Rising Together?

The (Re)Convergence of Europe's Space and Defence Industries

ESPI European Space Policy Institute

This study is a result of a wider programme supported by the European Space Agency (ESA) and relies purely on open-source research. The views expressed in this report are developed independently by ESPI, reflecting perspectives of the Institute and do not represent the official positions of ESA or its Member States nor ESPI's other Member Organisations.

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1 (Re)Emerging Overlap: Space and Defence Industry

While Europe **grapples with challenges to the post-WW2 fabric** and struggles to support assertive resolve on the ground in Ukraine, the question of improved defence capabilities takes centre stage, with explicit calls for significantly increased expenditures and targeted innovation including through explicit dual-use R&D schemes.[1]

> "The war in Ukraine has already highlighted the impact of artificial intelligence and autonomous systems in various aspects of armed conflict. The use cases for New Space capabilities such as imaging, and telecom based on small satellite has also been made clear."
>
> **Antti Häkkänen, Finnish Minister of Defence (9.7.2024)**
>
> "We can step in rapidly for example with ammunition but also with satellite communication, if this should be needed. "
>
> **Boris Pistorius, German Minister of Defence (12.3.2025)**

It is by now well understood that **space capabilities have the power to change the balance of conflicts** and underpin military efforts across land, sea and air. In the wake of this increased awareness, the question of European space capabilities matching those of its allies and adversaries seems to finally be garnering attention beyond the confines of the space sector. Until now, Europe's **investment in space capabilities for security and defence has been globally insignificant**, with the **U.S. outspending Europe by more than a factor of 15** in military space. Only 15% of Europe's public space budgets are earmarked for military space activities, while the global average is about 50% and further shifting in favour of defence.

Against this backdrop, several countries (e.g. Austria, France, Italy, Luxembourg, Sweden) have developed military strategies dedicated to the space domain. In parallel, there is a push for a greater role of the European Commission, embedding space into the Union's ambition on security and defence. Other EU bodies (e.g. European Defence Agency), or frameworks, like the EDF and PESCO, are also implementing projects aiming to **reinforce the use of space for European security and defence activities**.

Moreover, the **Joint White Paper for European Defence Readiness 2030** provides a further boost in identifying space as a key enabler to enhance Ukraine's defence capacities. Alongside the **European Investment Bank's (EIB)** plans to allow investments into non-lethal defence products and **freeing up billions for the defence industry** in the coming years, the space sector will inevitably be called upon to deliver & futureproof Europe's future security architecture.[2]

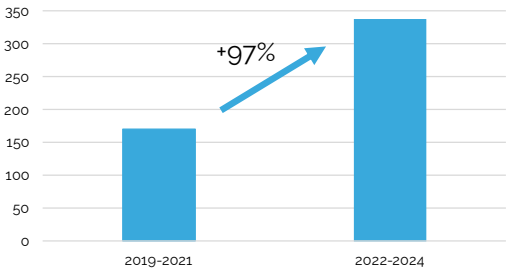


Figure 1: The number of Military Satellites launches since the onset of the War in Ukraine

Yet, despite the accelerated release of documents, and while the rest of the world has seen significant growth in the number of military payloads launched, **Europe is slow to act on its policies** for developing and deploying own capabilities.

Now, the space industry has been called on to deliver on more and more contracts aiming to support security and defence missions, while simultaneously defence companies are venturing into the space domain.

While a large share of Europe's space industrial base is by origin integrated into defence holdings such as Thales (with stakes in Thales Alenia Space and Telespazio) or originate from such holdings (e.g. Beyond Gravity via RUAG), this **coupling is (re)emerging across the industrial landscape**.

This report analyses both the increasing demand for security & defence capabilities by space companies as well as an increasing appetite of the defence industry to venture into the space sector through new **own programmes**, **acquisitions** and **investment**.

[1] Franziska Müller, Merz in race over debt brake reform to raise defence spending, Euronews (Link); Andreas Becker, Eurobonds: EU plans debt revolution to finance defense, DW (Link); Martin Greenacre, EU urged not to forget about defence R&D, Science|Business (Link)
[2] Aurélie Pugnet, EU's lending arm to invest in defence in major policy change, EURACTIV (Link)

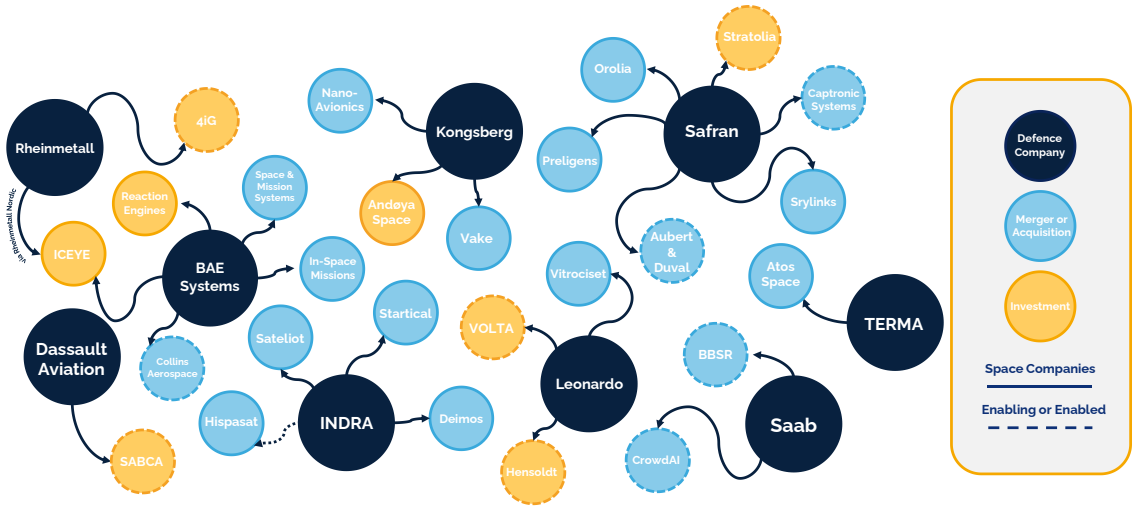


Figure 2: Defence company tying up with space, space-enabling and space-enabled companies

While GNSS-enabled systems are critical to military operations, it is (secure) **satellite connectivity** and **remote sensing** that make the most headlines since the start of the war in Ukraine. This corresponds to the compiled and analysed data in this report showing the highest number of agreements (contracts, grants, partnerships) are related to Remote Sensing (1st) and SATCOM (2nd) with an **overall trend in the growth of agreements** (Figure 3).

With IRIS² still on the drawing board, and the GOVSATCOM Hub only entering preliminary operations, Europe needs to ensure it leverages all existing and developed capabilities such as the recently launched SpainsatNG as well as demonstrated industrial platforms for secured pooling & sharing of existing European capacity.

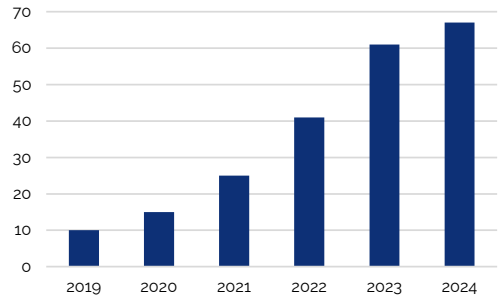


Figure 3: Growth of agreements explicitly targeting space capabilities for security & defence

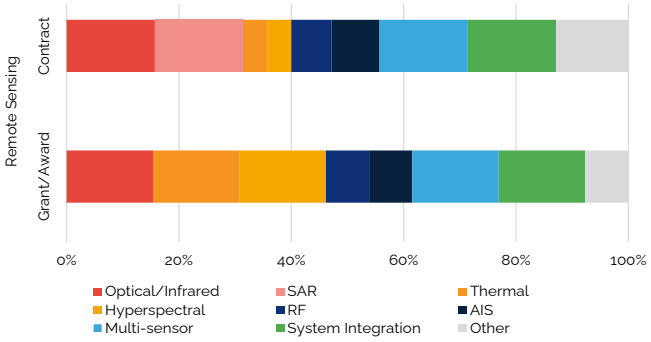


Figure 4: Overview of remote sensing agreements

Remote sensing tops the charts with optical and SAR leading among the contracts identified, while optical and thermal projects are most frequent among grants. With discussions of a **Governmental Earth Observation Service** heating up, this acquired expertise needs to be scaled to benefit Europe's intelligence and military community.

These developments undertaken via national schemes, ESA, EDF, OCCAR and other platforms provide a solid foundation for Europe to bolster its space capabilities for security and defence in the short term. Yet this will require resolute political will, increased expenditures, and a more structured approach to the procurement **and development of dual-use technologies, without artificial barriers**.

Only **pooling all European expertise and resources**, institutional and private, can lead to narrowing the gap compared to the United States and China and rising up to the challenge of a deteriorating security landscape Europe is confronted with.

2 About the Report

The report analyses the connection between European security and defence policy and (i) the increasing engagement of the European space sector in security and defence activities as well as (ii) a parallel shift of interest by defence companies towards the space sector.

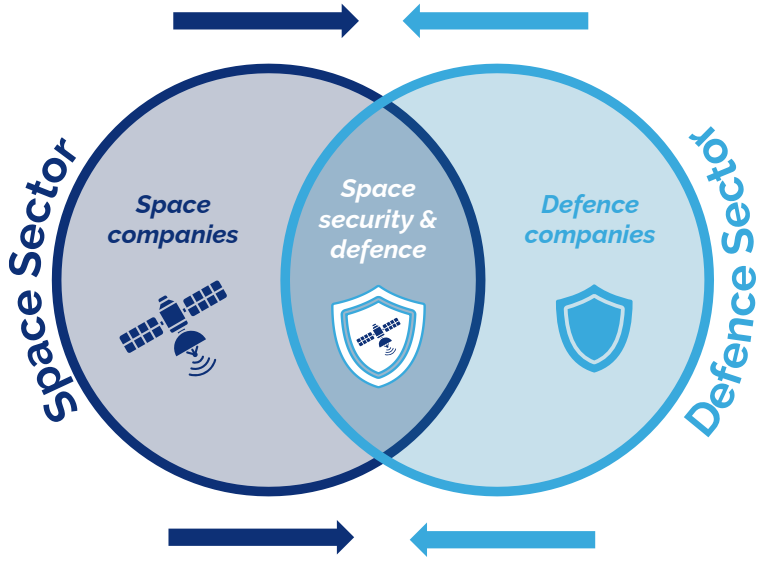


Figure 5: Growing interest for space security and defence by both space and defence companies

In this context, the report delves into how the European space industry contributes to the security and defence policy objectives of the continent, and in turn, analyses how the industrial landscape itself is shifting, driven by operational needs and policy drivers. The report is split into two main sections that delve further into understanding how policy and industrial activity are interlinked.

The first part of the report evaluates the industrial landscape underpinning Europe's space activities and provides an overview of the agreements (contracts, grants and partnerships) involving space companies for security and defence purposes. In total**, 219 agreements involving 372 individual entities**, ranging from April 2019 to November 2024, were analysed as part of the study.

Additionally, selected defence companies that have started to venture further into the space sector and expanded their concrete activities in the domain were evaluated including through an **overview of their investments and acquisitions** in the space sector.

The second part focuses on assessing policy trends across the continent and commonalities in policy visions at the national and EU levels, in which **78 national strategies and 14 EU-level strategies** were analysed and clustered across a series of converging priorities identified in the two sets of documents. A detailed analysis of the clusters identified in Section 3 is found in Annex A and Annex B at the end of the report.

Finally, the provides **key takeaways** synthesising the main findings of the study, as well as a **set of open questions** in light of global geopolitical shifts that have shaken Europe in the early months of 2025.

3 A GROWING SPACE FOOTPRINT IN SECURITY & DEFENCE

While European states and the EU have developed a large set of policies and strategies over the past years (see Chapter 4), **documents do not evolve into capabilities without programmatic and industrial implementation**. To understand how the European space industry supports the security and defence objectives of the continent, we looked at agreements signed by European space and defence companies to carry out activities in this domain. Therefore, a sample pool of relevant agreements was identified and split between:

- **Contracts** comprised all formal agreements for the supply of goods, services, or technology between a public institution and a private contractor. Occasionally, private actors contracted other companies, ultimately serving governmental end customers.
- **Grants** covered all competitions and financial awards handed out by the public sector through different schemes and for different areas, such as R&D funding, innovation funds, pre-procurement, and design studies.
- **Partnerships** instead grouped all broader agreements and plans for collaboration with no intended financial element.

The research sample is composed of **219 agreements** involving **372 individual entities** and ranging from **April 2019 to November 2024**.

The agreements considered are those **explicitly serving the needs of European security and defence activities** and involve a variety of public and private actors. The vast majority is made up of industrial actors (84%), mostly receiving contracts and grants from institutional entities, which make up 16% of the pool. By combining the results from the analysis of this sample with the findings from the clustering of national space and security strategies, the following sections explore the current European defence and space industrial ecosystem.

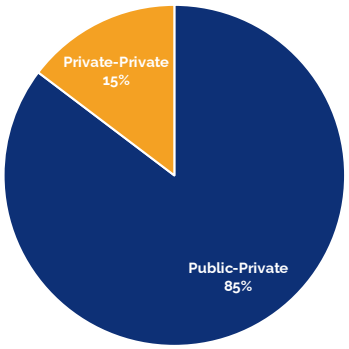


Figure 6: Nature of agreements

3.1 Status and evolution of agreements for security and defence

Note on the Study Perimeter

Beyond considering agreements only **explicitly serving the needs of European security and defence activities**, the agreement sample did **not include** smaller design studies, subcontracted activities, or the procurement of subcomponents unless they had a distinct security & defence relevance. For instance, independent initiatives such as Helsing's testing of AI capabilities aboard the Yam-6 platform in July 2024 were not within our research perimeter.

Moreover, as they do not pertain to capability development, delivery, and R&D, launch contracts and agreements were also excluded from the scope of this study.

A visual representation of the announcement dates of the reviewed agreements provides information on their evolution over time and helps identify potential critical junctures. Considering the significant impact of Russia's war in Ukraine on the broader European defence ecosystem, this section examines whether the European space defence sector has experienced similar effects.

In Figure 7, the total number of agreements per year indicates a **growing involvement of space stakeholders in security and defence, with a steady increase over time.** The number of contracts in 2023 has multiplied four times compared to 2020. While growth stabilises in 2024, the period covering January to November 2024 nevertheless surpassed the 2023 total.

While outside the perimeter of the analysis, a **significant number of new agreements** have been identified in December 2024 and Q1 2025.

