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EUROPE'S FIGHT FOR SPACE – A NEW CHALLENGE

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Abstract

The present article examines the challenge Europe faces with regard to space exploration. It advances some technical concepts associated with space exploration and key concepts for our understanding of International Relations – particularly Astropolitics - in a milieu that many see as placatory, but where competition and cooperation go hand in hand, and where military and civilian capacities are often blurred.

Indeed, on the one hand space has its specific characteristics – natural resources, artificial resources (for instance, satellites), dimension, and range with regard to the earth – which makes it a target for commercial and military dispute and may lead to inevitable escalating space armament. On the other hand, there is a need for cooperation and agreement to enable the development of extremely complex technology, which requires vast human, material, and financial resources.

Whether associated with military space capacities or civil space capacities, one observes that today's e dependence on those resources leads to the need to ensure their security. Control of space, the same as with control of sea, land, and air resources, can be vital to guarantee national security, in the first place, and, consequently, international security. How the European Union is doing it, or will be able to do it, is included in the study undertaken in the present essay. To this effect, it is necessary to know Europe's space capacities, policies and strategies.

The following question is raised at the end of this article: **How does Europe's space exploration interfere with international security?**

Keywords

Competition; Cooperation; Space; Security; European Union

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Introduction

The present article is part of a master degree dissertation I completed in 2009 with the same title. Besides studying the European Union (EU), the thesis looked at the most prominent countries' policies and capacities in space technology development: China, Russia, and the USA. Technical concepts associated with the topic were equally addressed, such as the notion of astropolitics, space strength and power, dual use, and threat.

"Europe's Fight for Space – A New Challenge"invites reflection because it is a fact that, nowadays, contemporary societies depend on space resources and on their applications. Increasingly, more countries have satellites built and launched by third parties. In general, those satellites have civil and military multiple functions, ranging from facilitating communications and weather forecasting, to obtaining concrete information for navigation purposes. This awareness of dependence on resources required major powers, in particular, to think about space security. During the last conflicts, space resources have had a major influence on military operations. This influence is basically felt at the level of decision-making time and military response, making everything – decisions/actions – quicker.

During conflicts, available space resources are typically plentiful and quite varied, of which the following stand out: weather forecast systems: military communication systems; surveillance systems; weapon positioning and missile launching satellites; and positioning systems, among others. For the Armed Forces, satellites are power multipliers and essential tools serving the "Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance" (C^4ISR).

As this article illustrates, having capacity brings on power, and to have power brings on capacities to influence decisions on the international stage. However, having the resources and lacking the capacity to defend them may translate into extreme vulnerability. Accordingly, space resources gain strategic importance as they may both offer essential and unique information and put national security at risk.

Therefore, the space issue has a civil element (connected with the distinct aspects of world security, the well-being of the population, and the scientific development of humanity) and a military dimension (supporting defence and a high number of military operations) that often merge in terms of dual use.

The topic "**Europe's Fight for Space – a New Challenge**" is examined precisely around those points. This challenge Europe is facing is analysed in terms of opportunities/advantages at distinct levels: economic, military and political. It must be stressed that this article focuses mostly on the EU as a whole and on its global policies

framed by the Common Security and Defence Policy (CSDP), and not on each country's individual policies. A SWOT analysis – management tool meaning Strengths, Weaknesses, Opportunities and Threats - was carried out to assess the capacities of the EU.

The research method used was that advanced by Luc Van Champenhoudt and Raymond Quivy (Quivy, 2005) for the Social Sciences. The reflection behind this article aimed to answer the Initial Question: **How does Europe's space exploration interfere with international security?**

1. Space

a. Definition of Space

To define or delimit land and sea environments – or even air space with regard to the former two – was simple, insofar as the separation is physically perceptible. When it comes to space, the situation is quite different, to the extent that the international community has not yet agreed on the definition of outer space (or sidereal space). This is mostly due to the fact that it has not been possible to distinguish between air space and outer space. However, it is important to have an internationally acknowledged concept, as there are issues associated both with security and the sovereignty of countries.

In terms of space definition, the present article adopts a definition which, albeit not formally accepted[1], is the one that attracts largest consensus among the scientific community, and which was coined by Von Karman (Chun, 2006: 14) in 1957: space starts at the height of 100km (already in the Thermosphere) above the surface of the earth. Accordingly, it is above the Von Karman line that the several types of orbits started to be defined, which are called as follows (Dolman, 2006: 65): LEO (*Low Earth Orbit*), MEO (*Medium Earth Orbit*), HAO (*High Altitude Orbit*), and HEO (*Highly Elliptical Orbit*).

