

## **Speech**

By

**Gen. Gianni BOTONDI, Secretary General and Director of National Armaments**

**On**

***"The strategic role of Space: the Italian MoD perspective and the dual use approach"***

*Organized by*

*AFCEA – Rome Chapter*

*Hotel Parco dei Principi, Rome*

*September 12-14 2007*

**Excellency the Italian Minister of Defence;**

**Excellencies;**

**Honorary President Professor;**

**Honorary Chairman;**

**Honorary Director;**

**Honorary Professors;**

**Distinguished Colleagues;**

**Distinguished Guests;**

**Ladies and Gentlemen!**

### *Welcome*

I am very pleased and it is a great honour for me to deliver the first speech in this symposium.

In particular, I wish to thank all the authorities for attending, as their presence proves the attention and care for defence and security issues. I also wish to greet all representatives and experts from State bodies, academic institutions and Industries. A special warm welcome to the press representatives, for their cooperation and effort.

### *Background situation*

In this speech I will set the scene of Aerospace Technologies and Applications for Dual Use in the perspective of the Italian Ministry of Defence, with some specific remarks to procurement issues.

Looking back at the past fifty years, satellites assets were initially available only to the two superpowers: on the contrary, in today's world their use is extensive, as they spread from the military domain to many civilian applications. Satellite communications, navigation and imagery are currently available not only to military and professional civilian users, but also to ordinary people, both in the real world and on the web.

In military applications, first Europe joined the USA and Russia in the space arena, and then other space powers emerged: China, India, Japan, Israel, Iran, just to quote a few of them. Nowadays, satellites are a modern strategic need for States, as they offer unique performance and possibilities together with international prestige, nurturing national pride and fostering political ambition.

For industry, space is a logic evolution and consequence of economy and technology growth, the new frontier for new challenges, where cutting edge technology is developed. On the commercial side, the increasing availability of products at affordable costs promotes the market and the number of potential customers, so that costs tend to decrease and in turn the market to expand further more. This positive cycle offers new opportunities to all mankind, as information is readily available at affordable prices or even for free, but the downside is that this leaves the door open also to malicious use, as that posed by non-state actors, like terrorists, with new threats appearing and soaring. In short, we are faced with a “dual use” scenario, where the man in the street benefits from easy and cheap access to information, but at the same time this can threaten his life. Of course, this is not the kind of “dual use” we want to promote.

In military applications, during the nineties, satellites evolved from political strategic applications to tactical military use. This evolution started in the context of the first Gulf War (operation “Desert Storm”, 1991), where commercial imagery began to be used extensively to complement the military one, and continued in the theatres of the Balkans and Afghanistan. In Earth Observation applications, this translated into shorter response times (from request to product) and higher numbers of images, with commercial imagery used to support high volume tasks, like mapping applications. In the military domain, the search for faster response times led to an enormous effort in technology, financing and organization, with the need to create a new wave of hardware and software, as well as redefining working habits, structures and management organizations, to support new modern operational needs and uses. For example, in the Hélios programme the end result was the halving of the operational cycle time, from the 24 hour cycle of the Hélios I system to the 12 hour cycle of Hélios II.

In the doctrine, nowadays Space Policy is an essential part of State Policy, and it is widely accepted that space power is as important as conventional power on land, sea and air. The Italian Defence Space Plan is linked, consistent and harmonized with the National Space Plan, which sets up some key principles:

- information supremacy for military and intelligence purposes is the basis for the national policy and diplomacy, as nowadays foreign policy is strictly linked with the defence and security policy;

- intelligence and home security organizations rely on satellite systems to carry out their work and achieve their objectives;
- the international scenario requires to develop integrated, interoperable and compatible information systems, where space and ground systems must be integrated;
- the role of Communication, Navigation, Observation & Surveillance satellite systems is essential.

In short, space power is an essential asset to support and ensure the national sovereignty.

Today the scenario is global and the new threats and challenges impose “to think global” to ensure the ability to conduct peace operations also in remote areas, especially in those that are difficult to access and far away from homeland (like Timor East and Darfur) where fuzzy situations of low intensity conflicts and post conflict stabilization environments are pretty common. Italy plays a significant role in international operations, all across the board, within the United Nations, European, and NATO frameworks.

### Procurement issues

In this unstable and undefined context, planning is an extremely difficult exercise, as it is difficult to foresee future scenarios and needs, so that flexibility is to be kept to a maximum. As a matter of fact, in a cold war scenario long term programmes were possible, due to the fact that provisions could be made in a scenario that was pretty stable and with symmetrical threats. Nowadays threats are multiple and asymmetrical, they normally have a low tech profile, but can become extremely dangerous where directed through the easy and cheap access to information previously described. In this scenario, which is not stable and evolves continuously, and where the battlefield is not clearly defined, provisions are difficult if not impossible, planning is extremely challenging and flexibility is of paramount importance.

On top of this, cost constraints impose to try and get the most out of the money spent, so that co-operation, with common requirements and programmes at international level, and in the European arena in particular, may well help out. On the operational level, the search for commonality in standards, equipments and procedures, together with a deeper integration of information systems as well as a wider and faster exchange of intelligence, can pave the way to further savings and increased effectiveness.