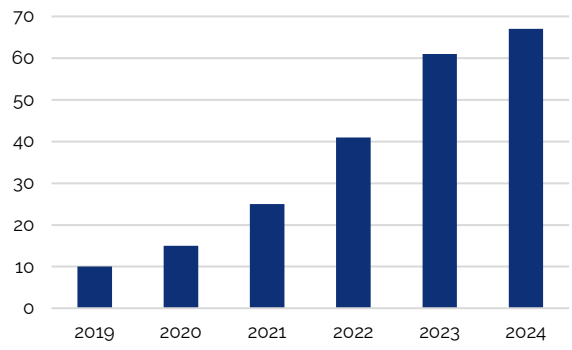


Figure 7: Number of agreements per year

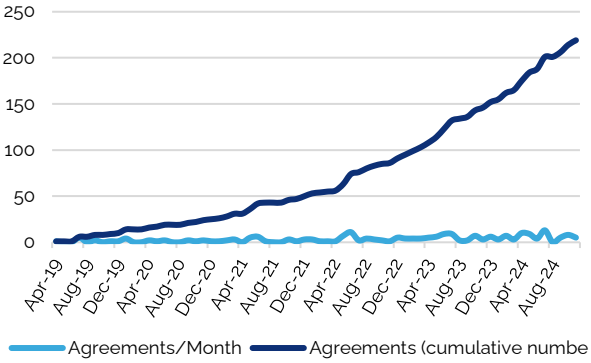


Figure 8: Evolution of the number of agreements (April 2019-November 2024)

Tellingly, **the growth starts deviating from a linear growth path in late 2021 and early 2022, suggesting a change of circumstances** mirrored by an increase in both the number and pace at which agreements have been signed.

Furthermore, **the last two years have shown higher and more frequent spikes in the number of agreements per month**, which are then reflected in significant jumps in the cumulative total. These increases align with the rise in geopolitical tensions leading up to and following Russia's invasion of Ukraine. From April 2019 to February 2022, European stakeholders signed 54 agreements. In contrast, from March 2022 to December 2023, less than two years after the invasion began, 98 additional agreements were signed.

Many of these agreements are **linked to the war in Ukraine**. Poland's purchase of a French VHR Earth Observation system was accompanied by discussions on the war in Ukraine, while contracts to upgrade Germany's military satcom were explicitly signed in relation to the deteriorating security landscape in Europe.[3]

> This major contract reflects Poland's trust in our technology and industry
> **Sébastien Lecornu, French Minister of Defence (27.12.2022)**

Major agreements since November 2024

Since the research sample cutoff in November 2024, a series of major space contracts for security and defence needs were identified, confirming the analysed trend:

- **ISISPACE framework Contract with the Dutch Ministry of Defence** for the development and construction of satellites for defence operations.
- **Helsing-Loft Orbital partnership** to launch an AI-powered satellite constellation for Security & Defence.
- **Thales Alenia Space signed a contract** with NIBE (an Indian defence contractor) for the supply of a high-resolution optical satellite, marking the first step in NIBE's EO constellation
- **Airbus was awarded a contract by the UK MoD** for the construction of two Oberon SARs.
- **Indra was contracted by the German Air Force** for surveillance satellites tracking objects in LEO.
- **Saab and ICEYE developed a partnership** to integrate SAR data into military command & control systems.
- **CGI UK to build the UK Armed Forces' Borealis command**, control, and data processing system to enhance SDA capabilities and protect UK space assets.

[3] Jaroslaw Adamowski. "Poland buys two spy satellites from Airbus". DefenseNews, 28 December 2022. (Link); Eleanor Butler. "Airbus wins satellite deal with German military as defence remains a priority". EuroNews, 5 July 2024. (Link)

The agreement pool comprises contracts, grants, and partnerships with a distinct security and defence focus. They can be divided into two categories, depending on the intended use case(s):

- **Military:** activities that are commissioned by or for armed forces and ministries of defence, and for military purposes. These are not limited to agreements signed by space commands and end users often belong to traditional military branches.
- **Security:** all agreements encompassing non-military activities, regardless of whether they are conducted by military forces. Applications include disaster management, emergency and response, search and rescue, border control, monitoring of critical infrastructure, and non-military cybersecurity.

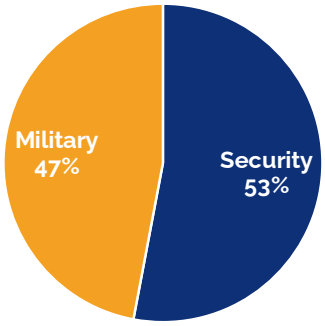


Figure 9: Share of military vs. security agreements

Dual-use solutions (serving both civil and military purposes) were included under the security category. The notion that space has become a new operational domain, as expressed in national strategies (Chapter 4), is particularly evident in the sample, due to the high share of agreements dedicated to military missions. Yet we must note that **security needs, outside of the military realm, reflect a large pool of existing and potential end-users**, and represent a significant revenue source for the space industry.

3.1.1 Variability of applications and end-use cases

While the nature of activities has remained largely consistent across different agreements, the variety and frequency of the specific applications targeted by these agreements differed among contracts, grants, and partnerships.

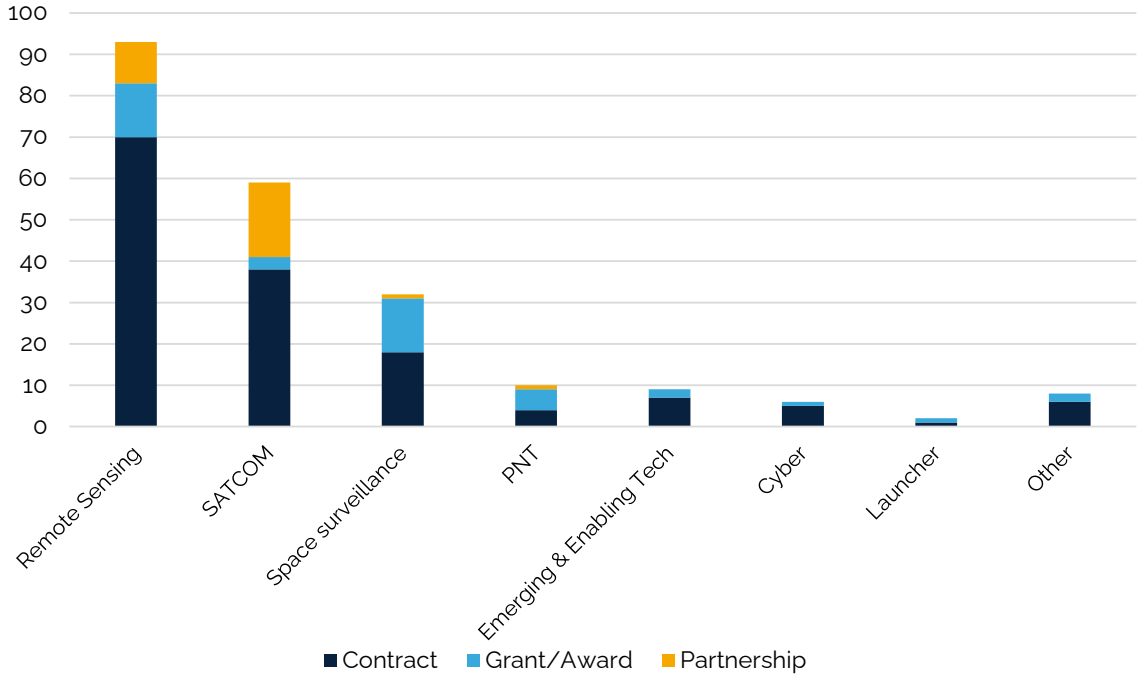


Figure 10: Number of agreements by application

A significant portion of these agreements consisted of **contracts focused on remote sensing,** which accounted for twice as many contracts compared to satcom, the second most prevalent application.

Space surveillance, like remote sensing, secured a considerable share of grant funding. The proportionately higher number of grants in this area mirrors the increasing concerns for the contestation and congestion of the Earth's orbit presented in national strategies. Moreover, **European countries willing to tackle SSA**

and SST appear to be doing so collectively, as the largest space surveillance agreements were grants funding EDF projects. Partnerships instead tended to focus on satcom solutions, with the most prominent example being the industrial involvement during the EU tender for IRIS².

Focusing on remote sensing

As indicated in the growing number of contracts for ISR and in national security strategies, the focus on EO capabilities is expected to grow in the coming years, with their added value to military capabilities gaining international attention since the start of the Russo-Ukrainian war. The following section analyses which specific technologies are most targeted.

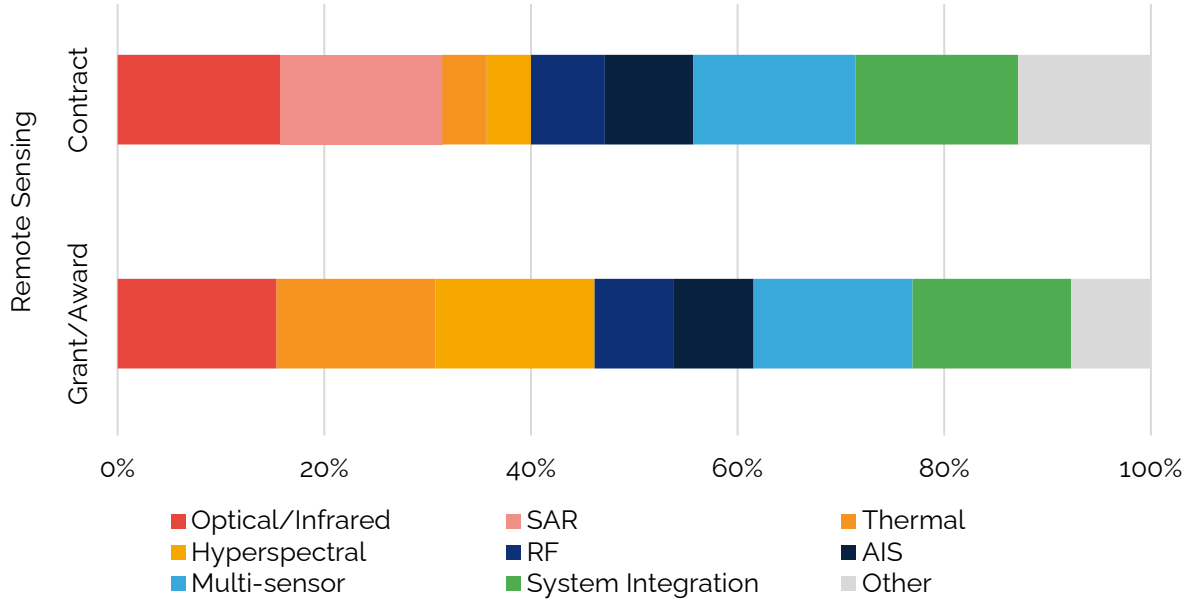


Figure 11: Share of remote sensing agreements by technology and application

Remote sensing contracts and grants were spread across an array of applications broadly categorised according to the type of technology and use they comprise. **Three main categories stand out: system integration, optical, and multi-sensor systems**, each accounting for approximately 15% of the total agreements across both contracts and grants. While the optical and multi-sensor categories refer to payloads, contracts for system integration were awarded for the design or development of systems and platforms capable of integrating existing EO capabilities and solutions, to both facilitate data exploitation and link different constellations together to facilitate end-user experience.

Contracts for SAR technologies were prevalent, although no grants were specifically dedicated to their development, showing the growing maturity of this technology. In contrast, the larger percentage of grants focusing on hyperspectral and thermal technologies compared with their share in the contracts pool is likely due to these capabilities largely being still in the R&D phase.

Remote sensing solutions for **maritime monitoring**, whether through AIS or RF capabilities were well represented, echoing the increasing focus on Arctic surveillance, illegal fishing, and piracy addressed in multiple national security strategies (Chapter 4).

3.2 Landscape of the European space & defence industry

To gain a clearer understanding of the European space ecosystem for security and defence, it is essential to trace the origins of various initiatives and determine whether they are being pursued at the national level or through multinational frameworks. The map below depicts the distribution of contract customers across Europe. Each country is labelled with the **number of contracts it signed for the development or procurement of security and defence space-based capabilities**. A total of 149 contracts were identified, spread over 77 unique customers, most of which are public institutions from the analysed countries. Among these contracts, 101 were signed by states (or by companies on behalf of the state) while 48 were settled by multinational organisations

(ESA, EU, NATO, OCCAR). Among these, **ESA-related contracts amounted to over 60% (29) of the total**. Moreover, 11% of the contracts were signed between two or more companies, with one acting on behalf of a public institution. In such cases, only the nationality of the outsourcing firm is tracked.

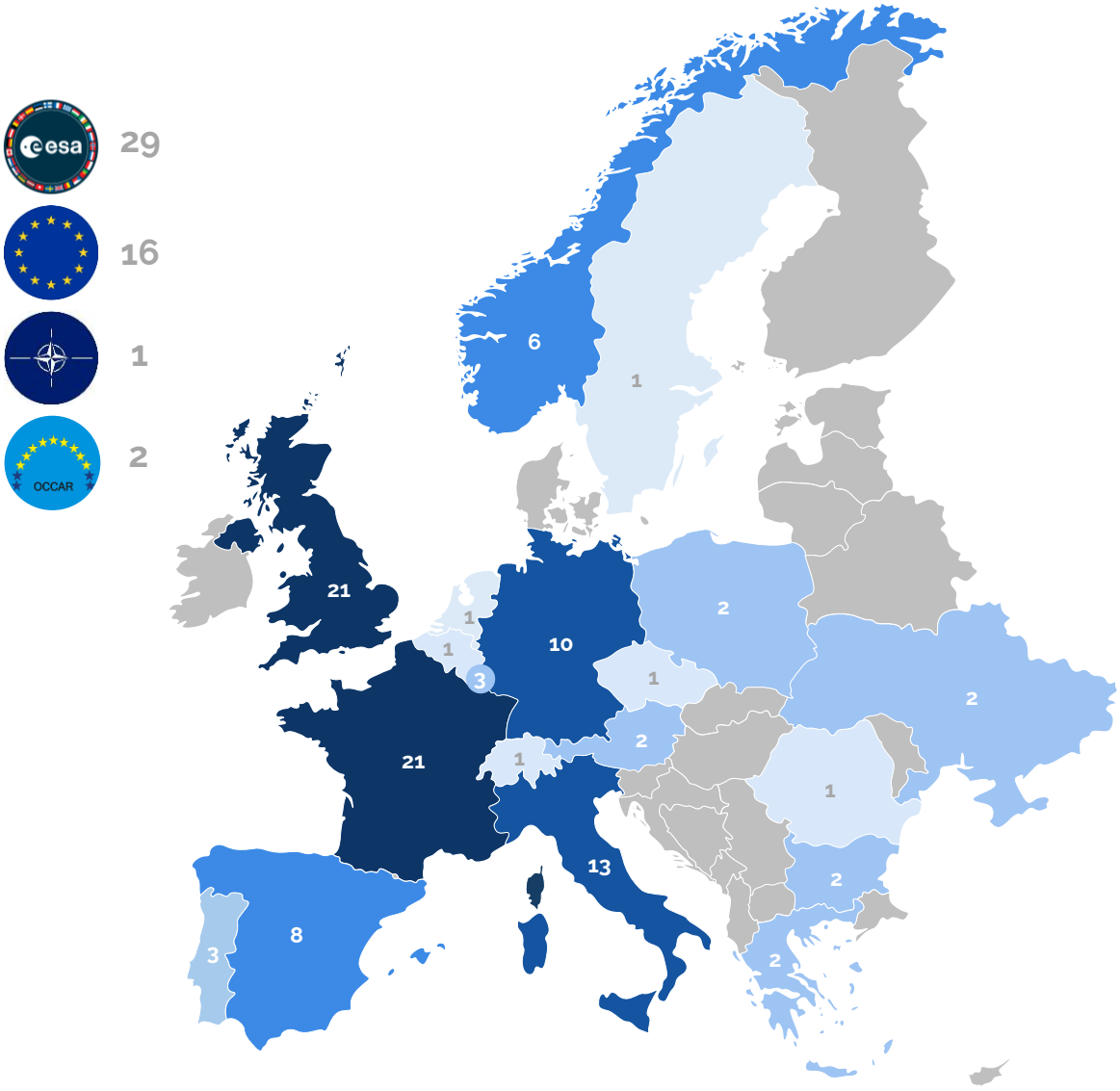


Figure 12: Number of commissioned contracts per country

European countries are categorised according to their level of involvement:

