of Cosmic Vision’s main themes. They address questions as old as science itself. But the way in which such themes are arrived at is important and demands better recognition. This is the bottom-up approach, involving the space science community. Their involvement also helps to form strong international project teams.

The Importance Of The “Bottom-up” Approach To Science

- Main Themes in the ‘Cosmic Vision’ programme
 - What are the conditions for life and planet formation?
 - How does the solar system work?
 - What are the fundamental laws of the Universe?
 - How did the Universe originate, what is it made of?



The story of human spaceflight and exploration in Europe was one of 30 years of success, according to **Prof. Alain Dupas**, College de Polytechnique, France. And the return on investment for science has been enormous.

The ESA’s Aurora programme on space exploration added a new dimension through its studies and was developing into a framework for forming a European vision in this area for both human and robotic exploration. The international environment had improved in this respect recently. The US is adopting a less “unilateralist” stance than previously, while other powers, especially China and India, are starting their own exploration initiatives.

A big question was the future for the International Space Station post 2010. Dupas thought autonomous human access to space for Europe might make sense in the 2010s but as part of an international alliance or partnership. He called for a global European ambition to be defined on the various long term issues. Such a vision is vital if Europe wishes to succeed in exploration in general and human spaceflight in particular.

Some Early Conclusions For the Future of Human Spaceflight & Exploration in Europe

- Associating human space flight and the Moon is not yet a done deal in Europe
 - A very positive sign is the interest of many European nations for early robotic lunar probes
- A large and ambitious communication effort is needed, directed to the general public and European political stakeholders
- There will not be a significant European involvement in future international human exploration ventures if the ISS outcome is not satisfactory
- Progress in the advancement of the European project will be a decisive factor: human space flight can only go along with a strong international ambition



In the final speech, **Prof. Jakub Ryzenko** of the University of Warsaw addressed the challenge of “Integrating new EU Member States in the policy’s implementation at large”. He explained the situation in the New Member States, which had a background in space research from the Cold War days. As a legacy from those days, in countries such as Poland “space” (“cosmos” in various Slavic languages) connoted astronomy and exploration. The practical dimension and benefits of space applications needed therefore to be promoted to the public.

Current very low budgets for space activities by comparison with “old Europe” would increase over time as New Member State economies grew. At present, they amount in total to around half of what their level of mandatory contributions alone to ESA would be. In Poland there was nevertheless great potential for space service developments due to the number of high quality IT professionals with entrepreneurial skills. He showed various slides showing innovative applications recently unveiled at the Polish Space Days.

In the ensuing **discussion** a lively debate took place on defence aspects of space and on the viability of space application niche markets growing in the new EU member states, given general patterns of post-Enlargement inward investment.

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Closing the workshop, Dr Madders for ICSS thanked the speakers, the sponsors and those who had helped in staging the event, particularly Prof. Jan Wouters of ICSS, co-organizer of the Workshops, who was unable to attend on the day but had contributed substantially to this workshop taking place. The afternoon had provided an opportunity to digest the policy and test out the challenges it left unanswered but could provide a framework for answering. The overwhelming challenge, though, is one of follow-through. And here the space community itself needs to be more proactive. The workshop series provides one means. Future workshop themes so far identified include Galileo’s reform, European space industry policy and new financial instruments, Satellite for Africa, and GMES. Ideas and suggestions were welcomed.

A cocktail was offered to the participants.