Knowledge of orbits and orbital mechanics is crucial, given that, after objects have been placed on stable orbits, they practically require no fuel or power in order to stay there (apart from some power to be able to correct the orbit in the presence of disturbances).

b. Objects in Space

As mentioned previously, and although we are still at an embryonic stage of knowledge of space potentialities, various forms of space exploration already exist, and precious information obtained from devices placed in space is equally used. This information is acquired from several types of equipment, ranging from satellites to space probes and manned space stations.

With regard to **satellites**, it can be said that they can be any type of object orbiting the Earth or any other planet. Satellites can be of two sorts: natural and artificial. The former are celestial bodies, of which the moon is the best known: the latter are

[1] The doubt favours a certain degree of political and legal flexibility with regard to the flying of space objects over the air space (or not) of another nation.

manufactured and put into orbit by humans. Generally speaking, an artificial satellite is an information transfer vehicle.

On 31 December 2007, there were 3.208[2] identified satellites in orbit from a wide variety of countries (Portugal only has one entirely its own, launched in 1993 and currently inoperative), with Russia having the highest number (42%), followed by the USA (31%). Europe only has 7% of satellites (MEHURON, 2009: 60).

Probes (a total of 119) are unmanned space shuttles with the mission of, for instance, exploring other planets. Here the USA has the highest number (51%), followed by Russia (29%) and by Europe (7%) (MEHURON, 2009: 60).

Space stations are structures transported into space by other means, devised to have human beings on board. The Union of Soviet Socialist Republics (USSR) was the first country to develop this type of programmes in the 1970s, namely with the *Salyut*. The International Space Station has been in space since October 2000, and on 15 June 2010, it completed its twenty fourth journey (carrying on board one Russian and two North-Americans).

Besides the objects referred to above, there is also a large number of objects known as **space debris** (about 30.342 objects have been identified[3]). These objects are crucial, because they can cause serious damage to orbiting satellites and stations, and to astronauts. One of the ways satellites can protect themselves, to some extent, from space debris is to use protection shields. However, these measures make satellites heavier and more expensive.

c. Treaties

From a juridical viewpoint, and as opposed to air space, space is open to everyone (Couteau-Begarie, 2003: 865).

The United Nations (UN) has been working intensely, in terms of framing legislation, on issues related with space use, with particular emphasis on attempts for non-militarisation of the area. The Committee on the Peaceful Uses of Outer Space, with headquarters in Vienna, is the only body working on that legislation. Since its inception, it has completed five legal instruments and five sets of regulatory principles on, for instance, appropriation of outer space and arms control activities (UNOOSA, 2007). Generally speaking, all of these instruments promote the idea that research and activities in space, or space-related, must be carried out in collaboration with other nations and from a general well-being stance.

The Outer Space Treaty (OST) was the first treaty to act as a reference for the legal analysis of space activities. It sets out the core legal principles and prohibitions pertaining to space. The two first articles establish the basic structure, stating that nations have the freedom to undertake scientific research in outer space, and that space and outer celestial bodies (such as the moon) are no one's property. Articles 3 and 4 basically limit space military activities. The treaty legislates that the moon and similar celestial bodies can only be used for peaceful ends, and cannot be equipped

2 Not all of them are necessarily operational.
3 "*SATCAT Boxscore*" http://www.celestrak.com/satcat/boxscore.asp acceded on 8 June 2010.

with military bases or used for arms testing. However, they can be used for scientific research or peaceful exploration (UNOOSA, 2002).

d. Astropolitics

Astropolitics is a relatively recent concept that relates outer space and related technology with the development of political, military and strategic guidelines (Dolman, 2006: 15).

This article follows the astropolitical model proposed by the North American military strategist Everett C. Dolman, for whom astropolitics is a major strategy that is not just limited to the enforcement of military force, encompassing also diplomacy, propaganda, secret operations, information, and economic transactions (Dolman, 2006: 146). The earth is reduced to being a single part of a total approach which, albeit important, in some cases is just a peripheral part (Dolman, 2006: 1) with important astropolitical characteristics (Dolman, 2006: 61): its mass, orbit and interactions with other phenomena. According to Dolman, humanity is entering the age whereby technology, communications, innovation, and the exploration of outer space are the routes to prosperity and abundance. His thesis is a realistic approach that maximizes space prospecting and exploration for the benefit of everyone, reversing the international trend of mistrust in space exploration (Dolman, 2006: 183).