- **France** and **the UK**, usually labelled as Europe's largest military powers, are signing the most contracts for space capabilities in security and defence and **can be considered established customers**. Despite having a space sector that is less mature than that of other countries, the high level of UK participation might suggest the importance of having a strong defence ecosystem for developing such capabilities.
- **Italy** and **Germany** instead are less involved, with **Germany trailing the UK and France by more than 50%** when taking into account the number of contracts commissioned by customers belonging to the country.
- Among the countries that signed multiple contracts, **Norway and Poland stand out for pursuing space solutions tailored to their specific regional challenges**. While the former is primarily focused on enhancing maritime and Arctic monitoring, Poland is working to develop its own EO capabilities for intelligence, surveillance and reconnaissance.

The limited representation of certain countries with few or no contracts on the map is likely due to their **space**

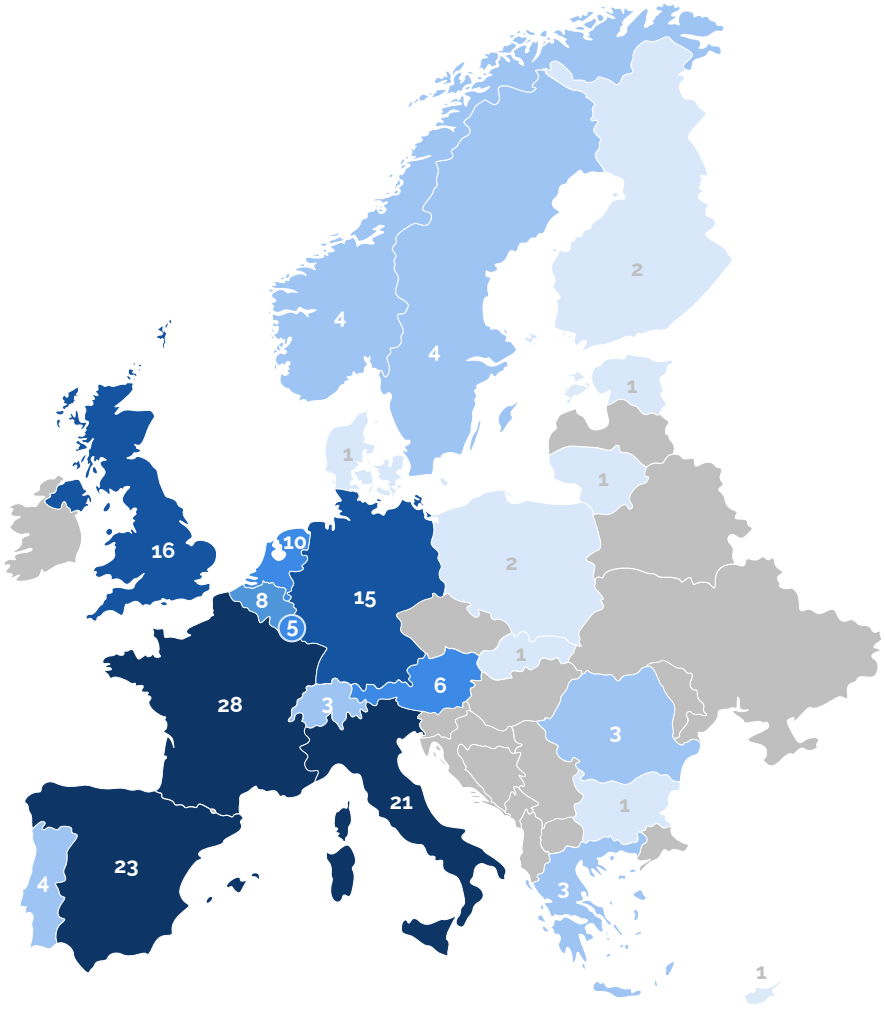
activities being primarily conducted through ESA and EU programmes. These organisations were responsible for most international cooperation agreements, awarding 29 (61%) and 16 (33%) contracts, respectively.

The distribution of companies involved in **multinational programmes** remained largely consistent, **except for UK companies**, which participated in only one identified ESA contract and were excluded from EU initiatives. OCCAR and NATO also commissioned contracts (two for OCCAR, one for NATO) but these involved fewer participating countries by design.

3.2.1 Contracting trends

While the number and origin of contracts help the identification of which public institutions are most involved in the procurement of space capabilities for security and defence, these do not reflect the granularity of the European space industry. For this purpose, the map and table below illustrate the distribution of companies contracted by European stakeholders. The map (Figure 13) displays **163 European companies**, categorised by their country of registration.

The accompanying table shows how many contracts were awarded to companies from each country. Since many agreements involved consortia of two or more firms, these companies were engaged 305 times across 149 separate contracts. A significant gap between the number of companies in a given country and the number of times its industry was contracted may indicate that certain companies are more successful. **This may suggest that a few key players dominate the market, securing a larger share of contracts than other firms in the same country.**



Number of times that companies of these countries were contracted			
AT	7	IT	55
BE	9	LT	3
BG	3	LU	9
CH	3	NL	11
CY	1	NO	9
DE	38	PL	2
DK	3	PT	6
EE	1	RO	3
ES	43	SE	9
FI	6	SK	1
FR	57	UK	20
GR	6		

Figure 13: Number of individual companies receiving contracts per country (left) and number of times these companies were contracted (right)

As illustrated by the table, **French, Spanish, Italian and German firms were the most contracted.** The ratio between the "number of companies" and the "number of contracts'' of these traditional spacefaring nations shows that contracts are spread across a less varied set of companies. Conversely, the average number of contracts for a single company in emerging spacefaring nations is closer to 1.

The increased presence of companies registered in smaller countries indicates that, even if their home countries do not award contracts, **they still gain access to the European space sector through ESA and EU programmes** or by being contracted by another country. The latter option was less common: excluding contracts awarded by multinational frameworks**, national customers prioritised domestic industry in 78% of cases**. Of the 92 occasions in which companies residing in countries outside of France, Italy, Germany, Spain, and the United Kingdom were contracted, more than 50% (48) were through ESA or EU contracts. This emphasises the critical role international cooperation plays in ensuring these nations' access to space technology, echoing the space strategies of countries like the Netherlands and Austria, which regard EU and ESA frameworks as key to developing their industrial base (Chapter 4).

ESA, EU, NATO, and OCCAR contracts accounted for 54% of all company participation in the contract pool, **providing opportunities not only for companies from emerging nations but also for those from traditional spacefaring countries.** In fact, French, Italian, German, UK, and Spanish companies were featured in these programmes a total of 115 times. This strong foothold in multinational projects further displays their status as European champions.

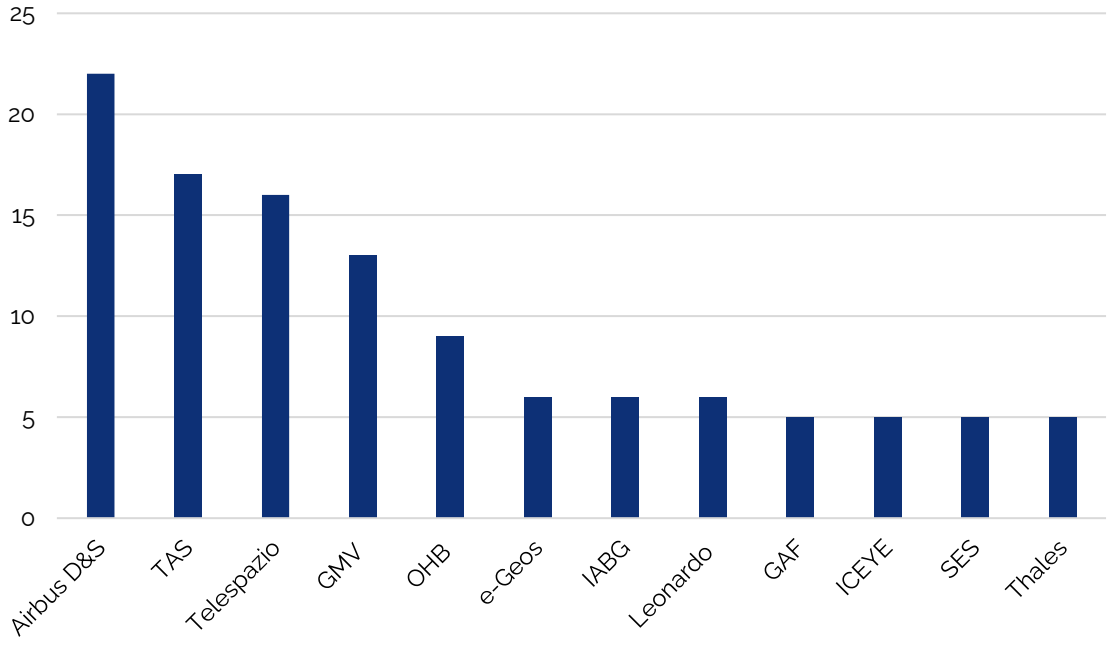


Figure 14: Top European Contractors

The notion that **larger spacefaring nations are prioritising a select number of champions** is further supported by a breakdown of the top contracted companies. Differences between the number of individual companies and the number of times a country's industry was contracted indicate the prioritisation of a few top actors.

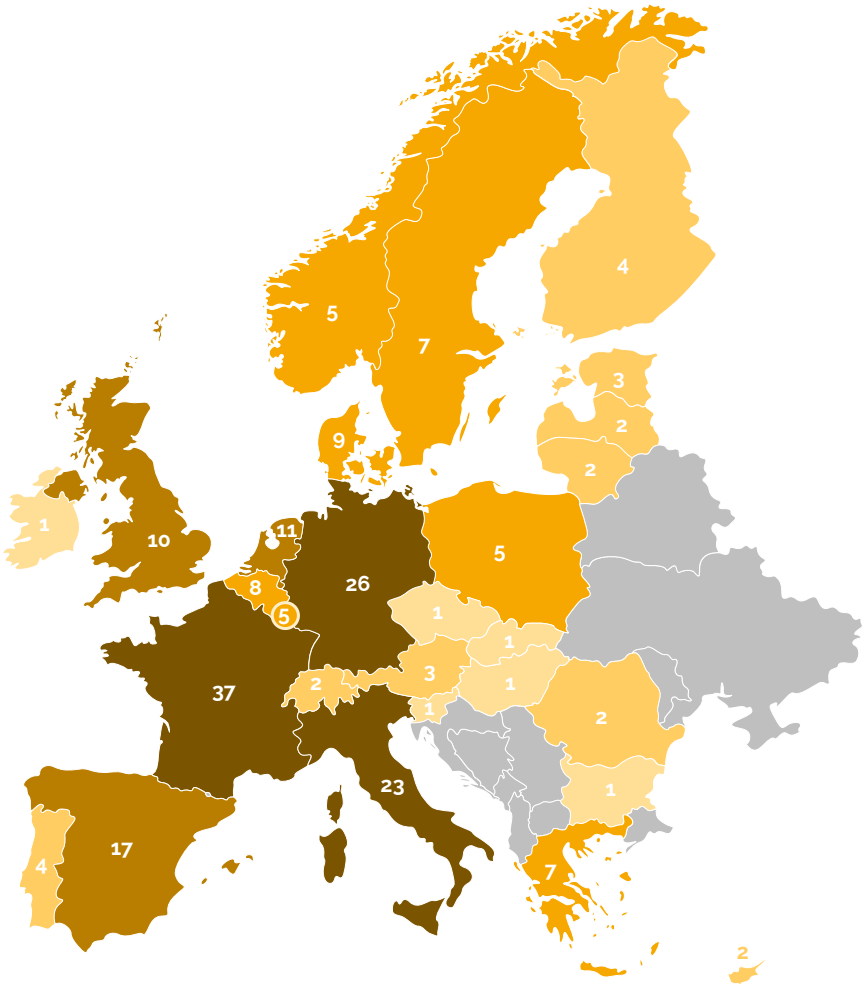
Even in countries prioritising domestic suppliers, foreign subsidiaries and groups are still able to secure contracts. For example, one-third of UK companies that were awarded contracts were subsidiaries of foreign industries. This trend is also common in countries with European subsidiaries, such as GMV in Germany and OHB in Sweden. However, **the United Kingdom stands out as the only country contracting firms based in the United States.**

3.2.2 Distribution of grant beneficiaries

Similarly to contracts, identifying the origin and distribution of companies receiving grant funding helps address two key questions: which countries' space industries are most engaged in R&D projects for security and defence, and, in the case of EU funds, which countries benefit the most from these investments?

The map and table below (Figure 15) illustrate the distribution of companies receiving public grants. The map shows 199 unique beneficiaries, categorised by their country of registration, while **the table indicates how many times companies from each country received grants.** Due to the significant number of EDIDP and EDF programmes in the pool, industrial consortia were frequently large and fragmented, leading to companies benefitting 370 times from grants across 40 individual agreements.

Non-industrial actors involved in these projects were excluded from the sample unless they served as consortium leaders.



Number of times Companies Benefitted from Grants			
AT	5	IE	1
BE	11	IT	51
BG	2	LT	6
CH	2	LU	6
CY	3	LV	2
CZ	1	NL	16
DE	52	NO	8
DK	13	PL	9
EE	3	PT	4
ES	47	RO	2
FI	5	SE	9
FR	90	SI	1
GR	9	UK	11
HU	1		

Figure 15: Number of individual companies receiving grants per country (left) and number of times companies of these countries benefitted from grants (right)

Once again, the level of industrial involvement varied by country, with some key differences compared to the contracts.

