

Finabel



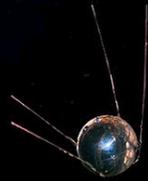
# The European Union and Space Defence

AN EXPERTISE FORUM CONTRIBUTING TO EUROPEAN  
ARMIES INTEROPERABILITY SINCE 1953



**FINABEL**

European Army Interoperability Center



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This paper was drawn up by Solène Baudouin-Naneix and Liza Raïs, under the supervision and guidance of the Head of the Permanent Secretariat.

This Food for Thought paper is a document that gives an initial reflection on the theme. The content is not reflecting the positions of the member states, but consists of elements that can initiate and feed the discussions and analyses in the domain of the theme. It was drafted by the Permanent Secretariat of Finabel.

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*“Protecting space [...] means protecting our way of life, our willingness to act and to undertake. It means guaranteeing our freedom and ensuring that we will never look away from the sky, where our future is being invented.”<sup>1</sup>*

*Florence Parly  
French Ministry of Armies*



Source: Air Cosmos

*Sputnik*

## **INTRODUCTION**

Since Sputnik was launched into orbit in 1957, space technology has evolved rapidly. Because of the connected world we live in, space-based technologies have become vital to our everyday lives for ensuring communication networks, navigation, and internet connexion, amongst others. Since the 1990s, the number of satellites orbiting around the Earth has continually increased, reaching 4,987<sup>2</sup> by the beginning of 2019. The Cold War, and the end of the 20th century, were indeed characterized by the emergence of outer-space as a strategic area for world powers and emerging countries. From the 21st century, as a consequence of the development of digital technologies, space technologies have become one of the states' most important assets in facing today's security and defence issues. Providing the governments with observation and monitoring resources, vital data communication and navigation/positioning services, space-

based capabilities aim to guarantee the security of countries and their citizens. Moreover, according to the theory of the Revolution in Military Affairs (RMA), space-based technologies have become crucial for the conduct of military operations. Elaborated after the 1991 Gulf War, the RMA stated that the future technologies, particularly space-based technologies, will lead to the change in the nature of warfare and the way military operations are conducted.

Thus, the increasing dependency of modern civilization on space-based technologies lead to the emergence of new security threats and, consequently, to an adjustment of defence policies. Indeed, because of the importance of satellites as force multipliers, space assets are now considered highly-potential targets. It is now a reality that hostile actors, both State and non-State, might want to disable

<sup>1</sup> Parly, F. (2019). *Déclaration de Mme Florence Parly, ministre des armées, sur la défense spatiale, à Toulouse le 7 septembre 2018.* – *vie-publique.fr*. [online] Discours.vie-publique.fr. Available at: <http://discours.vie-publique.fr/notices/183001732.html> [Accessed 30 Aug. 2019].

<sup>2</sup> Unoosa.org (2019). *United Nations Register of Objects Launched into Outer Space*. [online] Available at: <http://www.unoosa.org/oosa/en/spaceobjectregister/index.html> [Accessed 21 Aug. 2019].

satellites or ground-based spatial technologies, using for instance, missiles, cyber-attacks, or jamming. These new risks now put European countries' security and assets at stake.

Within the European Union (EU), the development of both civilian and military space technologies have always been related to the achievement of "strategic autonomy" or a "space strategic sufficiency".<sup>3</sup> The latter would allow the European Union's nations to protect their strategic assets, both in space and on the ground, without being dependent on any other power. Despite some initiatives being previously developed by the EU, like the well-known Galileo or Copernicus satellite constellations, these projects remain used mainly for a civilian purpose and quite limited compared to other world powers such as the United States, Russia or China. Consequently, it

seems that the emergence of real European spatial strategic autonomy, notably in the field of defence, is now a necessity, and not a question of if, but rather, when. In 2016, the European institutions reaffirmed the need to develop Europe's strategic autonomy, and consequently defined it as a top priority<sup>4</sup>. This development raises different issues in terms of cooperation and interoperability between the Member States (MS), particularly as space-based technologies are facing some resistance on topics such as sensitive data and sovereignty issues.

After quickly reviewing the historical evolution of the EU's involvement in space defence, this paper aims to therefore study how the current EU projects could be used for defence purposes and the main challenges in building an autonomous European defence space strategy.