This author also defends that the militarisation of space by a military force that is recognized, non-arbitrary, efficient and able to keep its effective control may, on the one hand, and by means of discouragement, prevent a space arms race; on the other hand, given that military space programmes are the backbone of many civilian space operations (for instance, launching capacity), they foster economic advantages in fields such as telecommunications, navigation and weather satellites (Dolman, 2006: 162). The author affirms that astropolitics is divided into four interrelating astropolitical regions (Dolman, 2006: 69): earth, earth space, lunar space, and solar space. According to this model, it is possible to predict a power relationship in search of world supremacy. Those who are able to control astropolitical regions will be in a position to use economic coercion measures that are relevant in some related fields, such as commercial routes or the control of resources, or those of a military nature, with regard to operations on earth. In more recent conflicts, controlling communication, observation and location satellites allowed North Americans and allies to have an advantage in the operations carried out.

2. Europe

a. Europe's Space Strategy

Europe has recognised that space has an important strategic dimension (ESDA, 2008). Space resources are military centres of gravity that need to be protected, inasmuch as they are potential targets. An attack on the space system of a particular country may render its armed forces blind, deaf and mute. However, the EU is not in a position (and not particularly interested in it) to have a predominant role in space. Accordingly, arms control is not a viable option, given the costs associated with it and the polemics it would generate internally. Therefore, and due to the fact it might fall prey of arms

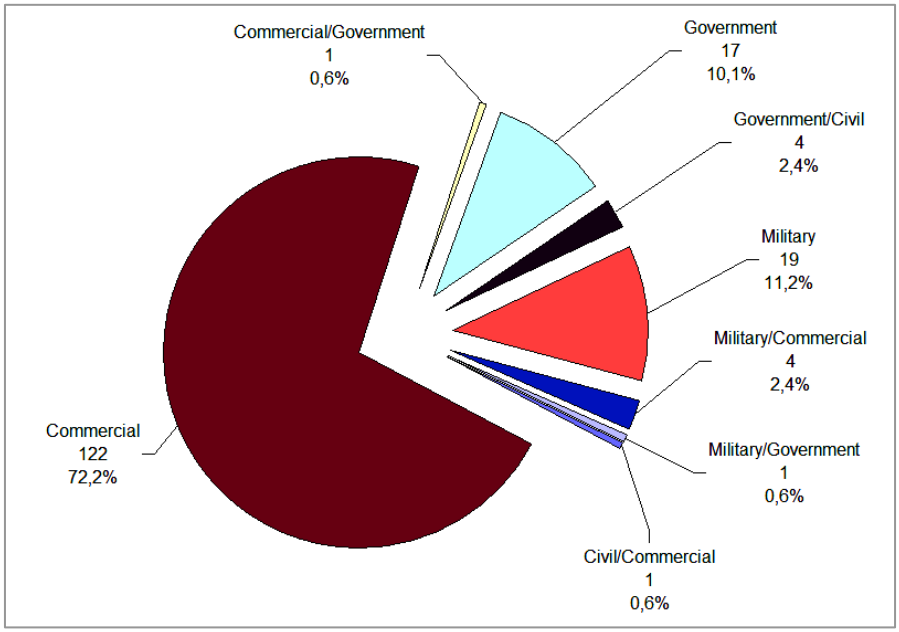
control by other countries, on 3 December 2008 the Council of the European Union publicly announced a draft document on space code of conduct it intends to present to other world nations. Basically, the EU aims to render space weapons free, thus becoming a pioneer in how to address this issue. This document also refers to the importance of space technology for the development of economies, societies and the culture of nations. Nonetheless, it is acknowledged that space capacities are vital for national security and for the maintenance of peace and international security. Accordingly, it calls upon international agreements to, among other things, guarantee the following: influence the safe and peaceful use of space with established rules – as long as it is used for peaceful means – ensuring freedom of access to space; preserve the safety and integrity of space objects in orbit.

This initiative aims to demonstrate that Europe is an important strategic player in space-related issues. It is hoped that this will be a viable option, but it will be so only if major space powers accept it, which will not be easy. This code aims, among other things, to regulate anti-satellite tests and the production of space debris.

b. Europe's space capacity

France was responsible for the launching of 122 (Figure A) of the 376 commercial satellites currently in orbit, that is, 32% (33% were launched by Russia and 24% by the USA). According to Figure A, there were also military (11%) and governmental (10%) satellite launches. These launches – mostly (89%) in GEO – were carried out at the Guiana Space Centre using various types of Ariane launchers.