French, German, and Italian companies consistently emerge as top grant beneficiaries, collectively making up 52% of the number of awards received. This is due to two key factors: first, **these countries boast well-established industrial champions in the defence & space industrial ecosystem;** second, **their governments have previously demonstrated a strong commitment to investing in EDF programmes.**

French, German, and Italian firms, along with Spanish companies, are actively involved in EDF initiatives and contribute significantly to these projects.[4]

This involvement is not merely participatory but often secures project leadership, with most EDF space projects led by France, Italy, and Germany. Another key element is the reduced participation of British industry. Excluded from EU grants and with only one ESA award, most UK grants come from dedicated national funds.

Belgian, Danish, and Dutch companies are also well represented, being awarded more grants compared to the pool of contracts. This not only highlights these countries' reliance on multinational projects but also reflects their space-defence industrial base being more keen on integrating European supply chains (Netherlands) or collective R&D (Belgium and Denmark). Norwegian participation is also noteworthy, considering their special relationship with the EU.

The sharp contrast between the number of unique beneficiaries per country and the frequency of their grant allocations suggests that **a few industrial players are repeatedly chosen.** This is especially evident in France and Italy, where companies were selected, on average, more than twice each. This is showcased in the figure below (Figure 16), listing the top 15 grant beneficiaries.

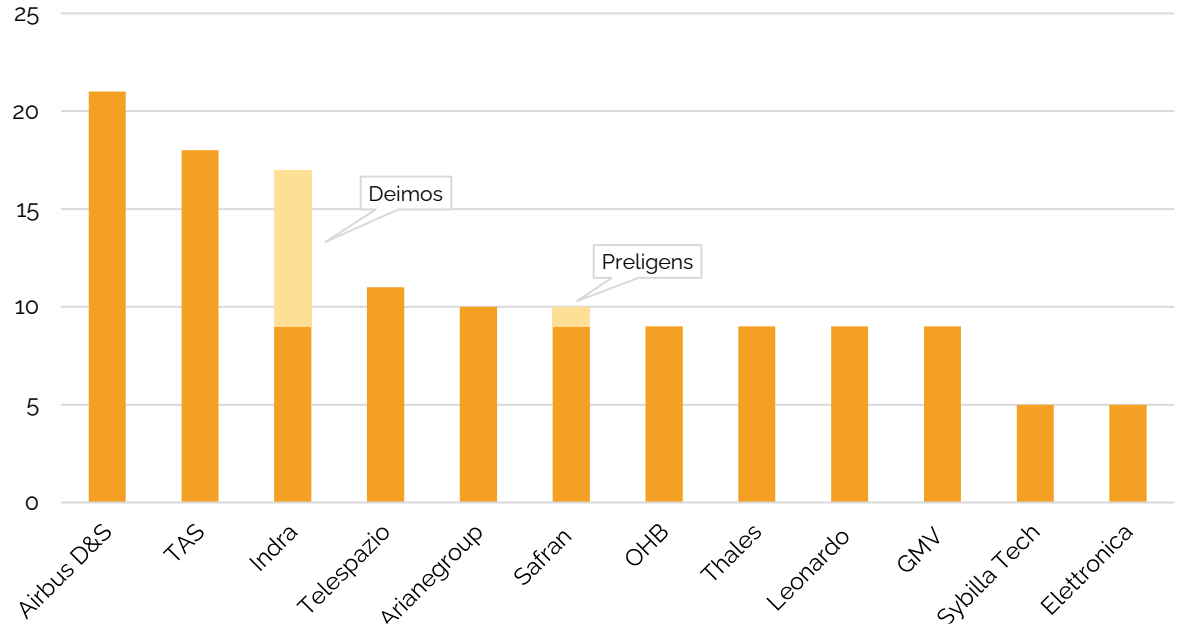


Figure 16: Top grant beneficiaries

In addition to established space companies, **the grants also highlight the participation of several non-niche defence companies in EU consortia.** For example, the French company Safran and the Italian company Leonardo, both mainly recognised for their defence expertise, participated in these collaborations. The same applies to Thales, where not only its aerospace subsidiary, Thales Alenia Space, but also other subsidiaries alongside the parent company itself were successful in obtaining grants.

Previously identified champions such as Airbus, Telespazio, OHB, and GMV retained a level of involvement similar to that of the contracts. Indra and Deimos also scored high, with their grant totals combined following Indra's acquisition of Deimos in October 2024. Thus, while the number of represented companies is considerable, the EDIDP and EDF's objectives to further foster European defence pre-procurement in space to non-traditional actors is somewhat overshadowed by an extended presence of a few nations' industry giants.

[4] Foundation for Strategic Research. Results of the 2021 EDF Calls for Proposals: a First Review. FRS, 2022. (Link)

3.2.3 Industrial Partnerships

A total of 52 individual entities were involved in signing 30 partnerships, which included Memoranda of Understanding and collaborations between industrial stakeholders. National involvement was similar to that seen in contracts and grants, with predominantly Spanish, French, UK, German, and Italian involvement. There **were more partnerships between private actors and public institutions (53%) than between private companies themselves (47%),** which highlights that public actors remain key in driving reflection towards future needs and solutions and, therefore, their "responsibility" in building a viable ecosystem for commercial actors**.** Yet, the presence of agreements solely between private actors demonstrates an interest in teaming up to offer a product serving the security and defence market. This likely stems from market intelligence forecasts foreseeing considerable growth in the defence/space sector. Finally, **over half of the private-private partnerships were domestic in nature**, involving industry actors based within the same country.

3.2.4 Relations with Third Countries

On top of the dataset used for previous sections, an analysis of agreements between European entities and foreign actors was conducted. 65% of those agreements were with U.S. firms or public institutions, making them the preferred foreign customers and partners for European industry.

Although **most of these transactions occur through U.S. subsidiaries of European companies**, therefore retaining their ultimate profits in the United States, they nonetheless are an important component of the broader transatlantic cooperation in the space sector. Other customers included Southeast Asian countries, such as Thailand and Vietnam, which recruited Thales Alenia Space for remote sensing solutions for civil security. Angola, Australia, and Brazil, among others, each signed a contract with a European industry champion as well.

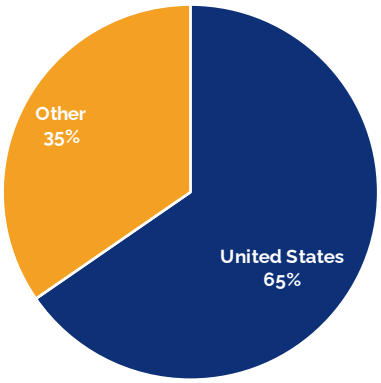


Figure 17: Foreign customers of European solutions for space security and defence

The UK and Romania were the sole customers of U.S. enterprises. While the UK is known to host numerous U.S. subsidiaries, some deals in the sample were carried out with companies based on U.S. soil. Romania also, interestingly, had one foreign supplier, signing a deal with Starlink for the provision of services destined for its own armed forces.

3.3 The growing appetite of defence companies to address space

The analysis above demonstrates that there is a growing opportunity for companies to deliver on requirements underpinned by various space security and defence activities.

While space companies are natural partners of analysed institutions in this endeavour, recent contracts and announcements have shown that what are traditionally interpreted as more **pure defence companies are increasingly addressing this market segment, perceived as a promising market and a solution to futureproof their defence offering**.

While many of the leading European space companies were created as offspring of defence companies (e.g. Beyond Gravity) or are embedded into defence corporate structures (e.g. Thales Alenia Space, Telespazio), this trend was on the decline up until the early 2020s. It has now **accelerated**, with a **growing involvement of defence companies in space, either by relying on previous activities in the field or addressing space as a new opportunity**.

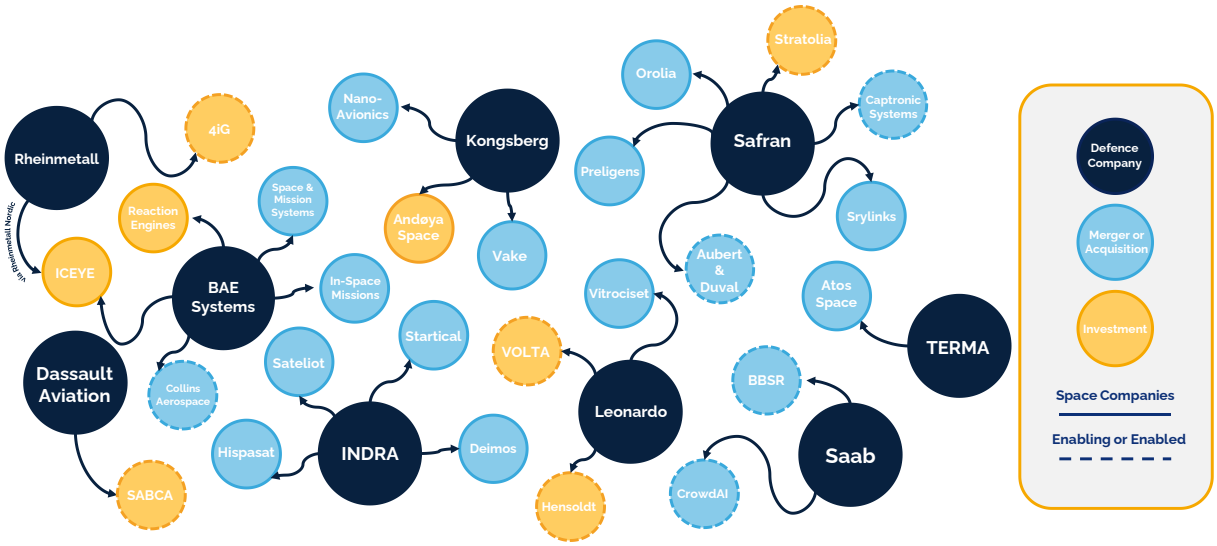


Figure 18: Defence company expansion in space and space-enabling activities since 2019

While defence companies venturing into this field do not yet fully compete and secure contracts at the scale of more established actors in the space sector, their increased ambition seems to imply that the industrial landscape in Europe is shifting.

By bringing strong capital backing and experience in dealing with military forces and armament agencies, these large conglomerates are increasingly involved in **acquisitions of, partnerships with, and investments in various space firms** (figure 18). This is further fuelled by increased European defence expenditures, as well as experience in dealing with military forces and adjacent security requirements.

Figure 19: A selection of recent major involvements of defence companies in space

Most of the companies presented in the figures above are featured in the agreement sample analysed in the previous section. A wider variety of these were grant beneficiaries, highlighting the early stages of their expansion into space activities. Others, like Indra, Kongsberg, and Leonardo, instead had a considerable number of contracts, given their more established and rapidly increasing activities in the space sector.

3.3.1 Profiles of defence companies (re)focusing on the space sector

The summary below introduces these defence companies and relevant developments, linking their activities to the space sector.

BAE Systems is a British manufacturing company, which develops technologies within the realms of aerospace and defence and stands as Europe's top defence company according to SIPRI.[5] While possessing a recognised heritage in space technologies, its space portfolio has traditionally addressed specific components of space assets, such as subsystems, but is currently expanding. Its space portfolio relies on three pillars: Space Electronics (e.g. radiation-hardened space electronics, mission payloads, and ground systems and solutions), Space & Mission systems (formerly Ball Aerospace, incorporating national defence space tactical mission systems and real-time ISR, among 15 identified capabilities), and Space Intelligence & Technology (e.g. technologies in waveforms, antenna digital signal processing analytics, and ground-based signal processing).[6]

BAE Systems acquired in 2021 the British company In-Space Missions, which designs, builds and operates satellites and satellite systems. Moreover, more recently, the company has pursued efforts to develop its own space capabilities. **BAE Systems is thus set to launch Azalea into LEO in 2025. This four-satellite multi-sensor satellite cluster will provide high-quality information and intelligence in real-time, using SAR and RF signals, and primarily serve military customers for military operations and disaster response.**[7] The company is collaborating with ICEYE on the project, which will provide its expertise in SAR technology.

Moreover, BAE Systems acquired Ball Aerospace for $5.6 billion in 2023, before incorporating it into its new Space & Mission Systems business in 2024.[8] Following this acquisition, BAE Systems bolstered its space portfolio and capabilities thanks to Ball's mission payloads and optical systems capabilities, as well as its strong links with the defence industry and the intelligence community.

In parallel, the company has won several major contracts. For instance, in 2021, BAE Systems was awarded a $247 million contract by the U.S. Space Force to manufacture advanced military GPS receivers and a next-generation semiconductor for the provision of secure PNT capabilities.[9] Other products that BAE produces include the Weather System Follow-on – Microwave (WSF-M), which is an updated satellite system designed for the U.S. Department of Defense to provide environmental intelligence and data to military operations.[10] In addition, the company supports the U.S. military through the Space Based Space Surveillance (SBSS) satellite, providing additional SSA data to the U.S. Air Force's existing network.[11]

Babcock is an international defence, aerospace and security company that provides engineering support, design and manufacturing services as well as integrated and technology-enabled solutions. Babcock focuses primarily on the United Kingdom, Australasia, Canada, France and South Africa. Its activities are mainly split into four sectors: marine, nuclear, land, and aviation. While the company does not directly work with space technology, **the UK Ministry of Defence recently awarded it a contract to operate Skynet, the UK military satellite communications system, for a six-year period.** Babcock will partner with SES, GovSat

[5] SIPRI, The SIPRI Top 100 arms-producing and military services companies in the world, 2023. (Link)
[6] BAE Systems. "Space Electronics". BAE Systems. (Link).
BAE Systems. "Space Intelligence & Technology". BAE Systems. (Link)
[7] BAE Systems. "Low Earth orbit satellite cluster to provide secure digital military intelligence from 2024". BAE Systems, 7 September 2022. (Link)
[8] Ball. "Ball Announces Agreement to Sell Aerospace Business for $5.6 Billion". Ball, 17 August 2023. (Link)
BAE Systems. "BAE Systems secures regulatory approvals for the acquisition of Ball Aerospace". BAE Systems, 14 February 2024. (Link)
[9] BAE Systems. "Developing advanced military GPS receivers and chips." BAE Systems, 17 February 2021. (Link)
[10] Juster Domingo. "BAE Launches Weather Satellite to Boost US Military Safety." The Defence Post, 15 April 2024. (Link)
[11] BAE Systems. "SBSS". BAE Systems. (Link)

and Intelsat on this contract.[12] The company was awarded £400 million for the project to manage and operate the constellation of satellites as well as the ground stations and the integration of terminals in the MoD network, with the objective to provide secure communication to the British military and government.

