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Viewpoint

Making space the key to security and defence capabilities in Europe: What needs to be done

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Abstract

The utility of an increasing variety of space technologies to security and military operations is now well accepted and is encouraging the USA to pursue a policy of space dominance. While Europe's capabilities in this field—especially those of France and the UK—are not negligible, they are far from complete and are highly uneven at continent level. Such unevenness must now urgently be addressed and agreement reached on the core function of the space segment for security and defence if Europe is to have any hope of acting as senior partner in operations led in coalition. A recent French examination of the issues advocates that each country clarify those areas it will pursue nationally and those (e.g. environment/security data relay) where it will cooperate. Such cooperation must grow, as should the use of civilian (dual-use) assets. None of this will happen without strong political will and budgetary support. The latter will require innovative funding measures such as PFI.

1. Introduction

The growing debate in the USA on the revolution in military affairs (RMA), network centric warfare and space control, and the prolific policy literature, now known as the "Rumsfeld doctrine", which builds on the report published by the Rumsfeld Commission in January 2001, raises a primary question: what exactly is meant by all this?

No one could deny today that we are looking at the increasing integration of space as a tool for the preparation and conduct of operations. The problem was summed up in *Jane's Defence Weekly*: "Dominating the information spectrum is as critical to conflict now as occupying the land or controlling the air has been in the past". This concept is called 'space dominance'.

What we are seeing, in fact, is that space is becoming the key to the new US approach to deterrence. In a Memorandum of July 1999 the Secretary of Defense, Bill Cohen, pointed out: "Space forces are integral to the deterrent posture of the US armed forces".

This major development has been underway for more than 10 years and is borne out by events. It has also been confirmed by the return on experience following recent conflicts.

- "Desert Storm" demonstrated in the early 1990s the value added of space systems in reducing the decision cycle from 48 h to under 12 h.
- In the Yugoslav crisis it became apparent that the use of satellites was critical to a whole series of actions, such as the scheduling of fighters' sorties, analysis of mission results, situational monitoring, etc. Much of this was made possible thanks to technologies ranging from meteorology to imaging and electronic intelligence, from GPS precise positioning to satellite transmission of vast amounts of data or orders—thus significantly shortening the 'decision loop'. Indeed, concrete and operational tasks within the scope of the space segment have been extended to include determination of military potential and monitoring of military forces movements; target identification and ex-post evaluation of sorties; precise navigation in the air, and on land and sea; and

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swift and high-speed links with theatres and among allied forces.

- Operation Enduring Freedom (OEF) in Afghanistan made extensive use of space capabilities in a distant and isolated theatre that was controlled from "locations" scattered in several parts of the world (United Arab Emirates, Tajikistan, Kyrghyzstan, the Indian Ocean, and so on). Space capabilities were used for targeting purposes and for coordinating a complex set of forces (for example, for a fleet of more than 100 vessels from 10 nations, one can easily imagine how complex coordinating such a configuration must have been).
- Finally, the intervention in Iraq has shown unprecedented satellite integration into other intelligence, surveillance and reconnaissance (ISR) sources, with command, control, communications and computing (C4)ISR architecture depending in particular on safe and high-capacity satellite-based telecommunications.

2. Policy in Europe

Our debate in Europe is quite different. Nevertheless, while comparisons are often unfair—of course Europe does not have the military resources of the USA—space-based defence capabilities, especially in the UK and France, are far from insignificant.

In London, it seems that no one is planning to build a 'space policy' but, in accordance with the effects-based operations (EBO) and network enabled capability (NEC) concepts, the UK insists on having its own military space telecommunications capabilities, in the form of the Skynet programme. Three satellites were launched between 1998 and 2001, while Skynet 5 is now part of a private finance initiative (PFI) called Paradigm. It will be used mainly for MOD needs up to 2018, with two operational satellites in 2008, "excess" capacities being handled by NATO, through the NATO Satcom Post-2000 initiative led by the UK, France and Italy.

In France, both Hélios 2 and the Essaim electronic intelligence (ELINT) system demonstrator were launched in December 2004 and in October 2005 the new generation Syracuse 3 satellite was placed in orbit.

But on the European scale these capabilities and their ground user's segments are incomplete, even embryonic in certain fields. The future of space-based "series" is not assured and the articulation of demonstrators with follow-up operational programmes is not planned. Above all, these capabilities are inadequately shared out Europe-wide, even though we possess most key technologies together with a better-organized competitive industry, corps of brilliant senior engineers and a very elaborate civilian space programme, etc.