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<sup>3</sup> Coletta, D. and Pilch, F. (2013). *Space and Defense Policy*. Hoboken: Taylor and Francis.

<sup>4</sup> European Commission (2016). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Space Strategy for Europe*. [online] Available at:

<https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/COM-2016-705-F1-EN-MAIN.PDF> [Accessed 21 Aug. 2019].

## EU'S INVOLVEMENT IN SPACE DEFENCE: AN HISTORICAL OVERVIEW

Europe understood the politicisation of space very early on, and therefore attempted to position itself as a strong international actor in the early 60s. In the 70s, the implications of its increasing dependence on the US Global Positioning System (GPS) was deemed unacceptable and prompted the EU to eventually develop its own capacity in the field<sup>5</sup>. As the European Space Agency (ESA) was in charge of the technical aspects, the building of such a system needed to be carried by the EU, and therefore prompted a sharing of competences between the two organisations<sup>6</sup>.

Consequently, the EU decided to create a partnership with the ESA in 2000 by developing a joint Space Strategy, and later a common Space Policy in 2003<sup>7</sup>.

The EU space activities currently rely mainly on Earth observation with Copernicus, and satellite navigations through the European Geostationary Navigation Overlay Service (EGNOS) and Galileo, the global navigation satellite system providing positioning data. Moreover, the EU has recently started to become active in Space Situational Awareness

Activities	EU	ESA	EUMETSAT	GSA	Member States	National space agencies	Industry
Define space policy	●	●			●		
Define and fund space programmes	●	●	●		●		■
Develop and implement programmes		●				●	●
Operates space programmes		●	●	●		●	■
Fund space R&D activities	●	●			●		●
Perform space R&D activities		●				●	●
Conduct space exploration programmes		●				●	
Regulate the space sector	●				●		

Source: EPRS

*The private sector is beginning to enter these activities (Newspace)*

<sup>5</sup> Masson-Zwaan, T. and Hofmann, M. (2019). *Introduction to space law*. Alphen aan den Rijn, The Netherlands: Wolters Kluwer.

<sup>6</sup> Collins Petersen, C. (2019). *The History of the European Space Agency*. [online] ThoughtCo. Available at: <https://www.thoughtco.com/european-space-agency-4164062> [Accessed 21 Aug. 2019].

<sup>7</sup> Reillon, V. (2017). *European space policy: Historical perspective, specific aspects and key challenges*. [online] European Parliamentary Research Service Blog. Available at: <https://epthinktank.eu/2017/01/31/european-space-policy-historical-perspective-specific-aspects-and-key-challenges/> [Accessed 21 Aug. 2019].

(SSA) in order to prevent risks in space such as debris or space weather, and created the Space Surveillance and Tracking (SST) framework to track active and inactive satellites.

In 2007, the Council highlighted the need to develop a “comprehensive approach towards the use of space”, stressing the importance of the use of space for security and defence purposes in the European Space Policy. The institutions also considered starting a security and defence use of both Galileo and Copernicus, designated as the “European space assets”.<sup>8</sup> In 2016, as the need for a strong space security and defence policy increased, new priorities emerged in the European Space Strategy such as ensuring the security of space infrastructure, autonomy, and access to space.<sup>9</sup>

In June 2018, the Commission presented its new space programme in order to ensure investment continuity in the space sector, encourage R&D as well as to support the competitiveness of EU space industries. Furthermore, it aimed at better securing satellite communications for national authorities and monitoring of space hazards, and therefore proposed to deepen the security side of space, notably through the SSA and GOVSATCOM. Finally, it will further divide competences between the ESA and the potential European Union Agency for the Space Programme, with the latter focusing more on security and market uptake. The Parliament and the Council are still discussing this programme<sup>10</sup>.

## THE EU'S PROJECTS IN SPACE

As the need for European spatial autonomy increased through the years, the EU and its agencies started to develop space projects at a European level – such as Galileo, Copernicus and EGNOS, completed by autonomous programmes such as the Space SST and the SSA. Although the development of the latter marked a huge enhancement in the development of autonomous European space capabilities, their use is today mainly civilian and it leaves no doubt that their use in security and defence matters has to be extended.