Dassault Aviation is an aerospace defence company that has throughout its history designed, developed, and built a high variety of aircraft, notably the Rafale multirole fighter, but also engaged in the development of military drones and space systems. Dassault's space activities are spread between work on aerospace vehicles and pyrotechnics activities. The former includes studies like the VEHRA reusable space transportation system and projects like the IXV (Intermediate eXperimental Vehicle) demonstrator. Dassault is reportedly also exploring the development of a responsive space system, launching rockets from under a combat aircraft.[13] The pyrotechnics branch focuses on a variety of pyrotechnics, including for launchers (e.g. Ariane and Vega launchers) and satellites (incl. the Ariane Structure for Auxiliary Payloads, which supports separation of the satellite from the launcher).

Another subsidiary of Dassault Group, Dassault Systèmes, has also ventured into working within the space sector. However, the company focuses on the provision of a numerical and simulation environment to its customers and has primarily dealt with space science and research. Projects include collaboration with NASA, whereby Dassault Systèmes' DELMIA is used by NASA's Kennedy Space Center Design Visualization Group to simulate ground operations before they take place, to ensure feasibility and safety precautions.[14] The company's 3DEXPERIENCE platform is also used by other space companies such as Yuri and Interstellar Lab to visualise and design their products.

Helsing is a German defence technology company founded in 2021 specialising in AI software and autonomous systems for military applications. The company produces AI-driven software solutions and expanded its operations into hardware with its HX-2 autonomous strike drone.

The company also engaged in the development of its AI expertise for space technologies. In July 2024, Helsing successfully deployed advanced AI functionalities on the YAM-6 satellite, part of Loft Orbital's space infrastructure. These tests focused on real-time onboard RF signal detection and characterisation, paving the way for military-grade signal intelligence and cognitive anti-jamming applications.

In February 2025, Helsing and Loft Orbital announced a strategic partnership to develop and deploy a cutting-edge AI-powered multi-sensor satellite constellation, aimed at enhancing real-time intelligence and situational awareness for European defence and security. The constellation will support critical missions such as border surveillance, troop movement tracking, and infrastructure protection, the system will use Loft's satellites equipped with advanced cameras and RF sensors, leveraging Helsing's on-orbit AI processing to detect and classify military assets globally in real-time. The satellite buses are currently under production and the first satellites are expected to be launched in 2026.

Indra is a major Spanish company with expertise in information technology and defence systems, which supports several markets such as transport, air traffic or defence & security. In the latter, Indra is conducting innovation and developing technology to supply end-to-end solutions in the five areas of defence, including space.

Indra has long been involved in the military space market, through the provision of terminals for military communication satellites as well as other activities related to the management of satcom networks. For

[12] Babcock International. "Babcock awarded contract to operate Skynet – the MOD satellite communications system" Babcock International. 15 February 2023. (Link)
[13] Dassault Aviation. "MLA (Micro Airborne Launcher". Dassault Aviation. (Link)
[14] Dassault Systemes. "Customer Stories: NASA". Dassault Systemes. (Link)

instance, Indra won a contract from the Norwegian Defence Materiel Agency in 2022 to provide satellite communication ground segments for the Norwegian Armed Forces' military operations.[15] Indra is also involved in the Galileo programme and has designed and developed the space surveillance radar system (the S3TSR) owned by the Spanish Ministry of Defence and operated by the Air and Space Force. Future improvements are expected, which will open the door for new missions such as ballistic missile detection and tracking.[16]

Leveraging this experience, the company has decided to expand and diversify its presence in the space sector, including to support defence activities. In October 2024, following regulatory approval and confirmation, **Indra acquired the Spanish space company Deimos**, which specialises in space missions and integration. The takeover therefore aims at acquiring complementary skills to those already developed at Indra, better positioning the company towards institutions and enhancing its presence on markets and end-to-end programmes.[17]

The ultimate goal of Indra is to become a tier-1 player by 2030, able to address European and international markets through the provision of a dual civil-military offering. To this end, **Indra plans created a dedicated entity (a "Space NewCo")**. There will be a focus on satcom through both upstream and downstream but, in the latter segment, the company also targets other applications such as Earth observation or STM.[18] In early 2025 Indra Group has entered into an agreement with Redeia Corporación for the acquisition of 89.68% of the share capital of **Hispasat**.

Kongsberg Defence & Aerospace (KDA) is one of Norway's defence industry champions in missile defence, naval, and C4ISR . As the top Scandinavian supplier of space equipment to ESA, Kongsberg has a well-established space division.

The core business of KSAT is to conduct ground station operations (incl. satellite and mission control, flight dynamics, and data management) through three key polar ground stations in Tromsø, Svalbard (SvalSat), and Antarctica (TrollSat Station) and a large network of antennas across the world, as well as the offering of products such as the satcom software KSATlite. KSAT also provides EO data services for environmental and land monitoring, as well as maritime surveillance and security in more than 40 countries. However, KSAT currently does not possess any satellites itself.

Besides its subsidiary KSAT, KDA participates in several EDF projects, being a member of the SPIDER (ISR), ODIN's EYE II (early warning) or REACTS (responsive launch) consortia. **In April 2024, Kongsberg was awarded a contract from the Norwegian Intelligence Service (NIS),** which is mainly responsible for space operations and development in the Norwegian Armed Forces, **to provide satellite-based maritime surveillance data for the military and other Norwegian governmental institutions.[19]** The contract covers a five-year period starting from 2025 when the three satellites, operated by KSAT, are expected to be launched and made operational. The satellites will be manufactured by **NanoAvionics**, part of KDA following an acquisition, with AIS receivers and detector systems delivered by Kongsberg Discovery (another branch of the Kongsberg Group)

Leonardo is an Italian multinational industrial group that develops technology and products within the aerospace, defence and security sectors, with a global footprint of 150 countries in its commercial network and four main domestic markets (Italy, Poland, the United Kingdom, and the United States).[20] Leonardo has a long history with the space sector. as it established with Thales Group the joint venture Thales Alenia Space in 2007; in April 2024, **Leonardo established a Space Business Unit as it perceived this market as an avenue for**

[15] Indra. "The Norwegian Defence Materiel Agency awards Indra the contract to deliver WGS certified satellite anchor stations" INDRA, 6 October 2022. (Link)
[16] Defence Industry Europe. "Indra develops new version of S3TSR space surveillance radar". Defence Industry Europe, 19 May 2023. (Link)
[17] Indra. "Indra completes the acquisition of Deimos". INDRA, 31 October 2024. (Link)
[18] Indra. 2024-2030 Strategic Plan. INDRA, 6 March 2024. (Link)
[19] Kongsberg. "Kongsberg will provide maritime surveillance services to Norway". Kongsberg, 10 April 2024. (Link)
[20] Leonardo. "About Leonardo". Leonardo. (Link)

growth, especially in the security and defence realm.[21] Leonardo Cyber & Security also became a Founding Member of the EU Space Information Sharing and Analysis Centre (ISAC). Leonardo is involved in several consortia and contracted projects developing space-related systems and technologies.

In the space domain, the company is particularly active in ensuring the security of information, including through cybersecurity. In 2024, **Leonardo won a contract from the Italian Ministry of Defence to conduct a study and explore the creation of a "Military Space Cloud Architecture" (MILSCA).**[22] MILSCA would be a "space cloud", where high-performance computing and storage capacity would be located directly in space to the benefit of the Italian government and armed forces. In 2021, the company was selected by ESA for its planned Cyber-Security Operations Centre (C-SOC), whereby Leonardo, acting as the prime contractor for a consortium of 19 companies, is in charge of designing, building, and operating, among others, the C-SOC.[23] The Centre has been operational since May 2024.[24] Finally, the company is also part of a consortium led by the Italian National Institute for Metrological Research (INRiM) for the development of the QUID (Quantum Italy Deployment) project to "expand the existing communication infrastructures, in optical fibre and satellite, and extend the quantum communication network" in Italy.[25] This infrastructure project will protect sensitive data and secure communication channels using quantum mechanics.

But Leonardo is also active in other programmes with security and defence applications: in 2021, the company signed a contract with the European Commission and ESA for the development of hydrogen atomic clocks for the Galileo Second Generation.[26]

MBDA is a European multinational missile developer and manufacturer, which was established as a joint venture between Airbus (37.5%), BAE Systems (37.5%) and Leonardo (25%).[27] The company is actively pursuing 45 missile systems and countermeasures products over a variety of fields including air dominance, naval superiority, battlefield engagement, ground-based air defence, as well as producing subsystems and components.[28] The company has expressed its interest in pursuing more activities in space as an evolution of the relevance of this domain and associated threats, but also after seeing the impact of Starlink in the war in Ukraine.[29]

The company currently seems to focus on three main missions: "responsive launch", "on orbit staging" and "on satellite staging". Responsive launch refers to the need to launch a spacecraft in a short timeframe to respond to hostile action. In this context, MBDA is participating in the REACTS project, funded by the EDF; the company also proposed Orbital Express, "a two to three-stage fighter-launched responsive space launcher that can put into orbit a LEO satellite for urgent needs".[30] The "on-orbit staging" mission featured the placement of a guardian satellite in selected orbits to be able to flexibly defend high-value assets. Finally, the "on-satellite staging" capabilities involve the deployment of defensive systems directly on the spacecraft, in order to engage with on-orbit threats, and temporarily disable or de-orbit them.[31]

Rheinmetall is a leading German defence industry supplier, known for producing military equipment such as armoured vehicles, ammunition, and electronic defence systems with work streams cross-cutting land, air, and sea products. The company presented at the ILA Berlin 2024 conference its conceptual approach for

[21] Giulia Segreti. "Italy's Leonardo looks to space for future growth". Reuters, 7 March 2024. (Link)
[22] Leonardo. "Kick off for the project of the first space Could System for defence." Leonardo, 19 February 2024. (Link)
[23] Italian Defence Technologies. "ESA chooses Leonardo for its Cyber-Security Operations Centre (C-SOC) which will protect European space resources". Italian Defence Technologies, 30 December 2021. (Link)
[24] Leonardo. "C-SOC, ESA's Security Operation Centre to strengthen the cyber security of European space systems was presented". Leonardo, 28 May 2024. (Link)
[25] ASI. "Prende avvio il progetto QUID per la realizzazione della rete di comunicazione quantistica in Italia". Agenzia Spaziale Italiana, 5 June 2023. (Link)
[26] Leonardo. "The accuracy of Leonardo's atomic clocks also on Galileo Second Generation". Leonardo, 1 July 2021. (Link)
[27] MBDA Systems. "About Us". MBDA. (Link)
[28] MBDA Systems. "Solutions & Services". MBDA. (Link)
[29] Luca Peruzzi. "MBDA details its activities to counter emerging threas". EDR Magazine, 14 November 2023. (Link)
[30] Ibid.
[31] Ibid.

breaking into the space domain. Rheinmetall seeks to further integrate space-based reconnaissance solutions and produce quality products for the defence and space sectors.[32]

As part of its strategy, the company invested in ICEYE through its subsidiary Rheinmetall Nordic. In September 2024, both companies signed a cooperation agreement through which Rheinmetall can resell ICEYE data to military and governmental end users on the German and Hungarian markets.[33] As a result of this collaboration, **Rheinmetall, supported by the German government, signed a contract with Ukraine in November 2024 to deliver ICEYE SAR imagery to the country** and support its war efforts.[34]

Rheinmetall also developed its links with the Hungarian group 4iG. In January 2022, Rheinmetall acquired 25% of the shares of the company.[35] In November 2023, Rheinmetall additionally signed a strategic cooperation agreement with the group towards developing opportunities in, among other domains, space technology.[36] Regarding the latter, satellite connectivity and Earth observation for EU and NATO were identified as key opportunities, with both companies aiming to generate €1.5-2 billion within the next five years. Both companies set up a joint venture, Rheinmetall 4iG Digital Services, which will (*i.a.*) support the digitisation of Rheinmetall's production and manufacturing.

Rheinmetall was also involved in an ESA project for wideband flexible front-end design for DTH receivers.[37] The project sought to develop "new architectures and technologies for the design of a wideband, highly flexible front-end" and to demonstrate a cost-effective solution.

Saab AB is a Swedish aerospace and defence company and one of the largest defence contractors in Europe. The company is involved in a variety of defence activities, with the three core areas being fighter systems, ground combat equipment, and submarines. Saab used to be a key player in the Swedish space industry. The company originally had a dedicated space division under the name Saab Space, which was sold to RUAG Space (now Beyond Gravity) in 2008, as Saab wanted to refocus on core defence activities. However, in recent years Saab has acknowledged the importance of space and noted the combination of commercial and military technologies in the domain. It has thus begun working again on space-related products and systems with the ambition to develop space capabilities in partnership with its customers, industry and academia.[38]

In collaboration with AAC Clyde Space and ORBCOMM, Saab was involved in the development of the Ymir-1 satellite, which was launched in November 2023; Saab specifically contributed to the VDES (VHF Data Exchange System) payload. The collaboration was a research project, partially funded by the Swedish Transport Administration, which sought to launch a test satellite and demonstrate the next generation of VDES technology to establish a global maritime communication network. Also, Saab co-financed the mission that saw Marcus Wandt, Saab's Chief Test Pilot, journey to the International Space Station (ISS) in January 2024. Finally, **Swedish institutions launched in July 2024 a study to explore the feasibility of launching a small satellite from a Saab-built Gripen aircraft, as a solution to provide responsive launch;**[39] Saab itself does not seem to be involved in this study. **In March 2025, Saab signed an MoU with ICEYE to further integrate the company's SAR technology solutions into Saab's command and control systems.**[40]

[32] Peter Felstead. "Rheinmetall looks to break into the space domain". ESD, 13 June 2024. (Link)
[33] AHK Finnland. "Rheinmetall vertreibt finnische Satelliten von ICEYE in Deutschland und Ungarn". AHK Finnland, 16 September 2024. (Link)
[34] Rheinmetall. "Rheinmetall and ICEYE cooperate to provide Ukraine with satellite imagery on behalf of the German government". Rheinmetall, 11 November 2024. (Link)
[35] Budapest Business Journal. "Rheinmetall finalises deal to acquire 25.1% stake in 4iG". Budapest Business Journal, 26 January 2022. (Link)
[36] Rheinmetall. "Rheinmetall and 4iG set up joint venture in Hungary". Rheinmetall, 4 November 2022. (Link)
[37] ESA. "Wideband flexible front-end design for DTH receivers". ESA CSC, 27 June 2017. (Link)
[38] Saab. "Space meets Defence". Saab. (Link)
[39] Tim Martin. "Sweden commissions study on Gripen fighter jet satellite launch capability". Breaking Defense, 25 July 2024. (Link)
[40] Saab. "Saab signs MoU with ICEYE to integrate advanced space-based radar data to military command systems". Saab. 5 March 2025. (Link).