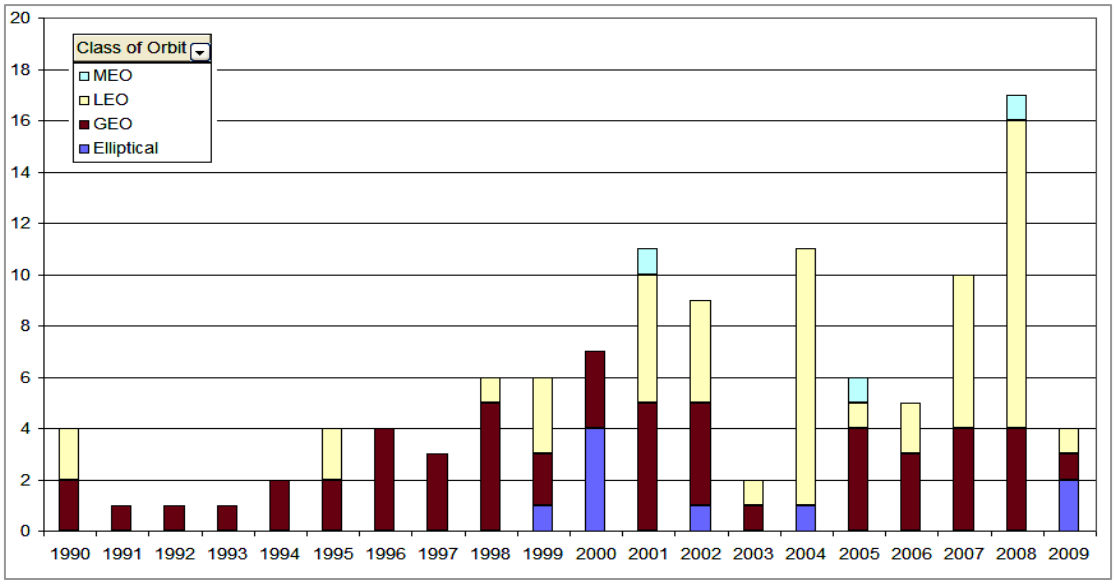
Figure A – Satellites launched by France



Source: (UCS, 2009)

With regard to satellites owned by EU countries - not necessarily launched or produced by them - 114 satellites out of a total of 888 are currently operational. Most of these satellites are in LEO (43.9%) and GEO (45.6 %), orbits, while a small number are in MEO (2.6%) and HEO (7.9%) orbits (Figure B).

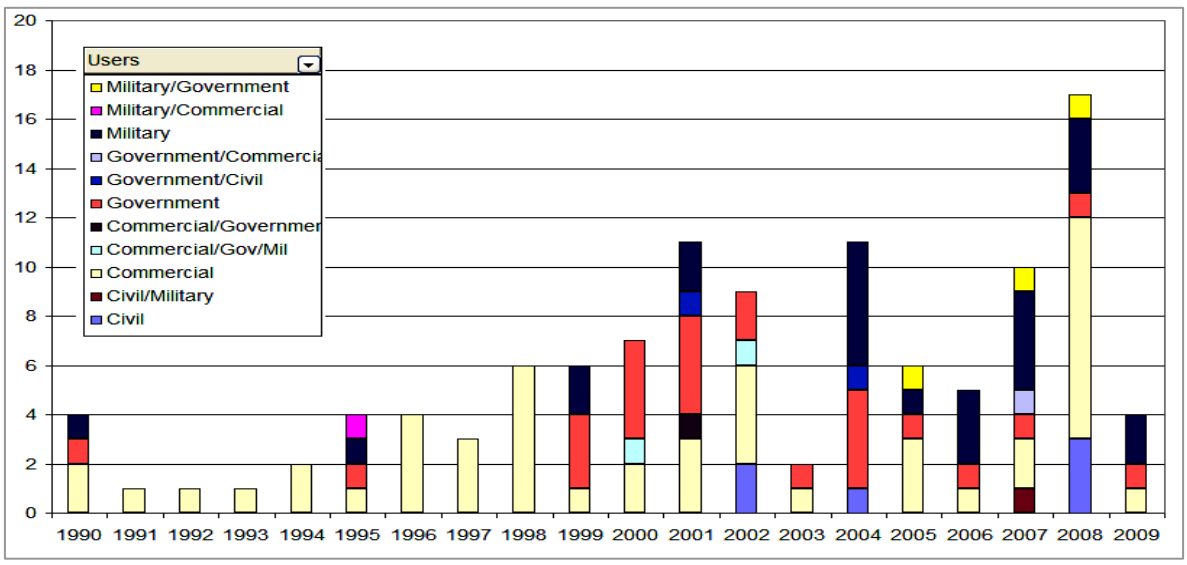
Figure B – European satellites launched by class of orbit



Source: (UCS, 2009)

Figure C shows that, generally speaking, it is from 1999 onwards that satellites not exclusively of the commercial type started to be most widely used. Strictly commercial satellites in operation continue to be the highest in number (42%). However, after that date there has been a wider diversity of applications, of which the 21% that are strictly military stand out, belonging for the most part to the United Kingdom, France and Germany (for communication, surveillance, reconnaissance and ELINT purposes).