The strong contrasts between the two approaches, American and European, in terms of doctrine as well as of the resources marshalled, are at the source of the political awareness that is gradually emerging, particularly in France. According to a critical examination of the issues by a strategic space group commissioned by the French Ministry of Defence, it could be spelled out as follows: space dominance is increasingly the locus of modern military postures because space-based tools designed as 'systems of systems are a means of building up military capabilities by making them more effective. Space is a catalyst for strength, an accelerator, a precondition for our being able to assess situations autonomously. It fulfils needs in the fields of C4ISR, even if one can discuss endlessly how much, or how far.

For the so-called leading nations in Europe is it not of the utmost importance to ensure that no discrepancies should imperceptibly find their way into the thinking and means of conducting operations, in the design of systems and in technology, between us and our allies, between France and its European partners? Should we not be in agreement about the core function of the space segment for defence and security even if we can argue about the size or mass of the core? If we fail to analyse in depth the implications of a reasoned choice in support of the space function, would we not take the risk of creating real gaps at European level well before 2020 in a key high-technology area?

A study recently released by the Centre for Strategic and International Studies (CSIS) in Washington states: "Both Europeans and Americans must understand that investing in modern C4ISR capabilities and focusing on their interoperability will be crucial if smaller, more networked forces are to be used effectively in future coalition operations both combat and post combat"[2].

3. New appraisal in France

As mentioned above, a critical examination was conducted at the French Defense Ministry throughout 2004 and enhanced by a series of hearings of many prominent figures from the world of space. The work of this Strategic Orientation Space Policy Steering Group (GOSPS) was essentially aimed at preparing future space-related policy decisions. It is to remain confidential and has not yet been published, even in a non-classified version[3]. But, we can confirm that the analyses conducted were professional, combining political, military, technical, industrial and institutional perspectives. They were carried out at high level, together with senior armed forces and relevant services officials. The guidelines recommended are geared to an ambitious logic and an innovative approach. They take into account developments in the international context (new threats are added to classical ones) and the

[2]CSIS, *Initiative for a renewed transatlantic partnership*,Guy Ben Ari, August 2005.

[3]See the article by F. Bujon de l'Estang, published in *Le Monde*, 14 June 2005.

drafting by the USA of a strategy for space dominance and space control.

Beyond that, following statements made by the French defence minister[4], it appears that the army's needs have been studied in detail, as have areas where capabilities are lacking. Current capabilities, as noted earlier, are far from insignificant but can in no way be regarded as a 'system of systems', a comprehensive architecture both useful to our forces—increasingly led to intervene as part of 'network enabled' coalitions—and attractive to our partners as requirements that cannot be met nationally since they are so huge. The challenge is not only for France but for Europe to properly gauge the efforts to be devoted to sensors and network centred information channels that tomorrow will provide critical support to the forces projected into peace-keeping and security theatres[5]. What we need to do is implement strengthened strategic intelligence and telecommunications resources and, further, penetrate other areas of application of space technology such as electronic intelligence, precise positioning techniques, early warning and space surveillance.

Beyond conducting an in-depth analysis of needs, the reflection exercise justified working out an innovative approach to meeting and satisfying requirements. Such an exercise is a complex one that requires taking account of:

- the most essential imperatives of our respective national interests (national core, namely a part of high performance and protected dedicated telecommunications, comint information and user's ground segment for higher resolution observation and electronic intelligence);
- the specific features of European defence where countries have to become fully accustomed to the idea of sharing sensitive information or pooling technical tools developed for essentially national purposes.

Each state in Europe should be required to say when, where, in which domain it is open to playing the European autonomy card (including later on as a purchaser), and in which domain it wishes to remain national. Only by combining a national approach with a proactive European one will we be able to meet growing needs and to show solidarity in taking up together a challenge that transcends national divides. Most of us accept the fact that NCW/NEC operations rely in part on the sharing of high-level safe and secured information. Each nation could potentially nurture a European database but that would be an unreliable source. That would drive leading states to monitor purely national information operations in parallel, defeating the meaning of truly networked operations. To end this major difficulty, only a change in data policy, and thus a drastic change in mentalities, would be able to overcome the deadlock.

For dedicated defence systems (extremely high resolution, infrared high resolution, allowing reactivity and confidentiality) procurement could be realized through bi- or trilateral cooperation among the nations willing to invest and to share. A broader move along the path to mutual action will not be possible among Europeans before the next generation of systems is introduced after 2020. In the meantime, efforts at the European scale could be focused on at least two levels: data relay for applications related to the environment/security, and definition of a common ground segment architecture of future observation systems, or at least improvement of interface formats and associated standards.

In the field of telecommunications, except for the hardcore component reserved for national security needs, the sharing of services initially acquired at the level of national programmes –as in the example of the NATO Satcom post-2000 initiative, or other forms of innovative public–private partnership (PPP)-type formulas—should be rapidly assessed.