Safran is a French multinational group, operating in three principal markets: aviation, defence, and space. The company focuses on a variety of products ranging from aircraft engines, equipment, and interiors, providing propulsion systems, landing gear, avionics for commercial and military aircraft to solutions for the defence sector, including guidance systems and drones.

In the space field, Safran has three main workstreams with satellites, ground stations, and space optics. The company features a subsidiary, Safran Spacecraft Propulsion, which is a key player in plasma propulsion, and works with electric motors and propulsion subsystems for satellites and spacecraft. Safran Data Systems also works on test instrumentation and telemetry, mission data management, and communications for space, the latter of which focuses on solutions for satellite ground stations and technology including telemetry signal processing, radio frequency tracking antennas and satellite ranging services. **The subsidiary also owns and exploits WeTrack, an SSA solution that uses RF signals to monitor the GEO orbit; in 2020, the French Space Command signed a contract with Safran to benefit from this solution.**[41] Finally, in the space optics stream, the company builds and develops high-precision optics for space systems, satellites, and telescopes and lasers among others, which include mirrors for the Extremely Large Telescope and the Apollon giant laser.

Safran notably established the joint venture ArianeGroup alongside Airbus and is the prime contractor for Europe's Ariane 6 launcher. Safran Electronics and Defense also acquired in 2022 the company **Syrlinks**, which specialises in radiocommunications and radionavigation, primarily for the space sector, and PNT.[42] **Safran Corporate Ventures** has also participated in funding various space companies, such as Vyoma in 2023.[43] That year also saw Safran Electronics & Defense and Leonardo win a contract to cover the ultra-precise atomic clocks carried onboard the Galileo Second Generation satellites.[44] Safran also invested in Greenerwave in 2024, a French startup focusing on "electromagnetic waves using smart materials and deep-physics algorithms," with one of their focus areas being Satcom.[45]

[41] Safran. "Safran confirme sa position d'acteur incontournable de la surveillance de l'espace". Safran, 19 November 2020. (Link)
[42] Safran. "Safran acquires Syrlinks to consolidate leadership in Earth-space communications equipment". Safran, 4 November 2022. (Link)
[43] FinSMEs. "Vyoma raises €8.5M Seed Funding". FinSMEs, 21 June 2023. (Link)
[44] Louise Weightman. "Galileo Second Generation enters full development phase". Spacewatch Global, 2 June 2023. (Link)
[45] Stefano de Marzo. "Paris-based Greenerwave bags €15 million to make waves in the energy efficient connectivity sector". EU Startups, 1 February 2024. (Link)

4 POLICY LINKS BETWEEN INDUSTRY, SPACE, SECURITY & DEFENCE

The deteriorating security landscape and shifting geopolitical realities have underscored the growing interconnection between Europe's space and defence industries. This chapter explores key **thematic clusters emerging in national and EU policies**, highlighting efforts to strengthen collaboration, enhance industrial competitiveness, and integrate space into broader security frameworks. A particular focus is given to the role of European mechanisms, in fostering resilience and cooperation, in the eyes of national policymakers. The chapter also specifically examines the EU's strategic approach to reinforcing its industrial base, mainstreaming security and defence considerations, and adapting policy frameworks to maximise the impact of EU-funded R&D.

With an emphasis on securing supply chains, and creating opportunities through civil-defence synergies, the analysis provides an overview of how Europe (through national and EU instruments) is positioning itself to better protect its interests and enhance its strategic autonomy.

4.1 Analysis of national space, security, and industrial policies

Not only do European states have prominent responsibilities in security and defence, they are also the driving forces in the domains of space and industrial policy. A review of **78 strategic documents** in areas related to space, industry, and security & defence enables to identify commonalities and differences between them. Doing so, a set of **thematic clusters through which these documents are connected has been established**, providing an overview of shared national views and priorities across the continent. Categories of policy documents reviewed for this section are presented in Annex A. The sample used for this section is comprised of ESA member and associate member states.

Representation of the various countries in each of the clusters can be found in **Annex B**.

Figure 20: Clusters identified in European states' policy documents

An overview of the key priorities brought forward by policymakers within the different content clusters extrapolated from the analysed strategies are presented below.

4.1.1 Supporting space-defence industry collaboration

Given the overlap, national strategies are increasingly viewing **space as a catalyst for the defence industry and vice versa**, while also considering the spillover effects on other industries. Space can therefore be instrumental in the development of cutting-edge defence systems but progress in defence can also spill over to the space sector.

Moreover, institutions are aware that a **sustained and empowered landscape of private actors is fundamental to implement their space and defence programmes**. Beyond a pure contractual relationship, several states highlight the added value and relevance of **public-private synergies and partnerships** in the space and defence industries – going beyond traditional contractor relationships.

4.1.2 Focused competitiveness and resilience & integrated supply chains

Several analysed documents indicate that industrial competitiveness can be increased through measures targeted at the space industry supply chains. **Resilience and sustainability** of supply chains are key objectives for countries with a well-established space & defence industry. Smaller countries with limited capabilities instead prioritise **joining existing supply chains or creating own domestic subsets**.

In addition to bolstering supply chains, the industrial competitiveness of several European states is also characterised by a strong role in the development of niche capabilities and space components or, potentially, leveraging excellence in other high-tech areas (e.g. cyber) that could spill over into the space industry.

4.1.3 Shared views on the need for job creation and upskilling

While not the most prevalent objective, a considerable number of countries address the relationship between space and the labour market, with several of them making **the creation of jobs in the space sector one of their strategic objectives**, which is also shared in the context of several defence strategies.

Some states have strict objectives, such as doubling the number of employees in their domestic space industry by 2025, while others instead prioritise job upskilling with no explicit mention of job creation, suggesting the existence of an already established workforce. Small states also tend to be in favour of **attracting foreign talent** to bolster their capacities.

4.1.4 Integration of space in the security apparatus

Most analysed countries have gradually recognised the security dimension of the space environment. In parallel, most defence strategies now **treat space as an operational domain of its own**, with the exceptions largely being small states with limited or no strategy. While several strategies acknowledge the added value of space **in the conduct and support of military and civil security operations,** they do not necessarily identify specific steps to implement; only a few strategies call for the full integration of space capabilities in combined arms approaches at both a national level and within alliances. Countries that are more reluctant on military matters still recognise the important role of space capabilities in tackling non-military security issues and identify uses in civil protection operations, emergency response, and broader law enforcement operations.

Approaches to dual-use also vary from country to country, with some adopting a "dual-by-default" approach, extending it to all high technologies. Some states broadly recognise space as dual-use but do not reveal any explicit measures or guidelines to embrace it.

> CNES will provide support to the defence industrial and technological base of the space sector and must be able to provide its expertise to the Ministry of the Armed Forces on technological, operational, capability, legal and regulatory matters.
>
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Finally, many a number of countries emphasise the necessity of securing space assets due to **their critical role both in security activities** and at broader societal level. Many commit to space security efforts through participation in European and NATO-led programs. Despite being a necessary tool in the protection of space systems, **cybersecurity measures were not considered a determinant factor** in the cluster due to the increased labelling of cyberspace as its own domain.

4.1.5 Necessity of intergovernmental collaboration

National commitment to multilateral and international collaboration and cooperation in space is addressed unanimously by countries with a space strategy.

In terms of multilateral collaboration in the context of security and defence, several countries state their involvement in EU initiatives such as the European Defence Fund (EDF), and commitment, if applicable, to their NATO obligations. As a matter of fact, the Alliance's recent classification of space as a new operational domain is repeatedly mentioned in multiple strategies. Given this context, some states are particularly involved in **developing defence**

> Thanks to higher participation in ESA optional programmes, Polish companies can acquire or develop technologies useful for security and defence needs or create applications responding to the expectations of Polish users.
>
> **Polish Space Strategy 2017 - 2030**

capabilities in the space sector as part of a broader NATO framework, although recent developments may push countries to seek alternative parallel paths of collaboration.

There is a recurring interest in ESA optional programmes among smaller, mid-size and select larger Member States, which rely on the Agency for their national space activities and stress the added value of its programmes for domestic capability development. **States also see ESA as a tool guaranteeing their access both to the space sector and the European space market.** Mentioned benefits include the effect of the geo-return; ESA's capacity to allow its smaller industrial base to better compete in European projects; return on investment and overall economic growth. The support the Agency gives in developing dual-use technology is also highlighted. Non-EU member states also see ESA as an opportunity to remain connected with other European countries.

In their strategies, several countries **warn against dependence on third countries when it comes to important resources or strategic sectors.** These states address this topic either in their security and defence strategies or in their defence-industrial strategies, highlighting the risks created by dependence are an issue considered beyond the space sector. The main concerns identified in these strategies are often linked to the potential for disrupting supply chains and weakening national industrial bases.

4.1.6 European Union Financing Mechanisms: a focus on the EDF

Several countries highlight the importance of leveraging existing European and, more specifically, EU funding mechanisms to bolster national defence industries. Altogether, while **strategies are not very specific about funding mechanisms** that they consider to use in developing new capabilities.

The main exception is the EDF, which is explicitly addressed on several occasions, recognising its relevance. In fact, the EDF appears as a significant mechanism for some countries, either as a way to elevate national defence industry capabilities or as a tool to further reinforce cooperation and develop collective capabilities. Other perceived advantages of the EDF include **support to SMEs or better access to shared technical knowledge**. This is consistent with the findings explored in the second part of the report, where EDF grants were attributed to a large number of smaller European industrial actors. A detailed overview of other EU mechanisms and policies, which were addressed separately from the clusters, is found in **Annex C**.

4.2 The EU approach: fostering a strong industry to better protect Europe

In recent years, the EU has had to come to grips with a tense geopolitical reality and international crises, leading the Union to take active steps in security and defence. Issues over the security of supply, over-reliance on external partners, and competitiveness are among the dominating concerns. As such, the **Union now considers the strength and readiness of industry as part of its security concerns**, promotes further investment into and engagement with the security and defence sectors, and increases synergies between the civil and security and defence domains.

Over the past few years, the EU has released several strategies and policy documents addressing space, security and defence, and industry matters. In particular, the EU has sought to increasingly expand its reach in each of these realms and connect them together. To better understand EU objectives the following strategic documents were analysed:

Policy documents reviewed	
• European Defence Industrial Strategy (2024) • European Defence Industry Programme (2024) • White Paper on options for enhancing support for research and development involving technologies with dual-use potential (2024) • EU Space Strategy for Security and Defence (2023) • Strategic Compass (2022) • Roadmap on critical technologies for security and defence (2022)	• Action Plan on Synergies between civil, defence and space industries (2021) • Regulation for an EU Space Programme (2021) • Updating the 2020 New Industrial Strategy (2021) • A New Industrial Strategy for Europe (2020) • EU Security Union Strategy (2020) • EU Global Strategy (2016) • European Defence Action Plan (2016) • Space Strategy for Europe (2016)

Table 1: Overview of the EU policy documents reviewed by ESPI

Through its strategies, the EU has identified trends, priorities and areas of interest as well as mechanisms through which it plans to act to fill existing gaps, implement its ambitions and move further on space, security & defence, and industrial matters at EU level.

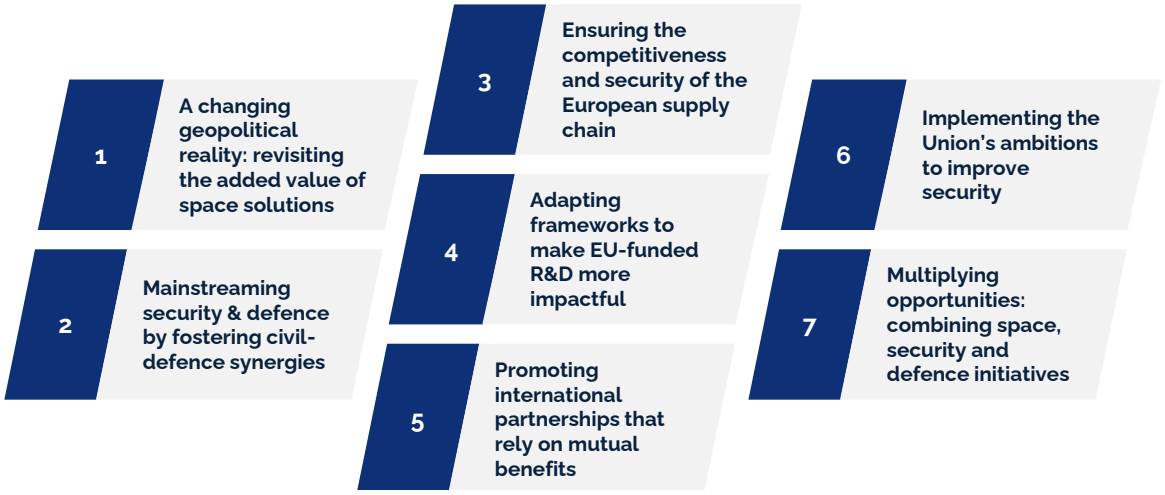


Figure 21: Key themes identified across EU strategies

4.2.1 A changing geopolitical reality: revisiting the added value of space solutions

In the context of multiple crises in its neighbourhood, the European Union has acknowledged the emergence of new threats, such as cyber and hybrid attacks, as central risks to European security.

As threats are rising further, the EU and its Member States are exhibiting acute weaknesses. The **lack of investment in security and defence** that has dominated the last decades has created inefficiencies in the European states' military capabilities. While the Russian invasion of Ukraine and subsequent erosion of the U.S. as a reliable defence partner are driving the overhaul of the European defence ecosystem, these policy shortcomings are further evident.

As a consequence, policy documents call for measures to reinforce the security of the EU, its capacity to develop security and defence capabilities and, to do so in a collective manner – notwithstanding exclusive Member State competencies. To do so, the EU recalls that it needs, together with its Member States, to invest more in capabilities and to support innovation, which is essential if the EU wants to remain on par with its strategic competitors at the technological level. **Space has been identified as one of the areas where such innovation is needed**.

Indeed, the EU has been increasingly involved in the space domain during the past decade and has **made efforts to link it with its security and defence objectives.** Several potential measures have been identified. First, **security requirements should be better included in the EU Space Programme**, including from the outset of the development of upcoming programmes, and linkages between space and defence at large should be reinforced. Second, space should be further integrated as a tool for security and defence, for instance, space capabilities should be more included in security policies to tackle crime and ensure fundamental rights. Finally, there is awareness that rules governing the EU space activities need to be adapted to allow the delivery of security-sensitive solutions.

4.2.2 Mainstreaming security & defence by fostering civil-defence synergies

One of the approaches emphasised by the EU to increase its role in security and defence is to integrate them into its broader policy portfolio and foster links between civil and defence domains.