### GALILEO

Launched in 2016, Galileo was conceived in order to create an independent system from the American GPS or the Russian GLONASS, and therefore “ensure Europe has the right strategic autonomy capacity on a key technology and satellite positioning”. Even though the Galileo satellite constellation is a civilian system, the possibility of using Galileo for military purposes has been seen by the Commission from the start as the embodiment of the EU's future technological independence. So far, Galileo's only use for defence purposes relies on its Public Regulated Service (PRS). The latter consists of an encrypted navigation system, available for EU Member States governmental bodies as well as European institutions and agencies, such as the European Council or the European External Action Service (EEAS). The encrypt-

<sup>8</sup> European Parliament, Directorate-General for External Policies of the Union (2008). *Workshop Summary – Space Policy and the European Security and Defence Policy*.

<sup>9</sup> *Decision 2014/541 – Decision 541/2014/EU establishing a Framework for Space Surveillance and Tracking Support*. 541/2014/EU.

<sup>10</sup> Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing the space programme of the Union and the European Union Agency for the Space Programme and repealing Regulations (EU) No 912/2010, (EU) No 1285/2013, (EU) No 377/2014 and Decision 541/2014/EU. (2018). Council of the European Union. Available at: <https://www.consilium.europa.eu/media/37659/st15767-en18.pdf> [Accessed 21 Aug. 2019].

ed signal can be used for security purposes, such as emergency and disaster management or military uses. The PRS and the full access to a secure positioning and navigation system is indeed an important issue for the CSDP and the conduct of EU-led external military missions and operations, especially regarding space-based encrypted communication or navigation.

Often designated as its “showcase project”, Galileo was supposed to participate to the emergence of a common strategic policy and the development of future defence projects at the EU level. Nevertheless, the Galileo project has strongly highlighted the difficulty of the Member States in adopting a common approach towards space defence, as many Mem-

ber States were opposed to a military use of the satellite.

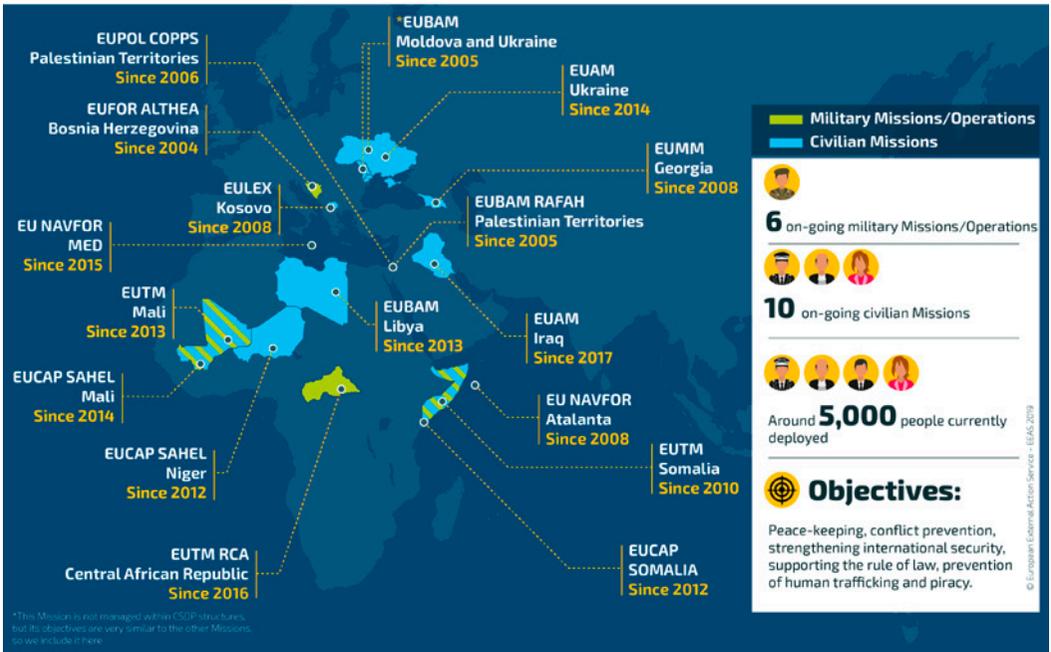
Nevertheless, the official withdrawal of the UK from Galileo’s military service, following its decision to exit the EU, will strongly impact any future development of Galileo. Highly involved in the financial support of the Galileo programme, the UK defence industries were indeed the main contributors to the development of the PRS, investing a total of 1.2 billion pounds since 2003.