The above 'transformational' policy also implies seeking the multiplier effect of civilian–military 'duality' by using the resources available on the market whenever it has been established that the conditions for the safe use of a civilian system are indeed met. Here we must benefit from initiatives taken in the UK with the Paradigm PFI or in France from agreements between the Ministry of Defence and Spot Image. In short, the idea would be to draft, according to the nature and specifics of needs and requirements, a classification to guide the ways and means of satisfying those needs in terms of capabilities: capabilities to be mastered nationally; capabilities possibly procured through cooperation; capabilities able to be shared with civilian partners.

4. Capability development and procurement

A realistic space policy, building upon the emerging signs of dynamics, must be given practical effect by an effort to develop capabilities. The history of the past 20 years in Europe has shown that this should not be taken for granted. An effort of such a kind can be made only if it is backed by strong political will and budgetary support, in France as well as in the rest of Europe.

France could set an example to legitimize the call for a shared effort. It should consolidate its national vision on an interagency basis, make the suitable doctrinal and architectural choices, and steer policy and programs annually. Public funding will be required. An analysis of the amount that will be needed has been conducted, as a first approach. The expenditure will be justified to the degree that it is grounded in a thorough consolidated vision, and that is also underwritten by European support on the same scale.

[4]See the speech of 18 December 2004 made by the Minister of Defence, Mrs Alliot-Marie, on the occasion of the launch of the Helios 2 satellite.

[5]The CSIS report talks of shifting defence euros from legacy systems into networked-based systems such as air ground surveillance (AGS) and space assets.

Innovative funding solutions will also have to be sought (e.g. PFI). They can be credibly imagined once it has been decided to share certain data (outside of the hardcore sovereignty area) and the resources of certain systems.

At the European level, work has started on analysing capacity shortcomings, although this is still in the early stages[6]. We must set about making our partners aware of the necessity of exploring thoroughly and enduringly what is required and the proper solutions for meeting requirements[7]. We can also make proposals based on the current demonstrator studies, and consult with those among our partners who might be especially open to sharing in co-operative initiatives dealing with such new 'functionalities' as space alert and surveillance. It will be up to the new European Defence Agency (EDA) to pick up the reins of this political impetus. Nick Witney, EDA's CEO, declared recently in this regard:

> There has to be a balance, a trade off, by compensating the loss in some member states of their major or complex capabilities with mechanisms and policies which favor niche capabilities...[The EDA and the EU military staff recently completed a study which] identifies a shortage of high speed, wideband communications and problems with cryptology standards...The bandwidth problem points to satellite communications as a solution, so one proposal could be to see how satellite bandwidth management could be changed to free up or strengthen capacity[8].

5. Conclusions

It seems that, with space assets, we have a field that can become more extensive and enable us to step gradually forward on the road to development of practical tools for buttressing a credible European defence and security policy (bridging the gap with the transatlantic doctrine)[9].

A three-day workshop held at Wilton Park, UK, in September 2005 on 'Space: key to Europe's security and defence capabilities?' demonstrated that a dialogue among Europeans on these issues is workable under certain conditions. These include not planning to draft a doctrinal or over-ambitious strategy, and accepting to progress pragmatically, taking into account primary users' needs and practising a sound logic of cost effectiveness. The way forward would be in two main directions: (1) progress on the task of defining and prioritizing more precise specifications for 2020 – aware of the fact that space technologies have to compete today with other techniques and must demonstrate their unique added value; (2) making proposals to describe new procedures for the satisfaction of needs and exploring the potential of mutual action and dual-use systems. A minimum consensus must be obtained on the need to maintain solid foundations for the space defence technological and industrial base to bridge some critical gaps and retain the ability to participate at high level in operations led with coalition partners.

In conclusion, it is quite clear that time is of the essence and that, for France as well as for our European partners, the decision time is now. We must operate with a strong sense of urgency if we do not want to see very serious gaps appearing between the USA, which is already on the way to establishing its space dominance/space control model, and European industries and defence forces, which must urgently make the needed political and budgetary decisions. When gaps become apparent, it will be too late to bridge them.

[6]Work done in 2004 by the Space assets panel of the European capabilty plan (ECAP) for the Headline goal catalogue.

[7]The CSIS report states that "If undertaken in a coordinated manner by NATO and the EU... national migration towards network-based doctrines and capabilities can be achieved more swiftly and efficiently as well as at lower cost by avoiding redundancies, sharing the workload where possible and pooling resources".

[8]Defense News, 20 June 2005.

[9]CSIS, *Initiative for a renewed transatlantic partnership*, August 2005, and AAAF-ANAE policy *paper Space for defense*, Paris, April 2005.