Indeed, the EU acknowledges that the lack of cross-fertilisation between civil, defence and space activities has several negative effects. In particular, this creates dependence on foreign actors for critical technologies, leads to duplication of efforts and impacts the efficiency of EU programmes. Moreover, instruments to foster cross-fertilisation between civil and defence Research & Development (R&D) are lacking as well, which has

a negative impact on the creation of spin-out from civil R&D to defence applications and from defence R&D to civil applications as well as on the R&D of technologies with a dual-use potential.

To solve these issues, **the EU first plans to mainstream security and defence across EU policies and instruments**, in particular by making sure that the latter takes into account the needs of the actors of this sector and supports their fulfilment. Beside this mainstreaming effort, active measures to **break silos between civil and defence** are encouraged. The main objectives sought after are to avoid duplication of efforts and intensify the resilience of EU supply chains across the board.

To ensure cross-fertilisation, the EU has been designing steps to **increase synergies between the civil, space and defence industries.** The importance of mapping and implementing these synergies is acknowledged by several documents and the New Industrial Strategy for Europe (2020) considers them as key to ensuring that European stakeholders make better use of their resources and create economies of scale. Specific examples illustrating these synergies include the **intent to increase the number of services provided by EU space programmes to support security and defence** as well as the support of a **"dual-use by design"** approach, including for flagship projects and the future generations of EU space systems.

4.2.3 Ensuring the competitiveness and security of the European supply chain

One of the key preoccupations of the EU, in line with its mandate in economy and trade, is to ensure that **European industry in the defence and space sectors remains competitive**. Additionally, crises that have disrupted and stretched supply chains, the EU is looking to bolster its security of supply within the security and defence sectors.

As acknowledged in EU documents, the competitiveness of European industry is challenged. Over past decades, the relative decrease in investment in security and defence has led to reduced budgets and inefficiencies in managing resources, which have negatively impacted industry. In addition, the EU is concerned with the current fragmentation of the European security and defence market, mainly caused by the primacy of national approaches over these matters (in terms of funding and definition of objectives) and the potential differences that ensue from one state to another.

Moreover, this scattered approach, according to the EU, also creates **challenges regarding the interoperability of armament and equipment produced** and adds pressure on supply chains due to the lack of coordination that results. In parallel, only a few opportunities exist for the conduct of common defence industrial projects and cooperation on this front is limited. Almost paradoxically, in the European Defence Action Plan (2016), the EU also recognised a lack of competition in the EU defence industry and aimed to improve it.

4.2.4 Adapting frameworks to make EU-funded R&D more impactful

R&D is an area of specific interest for the EU, in particular, due to the important financial support that it has provided to these activities over the past decades. One main gap identified by the European Commission is the **difficulty to quickly and fully exploit and commercialise the results of EU-funded R&D, including those with dual-use potential.** To bridge this commercialisation gap, the EU calls for more support from Member States.

However, the EU is also willing to act by itself and expresses its agency in several documents. Thus:

- The EU promotes R&D, including by fostering engagement with industry partners, and through the creation of a European Innovation Hub for Internal Security hosted by Europol.
- The EU claims that part of the defence budget (and ongoing increases in these expenditures) should be allocated to R&D; it also stresses that the increase in collaborative investment expected at EU level will also contribute to R&D activities.
- The EU also wants to support R&D in a variety of areas, including access to space and in-orbit servicing.

Recently, the EU has also prepared **an approach for the funding of dual-use R&D.** This is in line with the strategy aiming to improve cross-fertilisation, reinforcing the interaction and integration between the civil and defence dimensions of R&D, and leveraging synergies between the two.

4.2.5 Promoting international partnerships that rely on mutual benefits

The international dimension is present in most EU policy documents, although it **rarely constitutes the backbone.** On the one hand, the EU recognises that dependence on non-European partners has reduced its strategic autonomy, and is seeking to move away from this dependence, for instance through mechanisms such as Important Projects of Common European Interest, which allow to pool resources to produce solutions. On the other hand, international collaboration is not discouraged, but the documents emphasise that it should be implemented on a mutually beneficial basis for the EU, Member States, and private actors.

Most of the documents, addressing both space and security & defence, **explicitly reference NATO.** These mentions are usually general and call for further collaboration with the Alliance to tackle common challenges. However, in certain cases, the reference to NATO goes into more detail; for instance, the EU Space Strategy for Security and Defence (EU SSSD) calls for greater coherence with NATO standards to ensure the security of space assets, particularly from a cyber perspective.

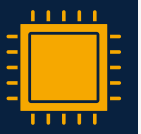
4.2.6 Implementing the Union's ambitions to improve security

To achieve its ambitions and implement the measures proposed in its policies, the EU also designs and promotes a variety of instruments. The below list provides a selection, which can be particularly relevant in the context of the interaction between space, security and defence, and industry.

Standardisation and certification: the EU is increasingly willing to promote the development of standards, including related to space data and cybersecurity, as well as hybrid standards that would apply to both civil and defence domains. Similarly, the establishment of the mutual recognition of certifications is presented as a step that should be considered to support collaboration. The main rationale is to improve interoperability between the different capabilities developed but also to enhance the competitiveness of the European industry.

Another proposed tool is the setup of **industrial alliances** in strategic domains to reduce dependencies and support innovation and inclusion of SMEs and start-ups. In the space sector, an Alliance on Space Launchers was once considered to ensure globally competitive and autonomous European access to space but eventually did not come to fruition. However, the EU SSSD (2023) still perceives industrial alliances as a solution to explore developing technologies related to space and defence.

The **procurement** aspect is considered a relevant tool to support common efforts in defence and space. The EU plans to facilitate joint activities in this area, push for an adaptation of procurement rules (including to protect the EU supply chain and its security of supply), and incentivise procurement of innovative technologies. With regard to joint procurement, the European Defence Industrial Strategy (2024) in particular proposes several measures: extension of the logic of EDIRPA, which supports the joint procurement of defence products to form a "lead nation framework" through which a Member State can use its existing national framework contracts with EU-based manufacturers to procure additional quantities on behalf of others.



The EU established an **Observatory of Critical Technologies** to identify, monitor and assess critical technologies and technology gaps in the space, defence and civil sectors. It also supports the review and identification process of key and sensitive technologies for the EU. The Observatory's activities give way to classified reports and technology roadmaps, which can lead to concrete actions and support cross-fertilisation.

Finally, several documents make reference to **Important Projects of Common European Interest (IPCEIs)** / European Defence Projects of Common Interest as tools to reduce strategic dependence on non-European sources by facilitating the pooling of resources among Member States, therefore enabling large-scale cross-border projects

Through its strategies, the EU has therefore proposed or set up specific mechanisms that can help it achieve its objectives to ensure the security of the Union and keep a competitive industry. In addition, several specific initiatives have been established recently in the security & defence realm, which are also highly pertinent to the space sector and industry and may contribute to fostering future efforts at the nexus of these three domains.

4.2.7 Multiplying opportunities: combining space, security and defence initiatives

In its efforts to address security and defence, the EU has set up different initiatives through which it can stimulate the ecosystem and enhance European capabilities. Most of these initiatives also have a space and/or industrial dimension, which can enable the Union and its Member States to reach their objectives at the nexus between space, security & defence, and industry.

Although they all fall under the umbrella of the EU, the entities in charge of these programmes and projects are diverse. **Three main actors can be identified:** the European Defence Agency, the European Commission, and Member States. Other organisations also contribute to these efforts.

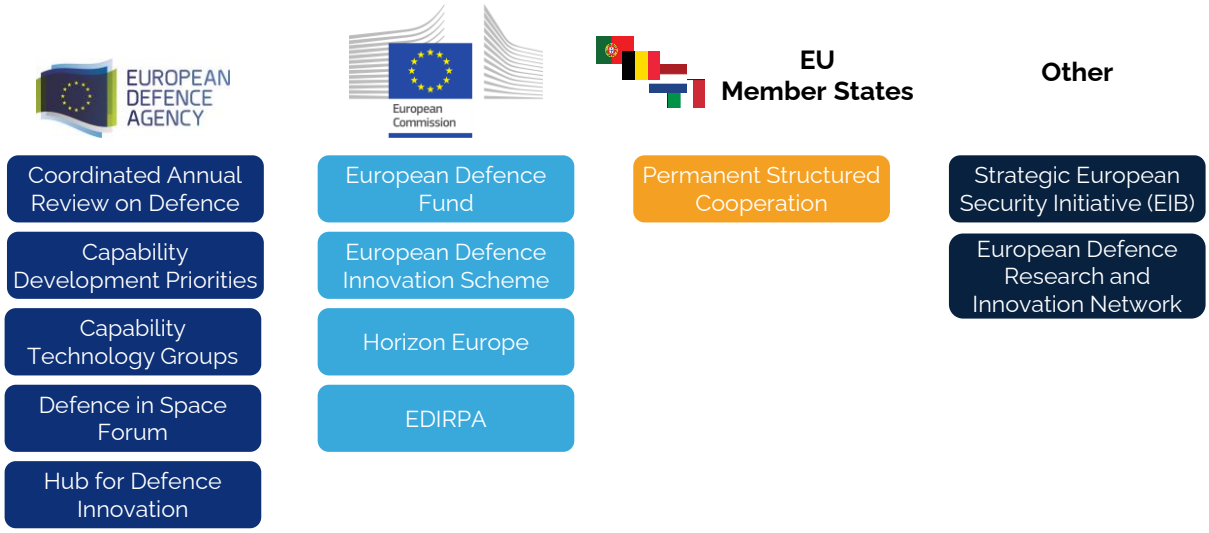


Figure 22: EU initiatives connecting space, security & defence, and industry

A detailed description of these initiatives as well as their relevant space and/or industrial components can be found in **Annex C** of this report.

5 KEY TAKEAWAYS AND OPEN QUESTIONS

With an analysis of approximately 100 national and EU policy documents and almost 300 industrial agreements explicitly targeting security and defence, four distinct takeaways have been identified that should be taken into account when designing and implementing future policies on space fir security and defence.

Figure 23: Four Key Takeaways identified in the study

Takeaway 1: Civil and military technologies are not distinct

The technology integrated into civil and military contracts is fundamentally comparable. In particular, the **components and building blocks of the space systems** that are used for military applications are usually similar to those developed for the civil market. The "defence" dimension is often added at a later stage, at the system design level.

Similarly, **civil and military R&D feed each other**: while results of the R&D performed in a military context can prove useful for civil programmes, civil companies also contribute to derisking technologies that can then be leveraged by military actors. Despite these similarities, the industry still applies specific rules and procedures when handling military contracts (e.g. clearance, protection of buildings, export control, etc.) inevitably creating additional costs.

Beyond the duality of space technology, other trends contribute to the growing entanglement between the civil and military spheres. A prime example already in place is the **integration of military payloads as hosted payloads on civil satellites**, thus paving the way for "civil-military satellites".

In addition, civil space solutions are **directly integrated into future defence or weapons systems**. This is a precondition if military actors want to make the most of space systems and efficiently maintain them, however, such integration will not be performed by space companies (even when their solutions are used) but by **defence integrators**.

Consequences of dual-use space assets

The dual-use nature of space solutions is seen as a blessing and a curse by industry actors. While companies are able to attract interest from a growing number of customers and expand their addressable markets, the technologies they develop become sensitive. This creates additional constraints, including potential hurdles in export, financing and liability. A concrete example of this trade-off between benefits and disadvantages is the one of "civil-military satellites": while enabling additional revenues, it also raises questions about their protection.

Takeaway 2: The Space industry is a precondition for a serious security & defence policy

For the past decades, governmental actors have been relying on industry to develop the space capabilities that they need for their military activities. A major part of the skills and experience required to develop and manufacture relevant systems, therefore, lie with private actors. For this reason, **the development and preservation of a strong industry is a prerequisite for the achievement of Europe's security and defence policy and objectives.**

But to reach this stage, the industry needs to be supported. As a set of established European space companies are currently facing difficulties in relation to their profitability, **the security and defence market is perceived as a promising avenue** to withstand this difficult context and open perspectives for future growth. Increasing the demand for space security and defence solutions could help create a domestic market for defence, which is today inexistent or very limited.

Thus, there is a **mutual need** for the European space industry and security and defence actors to support each other to enhance the protection of the continent through the establishment of close relations and, potentially, more advanced types of public-private partnerships.

Takeaway 3: The space industry is customer-agnostic

The European space industry is open to supporting security and defence actors, including companies traditionally oriented towards the civil market. Most companies do not have an ideological approach and **are rather agnostic towards defence contracts** and simply see defence customers as new opportunities to sell their products or services.

Moreover, as mentioned in Takeaway 1, companies usually refine existing products to match security requirements. **They are often indifferent towards the exact application of their product, service or data by end users.** Yet, they remain willing to properly explain the limits of the product/service to the military customer, as being transparent on the missions that can be accomplished with their solutions is necessary to become a trusted partner.

While companies are agnostic, several steps can be taken to anticipate and/or facilitate cooperation with security and defence actors. For instance, companies already strive for their services to be **highly secured**, even if they are offered to civil actors only; some of them also offer **enhanced services** providing extra security and/or exclusivity, making sure that the data can be accessed by the paying customer only (therefore also supporting confidentiality). Finally, "acting responsibly" can be rewarding and, for this reason, companies take into account the geopolitical context and ensure alignment with the interests of their key customers (e.g. by avoiding operating critical infrastructure such as ground stations from countries that are perceived as a threat by Europe; by having a "moral compass" while selecting their customers, etc.).

Takeaway 4: The Defence industry is shifting its attention to the space sector

While traditional space companies are increasingly involved in initiatives boosting European security and defence through space, another type of actor has emerged recently: **defence companies willing to apply their expertise in this field to the space domain.**

One tool used by these companies is to **invest in or acquire space companies,** usually with the objective of integrating them into their whole structure and using them as their main vehicle to conduct their space activities or to leverage the complementarities they provide to the other portfolios of the group.

Defence companies also **rely on their existing strengths** in the defence sector (e.g. expertise in niches, development of specific technologies) and try to adapt and apply them to the space field. As an example, several of these companies are interested in advancing responsive launch due to their expertise in missile technology or in systems that can be used as launch vectors.

Finally, **upstream and manufacturing seem to remain the primary focus** for defence companies operating in the space domain. Perhaps surprisingly, downstream has not been identified as a major axis of development, thus opening perspectives for the diversification of defence actors in space security and defence.

5.1 Open questions amid rapid shifts in Europe's security posture

Given the seismic shifts in global geopolitics following the consolidation of this report in early 2025, most of Europe is now compelled to fundamentally question its traditional security posture and unravel existing dependencies. This is leading to yet another wave of political declarations and strategic documents, such as the Joint White Paper for European Defence Readiness 2030 published in March 2025.

This time, however, the declaratory messaging is backed by tangible plans to fund national and pan-European defence activities both through **national frameworks**, reflected in Germany's unlocking of a record level of state borrowing for defence and infrastructure, as well as European frameworks, such as EU's ReArm Europe plan, providing €150 billion of EU-backed loans to Member States for defence investment.