## COPERNICUS

Copernicus is the European system dedicated to Earth monitoring, which is coordinated



## EUROPEAN UNION CSDP MISSIONS AND OPERATIONS 2019





and managed by the European Commission. The programme was first created in 1998 with the signing of the Baveno Manifesto.<sup>11</sup>

The first priority of Copernicus related to defence and security is to support the EU's external action. Therefore, Copernicus Services in Support to EU External Action (SEA) provides maps and intelligence reports of remote and difficult-to-access areas of the world for EU actors present on the scene. It also encompasses components dedicated to planning safe evacuation routes, analysing temporary settlements, monitoring borders abroad and providing situational awareness of crises.

Another important aspect of Copernicus is due to its partnership with Frontex, as it provides real-time information on border, maritime and illegal migration, as well as illegal surveillance. However, it doesn't go far enough, and those services could be further optimized. For instance, joint military satel-

lite telecommunication efforts on the topic of border surveillance have been abandoned because of disagreements around development schedules and cost divisions.

Finally, the European Maritime Safety Agency (EMSA) has implemented the Copernicus Maritime Surveillance service in order to monitor maritime areas both inside and outside of the EU's borders. This programme could indeed facilitate interoperability of relevant security data in areas such as piracy, terrorism, and arms trafficking. Furthermore, it has been argued that the Maritime Surveillance project, meaning the military aspect of CISE, could work in cooperation with systems such as Copernicus in order to improve the exchange of information between civil and military authorities and more generally, to support CSDP projects.<sup>12</sup>

## SPACE SITUATIONAL AWARENESS (SSA)

The Space Situational Awareness (SSA) Programme is the ESA initiative created in 2009 to support Europe's independent space access and utilization by delivering information on the space environment, more specifically space weather and near earth objects. Thanks to its identification and surveillance sensors, which include telescopes, radars and space sensors, France was for instance alerted of a spying attempt from the Russian satellite Luch-Olymp on the Franco-Italian satellite Athena-Fidus in 2017<sup>13</sup>.

<sup>11</sup> European Environment Agency. (2018). *Copernicus*. [online] Available at: <https://www.eea.europa.eu/about-us/who/copernicus-1> [Accessed 21 Aug. 2019].

<sup>12</sup> Copernicus.eu. (2018). *Full speed ahead: Closing in on the first year of fully operational Copernicus services for Security applications* | Copernicus. [online] Available at: <https://www.copernicus.eu/en/full-speed-ahead-closing-first-year-fully-operational-copernicus-services-security-applications> [Accessed 21 Aug. 2019].

<sup>13</sup> F, J. (2019). *Militarisation de l'espace, armes antisatellites, dommages collatéraux : la nouvelle course à l'armement des puissances spatiales*. [online] Portail-ic.fr. Available at: <https://portail-ic.fr/analysis/2113/militarisation-de-l'espace-armes-antisatellites-dommages-collateraux-la-nouvelle-course-a-l'armement-des-puissances-spatiales> [Accessed 21 Aug. 2019].

However, aspects of the existing SSA system has been heavily criticised by the Commission. Indeed, it highlights the need for an accurate and real-time space situational awareness through the collection, analysis and exploitation of the data gathered by the existing capabilities. Alternatives to better the defence and security aspect of the SSA system include a European defence space surveillance network for standardized and secure exchange of SSA data among Member States or an early warning against ballistic missile threats through initial detection and tracking of ballistic missiles<sup>14</sup>.

## SPACE SURVEILLANCE TRACKING (SST)

The Space Surveillance and Tracking (SST) Support Framework was established by the European Commission in 2014, with a consortium of five EU Member States (France, Germany, Italy, Spain, and the UK). It has the ability to detect, catalogue and predict the movements of space objects orbiting the Earth.

Since the beginning of 2016, these Member States and the European Union Satellite Centre (EU SatCen) have been working together to develop a European SST capability, the “EUSST”<sup>15</sup>. This capability will have clear

defence implications, such as missile or secret foreign satellites detection.<sup>16</sup>

## GOVSATCOM

The existing SATCOM (Satellite Communications) system is difficult to access on short notice and in situations of high demand, creating a risk of non-availability and high costs. Therefore, in 2013, EU leaders decided to create the EU GOVSATCOM (European Union Governmental Satellite Communications), which combines the advantages of commercial and military satellite systems, and aims to provide satellite communication capacity and services to EU stakeholders, for various security, defence, humanitarian aid, emergency response, and diplomatic communications missions.<sup>17</sup> Indeed, GOVSATCOM targets three main fields: surveillance, crisis management, and key infrastructure management.