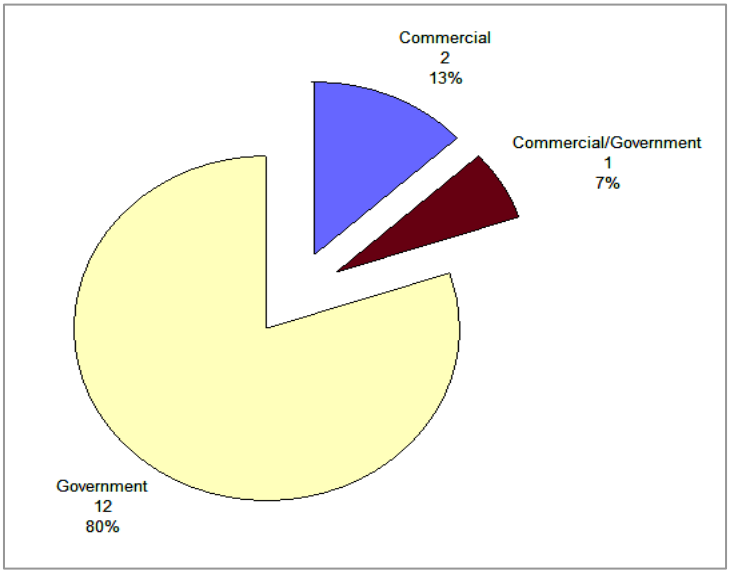
Figure C – European satellites launched, by all types of users



Source: (UCS, 2009)

Of those European 114 satellites in operation, only 15 (between 1990 and 2009) belong to the European Space Agency (ESA) or are owned in partnership (a research satellite launched into HEO with China, a scientific one launched into LEO with the USA, and a space physics satellite launched into HEO with the USA and Russia). As Figure D indicates, they are basically governmental ones, and none is military.

Figure D – Satellites belonging to ESA



Source: (UCS, 2009)

The analysis of Europe's space capacities shows duplication of efforts on the part of European countries, with some of them even conducting autonomous development policies, which leads to duplication in some areas, particularly with regard to observation and communication satellites

c. SWOT analysis

This paragraph presents a SWOT analysis of EU's space technology, based on the contents of previous paragraphs and on the dissertation that generated the present article.

1) Strengths

- Political ambition:
  - Gain and maintain independent access to space
  - Have influence on the international space arena
- EDA/ESA Partnerships
- Broad range of programmes, with associated predominance of high technologies:

  - Scientific
  - Meteorological
  - Navigation (Galileo)
  - Environmental (Global Monitoring and Environmental Security - GMES)
- Own launching station at the French Guiana
- Competitive in the commercial sector
- Capacity for meteorological monitoring and environmental control
- Space industry

2) Weaknesses

- Asymmetric capacities among the various countries (France and Germany stand out from the rest)
- Lack of capacity to carry out manned space missions
- Not competitive in the launching sector
- Absence of an European identity
- Absence of doctrine on European Space Security
- European countries have autonomous space programmes
- Diverse and diverging interests interfere on decisions about joint projects (for instance, early-warning mechanisms)
- Economic capacity/investment
- Public acceptability of investments associated with dual-use space programmes

3) Opportunities

- International affirmation:
  - Prestige
  - Credibility
  - Intervention on world political decisions
- Control of other countries' capacities by cooperating with them
- Technological and economic development
- Dual-use technologies
- Complementarity of capacities and information
- Galileo project
- Partnerships through:
  - Cost sharing
  - Knowledge sharing

  - Information sharing
- Foster global economy
- Employment in the space sector

4) Threats

- Dual-use thanks to control difficulties
- Technological dependence on third parties
- Dependence on access to information
- Unawareness of the intentions of some of the players
- Armament capable of destroying space resources
- Space debris
- Knowledge transfer to potential commercial or political opponents
- Difficulty in attaining world agreement on early-warning mechanisms
- China, Russia and the USA in commercial (competition) and security terms (chance of control and destruction of space capacities)

The SWOT analysis leads us to conclude that to have space power, that is, to have the space resources that act as multipliers for existing forces, will give the EU the capacity to influence other international players, namely in such important issues as the regulation of space activities. In addition, to have space power may turn Europe into a gravity centre capable of attracting major partners in terms of cooperation, thus increasing the capabilities and feasibility of new projects. In order to address challenges involving space, Europe may bring together several issues that will guarantee diplomatic, economic, military, and cultural advantages, namely: have access to space, be competitive, have global navigation systems, have the means to explore space, have space scientific capacity, and capacity to manage space traffic. With regard to security, there are, in fact, two types of possible threats: on the one hand, non-intentional ones (incidents and accidents provoked by, for instance, space debris); on the other, space armament. As it develops its space capacities and potential, the EU can and ought to be influential in the international space policy debate to ensure a peaceful environment in space.