Another way to keep performance affordable and programs feasible is to share assets between the military and the civilian (both institutional and commercial), which means to share costs and high value specialised manpower: this leads to the “dual use” approach in a “best value for money” perspective. This “value for money” attitude, which has already led to a common European market in the civilian arena, has the potential to lead to a common European market in the military through and increased use of co-operation, as there are positive examples in naval and aerospace programmes but where there are still difficulties in the land domain. Strange enough, more cuts in defence spending could encourage - or even force - more co-operation. In fact, along this perspective, savings in military spending could be made through best use of technology excellence and production assets.

To exploit possibilities, Italy looks with much interest to Europe, but it remains also very keen to continue and reinforce its cooperation with the USA, which anyway leads the way in technology and is the most important market in the world, with public spending in Space activities as much as three times as Europe in the civilian, and roughly thirty times in the military domain.

#### *Satellite applications and procurement policy for Space*

Nowadays dual use satellites are becoming increasingly important in Telecommunications, Navigation and Earth Observation, as these are key components in the global scenario and can be exploited for both civilian and military purposes, especially in a net-centric perspective, taking into account financial needs. For example, observation can have a number of military and civilian applications: surveillance, reconnaissance and intelligence for the military, but also atmosphere, land and maritime monitoring for the civilian, as well as geology, hydrology and disaster monitoring, a few examples of which are oil spills at sea, tsunamis and tornadoes, fires and earthquakes, or monitoring of fishery at high sea. All this is “dual use”.

As the Italian MoD realized the importance of international co-operation, in 1987 Italy joined the Hélios I program in co-operation with France, to develop, manufacture and operate a satellite system, and Spain joined in 1988. Successor of the Hélios I program was Hélios II, the first satellite of which was launched in December 2004. Currently six European nations are participating to the Hélios II program: Belgium, France, Germany, Greece, Italy and Spain. These same six nations are also funding a set of co-operation studies for the design and build up of MUSIS, a MULTinational Space-based Imaging System - optical and radar - for surveillance, reconnaissance and Earth

observation. This system will be a federation of purely military and civilian-military (that is “dual”) systems with a common Ground Segment, where satellites and constellations control will remain at national level. For MUSIS two contractual agencies have been set up, one in France (managed by the DGA) for the architectural study, and another one in Italy (managed by TELEDIFE) for the Ground Segment study. MUSIS will be designed to be fully integrated with external systems, such as navigation systems, the internet, as well as ground and satellite based communications systems, in a net-centric vision.

Furthermore, Italy has also launched a Space programme for Earth observation on its own, which is COSMO-SkyMed, a Space born Earth observation system based on SAR (Synthetic Aperture Radar) technology for military, institutional and commercial applications: this is a real “dual use” system since the very beginning.

Funded by the Italian Ministry of University and Research and the Ministry of Defence, COSMO-SkyMed was developed by a team of Italian industries led by Thales Alenia Space under the management and responsibility of the Italian Space Agency (ASI), with the support of TELEDIFE.

COSMO-SkyMed is also fully in line with the tradition of good co-operation between France and Italy for Space programs: in accordance with the Agreement signed by the Prime Ministers of Italy and France in 2001 in Turin (Amato and Jospin), COSMO-SkyMed is part of the ORFEO program (Optical and Radar Federation for Earth Observation) which will provide a joint Italian-French observation capability through dual use optical (Pléiades) and radar (COSMO-SkyMed) sensors, for the exchange of complementary satellite imagery products. This agreement was followed by agreements between Italian ASI and French CNES (Centre National d’Etudes Spatiales), and between the Italian MoD and ASI.

COSMO-SkyMed ensures full global coverage from the first satellite, and thanks to its active radar, operating in X band, can operate during all weather conditions, with short revisit and response times. The first COSMO-SkyMed satellite was launched in June this year, and the first results look very interesting and promising. The second satellite is due for launch in few months. With COSMO-SkyMed Italy has reached a leadership role in the SAR satellite domain, and the success of this programme carries benefits to the whole nation.

In what concerns navigation, Italy is continuing its cooperation with the USA for GPS, and after the Dublin agreement of 2004 (between Europe and the USA) there is an increasing interest also for Galileo, as in many other countries, European and not. As a matter of fact Galileo, even if more

oriented to civilian services, will offer some specific functions of high interest to the Italian MoD, as Search and Rescue and Public Regulated Service, yet keeping high levels of availability, integrity and interoperability with the existing GPS systems, both systems being part of the Global Navigation Satellite System (GNSS). Indeed, in this light Galileo is a good example of international co-operation, as European countries are involved in a common project that also fits in the frame of the co-operation with the USA, proving that European and transatlantic co-operation are complementary and not in contrast.

In the domain of Communications, the dual use concept is advancing as well. In Italy the military satellite SICRAL 1 will be followed soon by SICRAL 1B, with a new operational and contractual scheme allowing for the dual use approach, with portions of the satellite dedicated to military and civilian use, to grant homeland safety and security through satellite resources devoted to Carabinieri, Coast Guard, and Protezione Civile (Civil Defence), as well as to telemedicine. Once again in the frame of the French – Italian co-operation, and with the involvement of both national Ministries of Defence and both Space Agencies, the satellite communications program ATHENA-FIDUS (Access on THEaters and European Nations for Allied Forces – French Italian Dual Use Satellite) is continuing, too.

### Conclusions

Having described the international scenario we are confronted with, and the modern issues and constraints it entails, having subsequently highlighted the importance of international cooperation and the pivotal role that the dual use approach can play, I deem I have said enough to clarify the Italian Ministry of Defence position and vision, I thank you for your interest and attention, and I wish this symposium can exploit the opportunity to discuss with aerospace industry about our common issues, future challenges and co-operations.

Thank you.