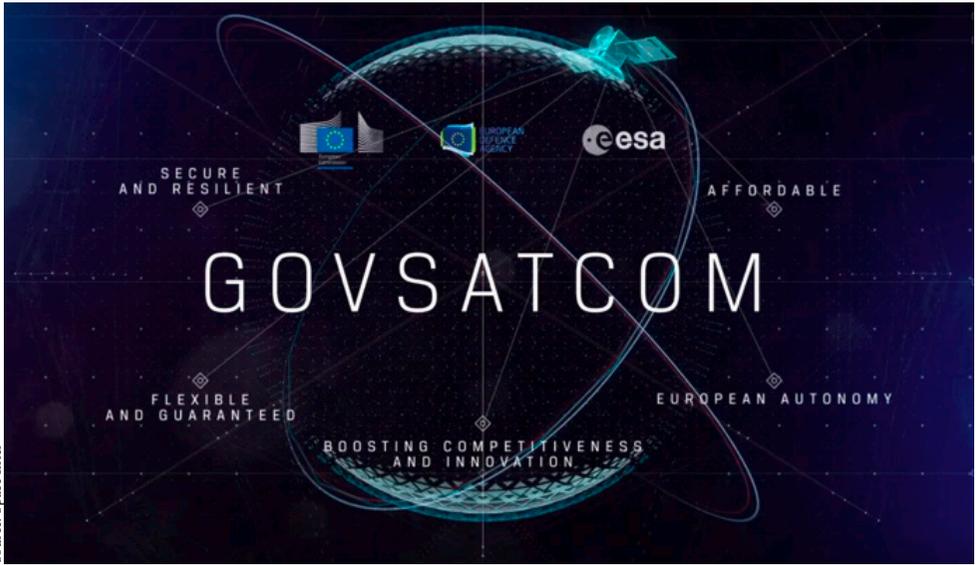
GOVSATCOM secure system will be particularly useful in case of sensitive military operations, where high security at an affordable cost can only be provided by this system. Moreover, there is a possibility that GOVSATCOM takes over the existing MILSATCOM at a lower cost on non-sensitive national military activities, such as: peacekeeping missions, humanitarian support, military ad-

<sup>14</sup> European Commission. (2019). *Commission implementing decision of 19.3.2019 on the financing of the European Defence Industrial Development Programme and the adoption of the work programme for the years 2019 and 2020*. [online] Available at: [https://ec.europa.eu/research/participants/data/ref/other\\_eu\\_prog/edidp/wp-call/edidp-wp1920\\_en.pdf?fbclid=IwAR2bN4\\_OOsgLdzPM1rDeRr6n buRUdu5sHgCoHbIRoXY-soZh0NqDL2NrY4](https://ec.europa.eu/research/participants/data/ref/other_eu_prog/edidp/wp-call/edidp-wp1920_en.pdf?fbclid=IwAR2bN4_OOsgLdzPM1rDeRr6n buRUdu5sHgCoHbIRoXY-soZh0NqDL2NrY4) [Accessed 22 Aug. 2019].

<sup>15</sup> Eusst.eu. (n.d.). *Eusst – European space surveillance and tracking projects*. [online] Available at: <https://www.eusst.eu/> [Accessed 22 Aug. 2019].

<sup>16</sup> Parly, F. (2019). *Déclaration de Mme Florence Parly, ministre des armées, sur la défense spatiale, à Toulouse le 7 septembre 2018. – vie-publique.fr*. [online] Discours.vie-publique.fr. Available at: <http://discours.vie-publique.fr/notices/183001732.html> [Accessed 22 Aug. 2019].