3. Dispute over Space

a. The European challenge

The study of space challenge facing the EU can be done from several viewpoints, namely military, economic and political.

Military viewpoint

Guaranteeing that existing space military systems are safe and serve the needs they are intended for is not an objective one hundred per cent attainable, but is definitely a challenge because of its relevance. This is even more so when the threat is unpredictable due to the variety of situations that may lead to damage or loss of those systems. Early-warning systems capable of detecting any type of threat may be one of the means to prevent or control those situations. It is equally necessary to ensure the existence of alternatives, for instance, in case a blackout in the systems used by the military forces should take place.

From a military perspective, the EU should, as much as possible, foster cooperation in military space technology development. Internal cooperation allows cost reduction, and external cooperation guarantees, besides a reduction in costs, the sharing of technology and knowledge of what others – sometimes opponents or competitors – are developing. Thus, within an organisation where there is no interest whatsoever in encouraging conflict, it is through military cooperation that, to some extent, other players can be kept in control. This stance, as long as it is well coordinated, may serve the interests of the EU in its security and defence policies, materialized in the European Security and Defence Policy (ESDP) and in the missions the latter carries out, particularly in conflicts outside its area, where the support of space resources is determinant for the accomplishment of the mission, of which supporting the C^4ISR figures prominently.

Economic viewpoint

The EU's approach is more market oriented. Space technology plays a key role in the development of the national economy, for which reason it should be included in EU's ambitions. As referred to previously, space programmes lead to technological development which, in turn, fosters industrialization, the latter encouraging economic development. Making the space sector competitive is an objective of the EU and of some of the countries that comprise it. This can be achieved through cooperation with other countries, but market niches should be found to guarantee that Europe can make a difference.

It is equally important to ensure budgets that support complex projects and to secure the agreement of EU countries. Therefore, it should look out for projects that are necessary for the organization and that are feasible within the time frame and the costs agreed at the outset. This challenge also involves the credibility of the EU in the international order.

Political viewpoint

The first political challenge the EU has to address is to bring together the individual policies of each country and produce a common space political project that is accepted and adhered to by all, without parallel individual projects. Indeed, current trends point to two routes: on the one hand, space policy is carried out on a national basis and is associated with the policy of each country, the defence policy being even more nationalistic; on the other hand, civilian space technologies have been developed

according to a common European approach, whereby ESA has been playing a preponderant role, as it brought to its remit a large part of the projects, coordinating and producing them. Having a common European space policy – civilian and military – will make it possible to increase European global capabilities; share costs, and eliminate or avoid duplication of space systems (the same type of function but belonging to distinct European countries). In addition, the contribution of several European countries, with their distinct fields of knowledge and interests – strengthens the global contribution, which means that more and better can be achieved. As a result, the EU would be able to reduce its dependence on other players. The Galileo system is an example of a new European competence that will free the Europeans from reliance on the North American Global Positioning System (GPS).

Then, it will be necessary to identify what is essential and which are the minimum capacities the EU believes it should have in space in terms of security and defence. There is no doubt that the EU must have independent means to, at least, be able to communicate, observe, locate, obtain information, and early-warning. Space technologies must be seen as decisive means of political support in the international stage, where investment in technology may denote independent decision and capacity control.

b. International Security

This article demonstrates that space security needs are connected with space technology. Whereas space resources should be used to protect the population, resources and territories, they also have the purpose of maintaining actual technological structures (on Earth and in Space). These systems offer extremely versatile solutions at an international level. Nowadays, societies depend on those solutions in distinct ways, which makes protecting them a matter of national security and, in the case of Europe, of European security. In effect, the space sector helps define the EU's concept of security, both in terms of its contribution to the security of citizens and of the path one wants to take in technological development.