<sup>17</sup> Internal Market, Industry, Entrepreneurship and SMEs – European Commission. (2019). *Preliminary market consultation on GOVSATCOM Hub – Internal Market, Industry, Entrepreneurship and SMEs – European Commission*. [online] Available at: [https://ec.europa.eu/growth/content/preliminary-market-consultation-govsatcom-hub\\_en?fbclid=IwAR2PKD84J68GR0uMUo6oNzFpYYoeu0C3DQCZiz3LjPujsfjJl8f1aVq0](https://ec.europa.eu/growth/content/preliminary-market-consultation-govsatcom-hub_en?fbclid=IwAR2PKD84J68GR0uMUo6oNzFpYYoeu0C3DQCZiz3LjPujsfjJl8f1aVq0) [Accessed 22 Aug. 2019].



Source: Space Intel

vice to allies, conflict prevention through stabilisation missions, enforcement actions and counter terrorism action<sup>18</sup>. It is considered to be a secure and cost effective communication service that will enhance the autonomy of the EU. The GOVSATCOM is aimed to be created by 2025<sup>19</sup>.

## DEPENDENCE

As stated in a 2016 working document from DG GROW, the EU has a continued depend-

ence on the United States for an average of 60 percent of the payload electronics on board European satellites.<sup>20</sup> According to officials, given the size of the US government space market, American companies can sustain production lines every year, and therefore realize scale economies, in ways that European companies cannot maintain<sup>21</sup>. This is further complicated by the fact that European national industries demand preferred treatment by their governments, which makes the sharing and combining of industrial capacity particularly difficult on a European level.

<sup>18</sup> European Commission (2017). *Study in support of the impact assessment of an EU GOVSATCOM initiative*. [online] Brussels. Available at: <https://publications.europa.eu/en/publication-detail/-/publication/f9004854-0d50-11e8-966a-01aa75ed71a1/language-en> [Accessed 30 Aug. 2019].

<sup>19</sup> Henry, C. (2017). *Italian team to build satellite for European Commission's Govsatcom project* – *SpaceNews.com*. [online] SpaceNews.com. Available at: <https://spacenews.com/italian-team-to-build-satellite-for-european-commissions-govsatcom-project/> [Accessed 30 Aug. 2019].

<sup>20</sup> Earsc. (2019). *EU draft space policy calls for more military involvement*. [online] Available at: <http://earsc.org/news/eu-draft-space-policy-calls-for-more-military-involvement> [Accessed 30 Aug. 2019].

<sup>21</sup> Bellais, R. (2013). Technology and the defense industry: real threats, bad habits, or new (market) opportunities?. *Journal of Innovation Economics*, 12(2), p.59.



*OHB-System in Bremen, Germany.*

Therefore, both the European Space Strategy and the European Defence Action Plan have emphasized the need for Europe to maintain access to space and freedom of action. Similarly, a position paper released by Galileo Services Association states that “the targeted European autonomy will be achieved if and only if Galileo is widely used with equipment designed and manufactured in Europe, as well as applications and services developed in Europe”<sup>22</sup>.

Consequently, Europe is seeking independence on the matter in order to have free and unrestricted access to space. To this end, the Commission, ESA and ADE work together to identify critical space technologies for launcher and satellite manufacturing. As soon as a technology is considered “critical”, meaning Europe could become dependent on it, one

of the institutions takes steps to maintain or restore a position of “non-dependence”. The latest action plan on critical technologies was adopted in March 2015 for the period 2015-2017. Moreover, the Horizon 2020 plan will include a 395 million euros euros program, the Compet-T. This seven years programme started in 2014, and aims at reducing Europe’s satellite-component dependence and fund in-orbit demonstration of technologies<sup>23</sup>.

## CHALLENGES

### BUDGET

During the past years, the EU has granted an increasing budget to the space sector, and still considers it a priority. In October 2018, the European Commission proposed a total budget allocation of €16 billion dedicated to fund the EU’s Space Programme for the 2021-2027 period, representing an important increase compared to the previous budgets – 5 billion for the 2007-2014 period and 13 billion for the 2014-2019 period<sup>24</sup>. This budget would cover all space activities and would for example allocate 9.7 billion euros to further developments of Galileo and EGNOS, and 500 million euros to the SSA and GOVSATCOM programmes. However, despite the current increase in the EU space budget, most of it has been allocated to civilian applications.