In its documents on space technology, the EU's approach is more civilian oriented than military. The actual ESA stated, from the onset, that its mission has peaceful purposes. The European security policy is based on the principle of "helping to ensure security and defend stability". In turn, this goes hand in hand with the political orientation of non-aggression in technology use. However, it is thanks to initiatives like the Global Monitoring for Environment and Security (GMES), which gives priority to the general security of citizens, that European space policy – in its civilian facet – is brought closer to Europe's defence. This type of development shows how new space technologies represent a new stride in the political process where, besides increasing capacities, a new common political project is being fostered.

It is a fact that European governments need to have new military capacities to be able to meet all the objectives set out by the ESDP, namely the Petersberg tasks. Space technology may be a means of achieving it without having to develop major capacities, that is, without the requirement to invest. With regard to space technology, the EU is faced with three possible scenarios: firstly, it may become an active participant in the arms race; secondly, it may play a passive role, that is, be an extra that does not intervene whatsoever in events; thirdly, it may become the main player in the

development of space technology and of norms advocating prevention. It seems that the last scenario was chosen, as there have been efforts to make international agreements regulating activities in Space. The code of conduct, for example, is important because it may foster international cooperation, economic growth, exploration, and, simultaneously, reduce the risk of incidents, making space safer.

In the absence of this kind of regulation, the chance of space armament increases, satellites are exposed to higher risks and space debris expands. This type of agreement may also facilitate the control of dual-use materials. This creates a climate of unawareness of capacities and mistrust of countries' intentions, which may render an escalade in arms race inevitable. However, it is most advisable that the Europeans demonstrate internationally that they have a position and an identity in what concerns space security, in line with their values, objectives and policies. Nevertheless, it is equally paramount that the role they will play is guided by the intentions expressed in the European Security Strategy, based on multiculturalism, cooperation, diplomacy, in the combination of military and civilian resources, and in the promotion of Rule of Law Nations.

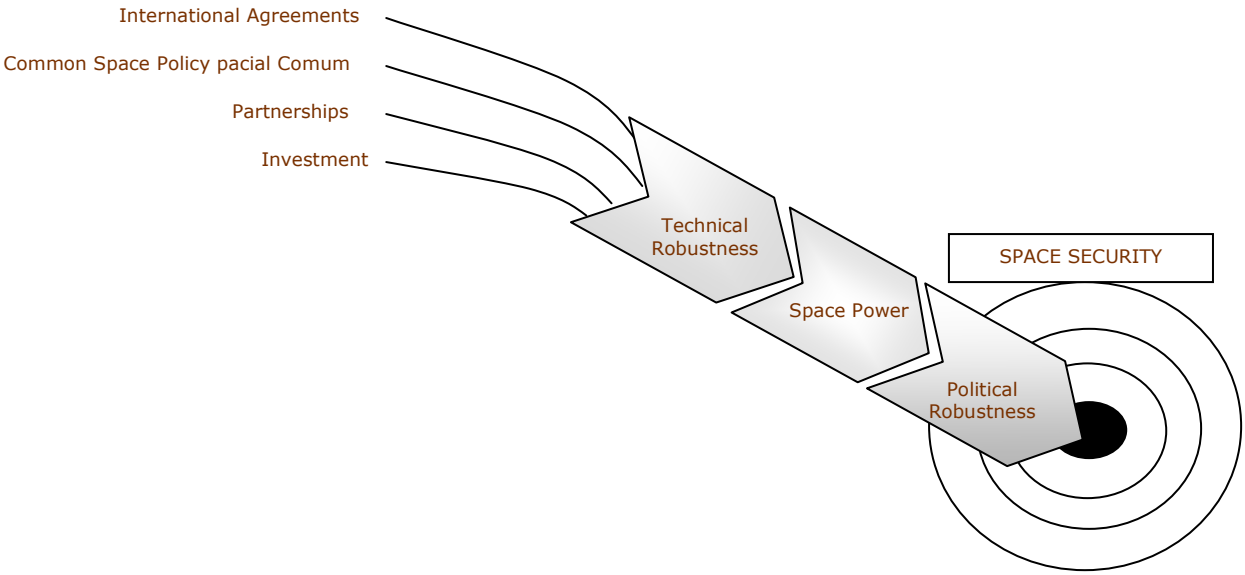
In fact, over the last few years, the EU has shown a serious and independent mind about space security. This attitude stems from the awareness that, for the time being, it does not have the means to figure prominently, in military terms, in space, and probably it has no intention to do so. However, this does not imply it does not have military resources in space, as some European countries have developed military satellites (observation and telecommunication, amongst others) in the knowledge that space weapons are not part of the EU's strategy. A strategy leading to an arms race would be too radical to be developed on a national basis, and too sensitive to be developed in partnership.

Generally speaking, it is wise to protect resources, as well as to stop the propagation of any technology that may be a potential threat to space resources. Any type of technology that is developed to attack space resources would be extremely harmful to the EU, given it could destroy civilian and military satellites. Nonetheless, the development of space capacities alternative to existing ones, mostly North American, is another contribution to security that the EU should explore. In short, to answer the initial question "**How does Europe's space exploration interfere with international security?"** reading Figure E is hereby suggested, as it aims to systematize the reflections proposed in this article. The objective (*target*) to be attained is to maintain space's security, in that security (*at the centre of the target*) presupposes there is no possibility for space armament and that the threat posed by space debris is reduced. Therefore, and as a result of the previous analysis, it is suggested that EU's strategy (*arrow*) for European and international space security follows a path that is influenced by the following guidelines:

- Development of European proposals for **international agreements**, through the form of Treaties, Conventions and/or Codes of Conduct that basically favour the transparency of space activities, encourage control of space debris, and foster partnerships;
- Identification of a **common space policy** accepted by all EU countries that leads to a clear recognition of the capabilities that are to be developed and on what terms;

- Setting out the highest possible number of **partnerships** with other countries and organisations (NATO) that may contribute to increased technological knowledge and even add to knowledge of partners' capacities (it may reduce the risk of hidden agendas);
- Make efforts to **fund** projects deemed crucial for the security of the EU and, consequently, for international security.

Figure E – Graphic representation of space security



The four guidelines must, as a whole, confer the EU the **technical robustness** it needs to have in order to, in the first place, be independent from North-American power in technological terms: in second place, it needs to have **space power**. This space power may be used as a **political tool** to influence the management of the future of space, that is, space technology that supports the EU's security and defence policies.

The conclusion that can be drawn from this article is that a space arms race and the inherent possibility it may turn into a battle field can be avoided. Everybody as a lot to lose, but those with the highest capacities are also the most fragile.

This may be the ideal moment to stop escalating space arms race, whose effect, while not necessarily as lethal as others, may affect the everyday life of civilian and military populations and surely shake international security.

Conclusions

This article has focused on the topic "**Europe's fight for space – a new challenge**". Our readings suggest that advancement in space can pose new challenges to International Relations, as the quest for controlling access to particular resources

increases, new commercial opportunities in space arise, which may influence the military use of space, and as space power gains added value. In fact, history tells us that explored and occupied frontiers by human beings have (and are), at some point been subject to conflict. The question here is whether space will escape this trend.

The research behind the present article started from the presupposition that space is a *challenging* field for Europe as it aims to grow from a political and economic viewpoint. However, like Director General António Rodotá of ESA stated in November 2001, "*We are still at the dawn of the space age*". Space exploration – although it was part of collective imagination in the past – is effectively just over 50 years old, and is a field that is still unknown in many ways.

Currently, to have space technology, knowing how to process received information and use it, is a new source of power. Space power, through its many capacities, becomes a power multiplier in military terms. Systems protection, information management and processing to validate it and make it decisive are pivotal to space technology use. Anticipating events may prevent conflicts, reduce attacks and avoid mistakes.

The EU, the key player in this study, possesses important space capacities in the international context. However, some of them belong to countries that are part of it, and are not effective capacities of the Union.

The distinct approach of European countries, particularly EU members, leads to duplication of capacities and to limitations in the development of certain programmes, due to shortage of financial resources and agreement with regard to their need. The reason for this lies, in part, in the fact that those countries deal with their own security independently and not as part of a global European vision.

The projects that the EU is currently undertaking – Galileo navigation system, the GMES environmental surveillance system and space launch developing – make the EU technologically independent from other countries. Independence is clearly beneficial in terms of security – albeit the existence of civilian programmes – and also in economic terms, as they foster the development and internal growth of the organisation. These new capacities stemming from space technology strengthen the organisation in economic terms and may confer the EU the power it needs to be influential in space-related issues.

The current dispute is not, at least for the time being, an armed fight, but is an economic and political dispute. The EU (or the countries it comprises) has, generally speaking, primary goals that encourage it to invest in these technological fields, such as: attain technological independence, develop economically, expand the capacity and credibility of space programmes, and cooperate.

The challenge the EU has to face is how to have a common civilian and military space policy. Subsequently, it needs to identify what is essential and decide on the strategy to attain it.

It is through **international agreements**, a **common European space policy**, **partnerships**, and **funding** that the EU will be in a position to contribute to a free and peaceful space. Accordingly, like with nuclear weaponry, the effects caused by the use of space weaponry may be excessive at a time when scientific exploration is still more important than military exploration.

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