Aside from the EU budget itself, the European Defence Fund (EDF), created in 2018 to

<sup>22</sup> European Parliament, Directorate-General for Internal Policies (2019). *Space Market Uptake in Europe*. [online] Brussels. Available at: [http://www.europarl.europa.eu/RegData/etudes/STUD/2016/569984/IPOL\\_STU%282016%29569984\\_EN.pdf?cmd=redirect&arbalp=12345](http://www.europarl.europa.eu/RegData/etudes/STUD/2016/569984/IPOL_STU%282016%29569984_EN.pdf?cmd=redirect&arbalp=12345) [Accessed 30 Aug. 2019].

<sup>23</sup> Selding, P. (2015). *European Satellites Still Heavily Dependent on U.S. Parts*. [online] SpaceNews.com. Available at: [https://spacenews.com/european-satellite-still-heavily-dependent-on-u-s-parts/?fbclid=IwAR02LcyC5300n1PSDIP63f\\_37atOJrj4d-jPQRp2-7WqyTuefwwwNHuepCw](https://spacenews.com/european-satellite-still-heavily-dependent-on-u-s-parts/?fbclid=IwAR02LcyC5300n1PSDIP63f_37atOJrj4d-jPQRp2-7WqyTuefwwwNHuepCw) [Accessed 2 Sep. 2019].

<sup>24</sup> European Parliament (2018). *EU space programme*. European Parliamentary Research Service.



Source: GeoSpatial World

### *Commissioner Bieńkowska*

promote and support the European-based defence industries, allocated 13 billion euros for the next seven years. Satellite communication have been designated as a top priority within the defence research field by Commissioner Bieńkowska, alongside drone technology or artificial intelligence. Completing the EDF, the European Defence and Industrial Development Programme (EDIDP) dedicated 500 million euros for the years 2019-2020 to the financing of “common industrial projects in the field of defence”. Within the first calls published for 2019, one of them aims to develop a European military Positioning, Nav-

igation and Timing (PNT) system, through the achievement of Galileo’s PRS Full Orbital Capability (FOC) by 2023 and the development of operational EU military PRS receivers, antennas and services architectures amongst others.

### FINDING A COMMON APPROACH

**“Europe must become a security provider and must ensure gradually its own security. And one element of this security is space.”<sup>25</sup>**

<sup>25</sup> Bieńkowska, E. (2019). *European Union Strategic Autonomy Space, Defence and Security Policies – special address – European Commission*. [online] European Commission. Available at: [https://ec.europa.eu/commission/commissioners/2014-2019/Bienkowska/announcements/european-union-strategic-autonomy-space-defence-and-security-policies-special-address\\_en](https://ec.europa.eu/commission/commissioners/2014-2019/Bienkowska/announcements/european-union-strategic-autonomy-space-defence-and-security-policies-special-address_en) [Accessed 30 Aug. 2019].

Regarding the amplification of new space security threats, it appears that “no Member State is strong enough to meet these challenges on its own”<sup>26</sup>. Within the EU, countries such as France are starting to create specific military space command or policies. The French military space command should indeed be created as soon as September 2019, and the French satellites equipped with laser weapons and machine guns,<sup>27</sup> in order to respond to the global military space race. In view of these initiatives, European cooperation has to become more operational to address the present and future challenges, especially as NATO has planned to designate space as the 4th dimension of warfare, after air, land and maritime, during its next summit in December 2019<sup>28</sup>. In January 2019, Commissioner Bieńkowska suggested the creation of a specific “European Space Force”<sup>29</sup>, in response to President Trump’s announcement to create an American Space Force<sup>30</sup>. Even though the creation of such a military space branch would meet the same challenges as the creation of a European army, and seems therefore unlikely to happen in the near future, the Commissioner’s proposition reveals her willingness to see Europe

being able to compete with American and Chinese space programmes.

Moreover, the development of a common approach regarding the military use of space-technologies meets numerous difficulties. Firstly, the development of such a programme implies the merging of different military systems and doctrines into a single defence doctrine. Secondly, as most of the satellite systems – either communications or even navigation – are related to sensitive and sovereign data or information, a high number of Member States are still unwilling to delegate access to the latter at a supra-national level.

One key to the development of European space autonomy seems to now rely on the development of innovation for space-based technologies. Commissioner Bieńkowska even stated that “we need a European DARPA [Defense Advanced Research Projects Agency]”<sup>31</sup>, the American research and development centre dedicated to defence and military innovations, in which spatial technologies could be at the centre of the innovation programme.

<sup>26</sup> Bieńkowska, E. (2019). *European Union Strategic Autonomy Space, Defence and Security Policies – special address – European Commission*. [online] European Commission. Available at: [https://ec.europa.eu/commission/commissioners/2014-2019/Bienkowska/announcements/european-union-strategic-autonomy-space-defence-and-security-policies-special-address\\_en](https://ec.europa.eu/commission/commissioners/2014-2019/Bienkowska/announcements/european-union-strategic-autonomy-space-defence-and-security-policies-special-address_en) [Accessed 30 Aug. 2019].

<sup>27</sup> Weitering, H. (2019). *France Is Launching a 'Space Force' with Weaponized Satellites*. [online] Space.com. Available at: <https://www.space.com/france-military-space-force.html> [Accessed 30 Aug. 2019].

<sup>28</sup> Emmott, R. (2019). *Exclusive: NATO aims to make space new frontier in defense*. [online] Reuters. Available at: <https://www.reuters.com/article/us-nato-space-exclusive/exclusive-nato-aims-to-make-space-new-frontier-in-defense-idUSKCN1TM1AD> [Accessed 30 Aug. 2019].

<sup>29</sup> Teffer, P. (2019). *EU commissioner floats idea for European space force*. [online] EUobserver. Available at: <https://euobserver.com/foreign/143981> [Accessed 30 Aug. 2019].

<sup>30</sup> Military.com. (2019). *United States Space Force*. [online] Available at: <https://www.military.com/space-force> [Accessed 30 Aug. 2019].

<sup>31</sup> European Commission. (2019). *European Union Strategic Autonomy Space, Defence and Security Policies – special address – European Commission*. [online] Available at: [https://ec.europa.eu/commission/commissioners/2014-2019/Bienkowska/announcements/european-union-strategic-autonomy-space-defence-and-security-policies-special-address\\_en](https://ec.europa.eu/commission/commissioners/2014-2019/Bienkowska/announcements/european-union-strategic-autonomy-space-defence-and-security-policies-special-address_en) [Accessed 30 Aug. 2019].



## CONCLUSION

With the publication of its Space Strategy in 2016, the important investment in space technologies through the EdF/EDIDP and the initiatives of developing the military use of the Galileo and GOVSATCOM amongst others, the EU has undertaken important steps forward toward the development of a common defence space policy over the last years. In 2019, the EU is nevertheless at a crossroad of important decisions concerning the future evolution of its common space-defence policy, and now has to face the issues

of dependency on critical space technologies, Brexit's consequences or the building of a common doctrine and understanding of defence threats within the Union. In order to face these upcoming difficulties, the EU has to increase the space defence budget and to aim at developing its innovation in order to build its autonomy. Furthermore, it has to focus on the interoperability and supranational cooperation in the European space sector to respond to the escalating weaponisation of space.

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- Promoting interoperability and cooperation of armies, while seeking to bring together concepts, doctrines and procedures;
- Contributing to a common European understanding of land defence issues. Finabel focuses on doctrines, trainings, and the joint environment.

Finabel aims to be a multinational-, independent-, and apolitical actor for the European Armies of the EU Member States. The Finabel informal forum is based on consensus and equality of member states. Finabel favours fruitful contact among member states' officers and Chiefs of Staff in a spirit of open and mutual understanding via annual meetings.

Finabel contributes to reinforce interoperability among its member states in the framework of the North Atlantic Treaty Organisation (NATO), the EU, and *ad hoc* coalition; Finabel neither competes nor duplicates NATO or EU military structures but contributes to these organisations in its unique way. Initially focused on cooperation in armament's programmes, Finabel quickly shifted to the harmonisation of land doctrines. Consequently, before hoping to reach a shared capability approach and common equipment, a shared vision of force-engagement on the terrain should be obtained.

In the current setting, Finabel allows its member states to form Expert Task Groups for situations that require short-term solutions. In addition, Finabel is also a think tank that elaborates on current events concerning the operations of the land forces and provides comments by creating "Food for Thought papers" to address the topics. Finabel studies and Food for Thoughts are recommendations freely applied by its member, whose aim is to facilitate interoperability and improve the daily tasks of preparation, training, exercises, and engagement.



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