The role of space in managing a deteriorating security landscape and shifting geopolitical realities therefore leaves a number of open questions European policymakers need to address in 2025.

Figure 24: Open questions for European policymakers

Integrating space into Europe's place to bolster its defence capabilities

As the space and defence industrial bases (re)converge, their respective strengths need to be leveraged to maximise the benefit for Europe's future space security and defence capability portfolio. Only by **fully integrating space into Europe's (EU, minilateral, national) future defence capability landscape** will we ensure that these once-in-a-generation investments **are futureproofed** and can leapfrog European defence into the future, as space is becoming ever more indispensable for modern military systems

Doing so will, however, require a more hands-on approach to Europe's perennial questions on governance and dual-use research and procurement limits. Artificial barriers in developing space technologies need to be brought down, and the full breadth of European actors leveraged if we are to have a fighting chance in building a futureproof European security & defence architecture through space.

Satisfying national priorities, expectations and requirements

Today, national customers **prioritise domestic industry in 78% of contracts** identified and analysed in this study. This suggests that national security actors, on both the security & military front, simply trust their domestic industry more and likely also see a role for themselves in sustaining the national industrial base.

As Europe **returns to the drawing board to design** its future security and defence architecture, including ideas on more collective approaches, national priorities and expectations will inevitably still have a preeminent role in discussions and decisions on common security and defence programmes. For the foreseeable future, irrespective of the framework, **countries will advocate for their fair share of industrial return** beyond a pure free market approach to ensure the development of their domestic defence industrial base and its long-term profitability.

Relations with the UK, Norway and Switzerland in space security & defence

A European approach to supporting the development of space for security and defence will inevitably need to follow patterns of general European cooperation in defence. Greater inclusion of the non-EU European partners such as the UK, Norway and Switzerland is thus imperative due to their strategic strengths and unique assets. The UK, as one of the leading industrial bases in Europe's security fabric, is actively involved in discussions on the continent's future in collective defence. The UK's increasingly influential role in European unity and political drive towards the war in Ukraine, alongside France, are vital for guiding the continent's priorities and values. **In parallel, as the transatlantic relationship between Europe and the U.S. deteriorates, the UK will also need to reevaluate its posture** and decide how much it wishes to rely on the U.S. over Europe for security and defence support.

Norway's developed space architecture in the Nordic region and the High North makes the country a vital player for both NATO and the EU when it comes to their ambitions in the Arctic. Kongsberg is already strengthening its position in the space sector, and the country is carving out niche capabilities in areas such as maritime surveillance, while its northern territories are essential for ground infrastructure and as a launch base for specific mission requirements. Finally, Switzerland's approach to international relations is signalling potential shifts towards greater engagement on security-related questions with Europe, with Europe positioned to benefit from the countries' world-leading innovation ecosystem. Since 2024 Switzerland hosts the European Space Deep-Tech Innovation Centre, while the Swiss Space Policy explicitly states ambition in further developing SSA and GNSS capabilities – two critical enablers in Europe's security and defence ambitions.

The long-term effect of private-to-private partnerships and integration

A wave of private-to-private partnerships **might be quietly reshaping the European space-defence nexus**. From startups like Helsing partnering with Loft Orbital to established defence companies such as Rheinmetall or Saab collaborating with ICEYE, the partnerships reflect a shift in how space capabilities and services are conceived, developed and exploited. Unlike traditional government-driven programmes, these examples symbolise the integration of space as an enabler of innovation in other sectors through need-based demand and prioritising agility.

This is a true test for space and its **added value as a transversal enabler of innovation** across different sectors – starting with defence but continuing in automotive, agriculture and energy. Against this backdrop, the question becomes: How can European space (and armament) agencies evolve their tools and programmes towards next-gen innovation while effectively harnessing this momentum in private-to-private collaboration?

Investing in international cooperation frameworks beyond Europe

International cooperation features only to a limited extent among the main priorities outlined in the national space strategies of European states. The consistent message across strategies involved focusing on enhancing cooperation with NATO. However, as the solidity of NATO comes increasingly into question due to U.S. mistrust of the Alliance, **Europe needs to embark on a new approach and strengthen partnerships with like-minded partners.**

Bolstering bilateral relations with overseas partners such as **Australia, Canada, Japan and the Republic of Korea,** for instance, should become a priority action for the region moving forward. As countries are similarly caught amid power politics from larger geopolitical powers, there are several benefits to gain from cooperation.

Integrating military requirements into the EU Space Programme

Finally, a large part of Europe's space infrastructure, while serving civil and military users, **does not fully embed military requirements and standards into system design and operations**. This is understandable given the development of most existing infrastructures with civil use cases in mind and the additional operational burden and higher costs such an approach would entail.

However, if the EU Space Programme was explicitly called to embed military-level risk tolerance, performance criteria, and operational structures into future infrastructures, the **financial implications would be substantial**. Whether Member States, notably national MoDs, are ultimately prepared to stomach such additional costs through a collective programme without full control of the contractual relationship remains an open question—one that will need to be addressed in the context of the upcoming Multiannual Financial Framework negotiations.

Prospects for scaled-up manufacturing & production

Given the status of the European defence industrial base, the **challenge of scaling up production** to meet minimal European strategic autonomy has been the subject of numerous national and EU-level initiatives. While actors such as Germany's Rheinmetall and Poland's PGZ have spearheaded efforts to scale up sectors like ammunition production, a similar question arises as to whether European actors can **industrialise space asset production at a comparable pace and scale if called on**.

Amid growing calls to increase satellite production for future constellations or overcome launch vehicle bottlenecks, it remains unclear who will rise to the challenge. The European space industry has never faced demands for large-scale, serial production of satellites. Given their experience with the sustained mass production of complex systems, the industry-to-industry partnerships may prove valuable. Emerging **partnerships between the defence and space sectors** could further reinforce, raising the question of how far relationships such as those between NanoAvionics and Kongsberg or ICEYE and Rheinmetall will impact the space sector at large.

On the establishment of a European DARPA

Recent discussions calling for a **European equivalent** to the U.S. Defense Advanced Research Projects Agency (**DARPA**) evoke a continental push towards defence innovation. President Emmanuel Macron's speech in 2024 at the Sorbonne explicitly praised the work of the European Innovation Council (EIC) but reiterated the need for Europe to embrace an approach similar to DARPA towards spurring rapid innovation in the midst of internationally shifting dynamics. The Draghi Report points out the meagre EUR 256 million budget in 2024 for the European Innovation Council's Pathfinder (EIC) instrument compared to DARPA's USD 4.1 billion.

As Europe moves to enhance its autonomy and technological sovereignty, establishing an expert-driven framework to spur defence innovation continuously emerges as a crucial topic in the discourse on new European security and defence requirements. As elaborated earlier, such a structure should also consider including key non-EU European partners such as the UK, Norway, and Switzerland.

An open question remains: To what extent would space be integrated into such a new structure? If so, would it primarily remain driven by existing frameworks? If included, this would also bring implications for established actors, particularly ESA, regarding its potential shift either more exclusively towards science and exploration or more explicitly targeting dual-use or defence-oriented objectives and further maximise its innovation excellence.

ANNEXES

Annex A – National policy documents reviewed

Country	Industrial strategies	Space strategies	Security & Defence strategies	Space security & defence strategies
Austria		X	X	X
Belgium	X	X	X	
Czech Republic	X	X	X	
Denmark	X	X	X	
Estonia	X	X	X	
Finland	X	X	X	
France	X		X	X
Germany	X	X	X	
Greece	X			
Hungary	X	X	X	
Ireland	X	X	X	
Italy		X	X	X
Latvia		X	X	
Lithuania			X	
Luxembourg	X	X	X	X
Netherlands	X		X	X
Norway	X	X	X	
Poland	X	X	X	
Portugal		X	X	X
Romania	X		X	
Slovakia		X	X	
Spain	X		X	X
Sweden	X	X	X	X
Switzerland		X		
United Kingdom	X	X	X	X

Annex B – Representation of European countries in the identified clusters

Space-Defence-Industry collaboration

Space as a driver of Defence Industry / Defence as a driver of Space Industry

Knowledge transfer from research/academic institutes to industry (space and defence)

Public-Private Synergies in Space and Security Strategies

Competitiveness and supply chain

Seeking to join or acquire a major role in European/global space supply chain

Securing the resilience and sustainability of national and international supply chains

Niche-based space sector

Job Creation and Upskilling

Job creation and upskilling for fostering or attracting talent

	Space-Defence-Industry collaboration	Competitiveness and supply chain	Job creation and upskilling
Austria		✓	✓
Belgium		✓	
Czechia	✓	✓	✓
Denmark	✓	✓	✓
Estonia	✓	✓	✓

Finland			
France			
Germany			
Greece			
Hungary			
Italy			
Ireland			
Latvia			
Lithuania			
Luxembourg			
Netherlands			

Norway			
Poland			
Portugal			
Romania			
Slovakia			
Slovenia			
Spain			
Sweden			
Switzerland			
United Kingdom			

Integration of Space in the Security Apparatus

- Integration of Space Capabilities within armed forces
- Space capabilities in support of security, foreign policy, emergency response
- Dual-Use Approach
- Protection of Space Assets

Necessity of Intergovernmental Collaboration

- For Capability development and access to services otherwise unattainable
- Sees ESA as a critical actor
- Defence Collaboration in Space
- Reducing third-country supply-chain dependence

European financing mechanisms

- Recognises the utility of European Union financing mechanisms for space and security activities.

	Integration of Space in the Security Apparatus	Necessity of Intergovernmental Collaboration	EU Financing Mechanisms
Austria			
Belgium			
Czechia			
Denmark			
Estonia			

Finland			
France			
Germany			
Greece			
Hungary			
Italy			
Ireland			
Latvia			
Lithuania			
Luxembourg			
Netherlands			
Norway			
Poland			
Portugal			

Romania			
Slovakia			
Slovenia			
Spain			
Sweden			
Switzerland			
United Kingdom			

Annex C – List of initiatives at European level

Initiatives and programmes led by the European Defence Agency

Coordinated Annual Review On Defence (CARD)

Overview & Aim: CARD is a biennial review conducted by the EDA, which provides an overview of the capability landscape in Europe as well as opportunities for cooperation between Member States. It aims to support gradual synchronisation and mutual adaptation of national defence planning cycles and capability development practices.

Industrial dimension: CARD 2022 recommends that EU defence initiatives are mainstreamed in national defence planning and policy documents, including industrial ones. It also intends to reduce existing industrial dependences. The focus areas identified by CARD include, among others, an industrial dimension and one of their objectives is to improve the competitiveness of the EDTIB.

Space dimension: "Defence in Space" (including access to space services and the protection of space assets) has been recognised as a focus area in the latest CARDs.

Capability Development Priorities (CDP)

Overview & Aim: Through the CDPs, EDA assesses Member States' capabilities and identifies priorities that need to be addressed at European level. CDPs are the baseline for all EU defence-related initiatives, which aim at implementing them, but should also serve as a reference for national planning.

Industrial dimension: *No specific mention of industrial objectives or actions.*

Space dimension: "Space operations" and "space services" feature as two of the 22 categories of identified priorities in the 2023 CDP Report. "Space operations" are further sub-divided into SSA, access to space, and protection of space assets, while "space services" include EO, PNT, and satcom.

Capability Technology Groups

Overview & Aim: The EDA has established Capability Technology Groups (CapTechs), which identify technology gaps in specific R&T areas, assess them and elaborate roadmaps to fill them through concrete projects. A CapTech Space was recently created.

Industrial dimension: Along national coordinators and governmental experts, participants to CapTechs also include non-governmental experts, which can propose R&T projects and studies. These non-governmental experts can be representatives of the industry, SMEs or academia. CapTechs also act as an interface between Ministries of Defence and industry. Dedicated industry workshops are also organised by CapTech Space.

Space dimension: A CapTech Space started working in January 2023. It focuses on a variety of topics: space support to operations; future data processing and analysis capabilities; space support, availability and sustainability; complementary R&T developments for defence; interoperability and secure information sharing.

Defence in Space Forum

Overview & Aim: Established following the second CARD cycle in 2022, the forum is composed of Member States, the EEAS and invited experts to identify common approaches to defence capabilities in space. The forum aids in identifying military requirements, defining priorities and promoting cooperation in space among Member States. It is also a way to represent Defence interests in the EU Space Programme.

Industrial dimension: *No specific mention of industrial objectives or actions.*

Hub for Defence Innovation (HEDI)

Overview & Aim: Established within the EDA, HEDI is a platform to stimulate and facilitate cooperation on defence innovation among Member States while ensuring synergies with related European Commission activities. Activities among the portfolio of HEDI include a "proof-of-concept/demonstrators" stream to bring technology to higher TRL, European defence innovation shows, innovation challenges, etc.

Industrial dimension: HEDI's European Defence Innovation Days is an event that brings together a variety of actors for panel discussions and exhibitions, which include booths from Member States, start-ups, and SMEs. Additionally, the EDA Innovation Prize is aimed at non-traditional defence industries and is open to all types of industries, including commercial actors, large companies, SMEs and start-ups.

Space dimension: In 2023, the domain selected for proof-of-concept was space. HEDI funded a preliminary study of VLEO military satellites.

Initiatives and programmes led by the European Commission

European Defence Fund (EDF)	**Overview & Aim:** The EDF supports joint R&D projects for defence products and technologies, complements national funding, and establishes a collaborative approach for defence R&D with a budget of ~€8 billion for 2021-2027. **Industrial dimension:** The EDF aims to enhance the competitiveness, innovation, efficiency and technological autonomy of the Union's defence industry. Additional objectives include boosting the competitiveness of the EDTIB, pooling resources, and defragmenting the EU industrial market. **Space dimension:** Space has been identified as one of the EDF categories of action, and 10% of the EDF budget is expected to be spent on space projects. In 2021-2022, five projects were funded for an amount of €200 million; and space-related calls for 2023-2024 amount to €175 million. The EDF calls for proposals 2024 include projects for multi-source satellite image analysis and secure waveform for satellite communications.
European Defence Innovation Scheme (EUDIS)	**Overview & Aim:** As part of the EDF, EUDIS offers a set of instruments to SMEs, start-ups, and non-traditional companies to facilitate their participation in the EDF. The scheme puts forward €2 billion to foster innovation in the defence sector. **Industrial dimension:** Actions under EUDIS aim to empower SMEs, improve access to finance for upscaling, test and accelerate innovation ideas, and migrate innovation from civil to defence-specific needs among others. **Space:** *No specific mention of the space sector.*
Horizon Europe	**Overview & Aim:** Horizon Europe is the main EU programme for the funding of research and innovation, with a budget of €95.5 billion for the period 2021-2027. The programme strives to help reach the UN's Sustainable Development Goals and strengthen research and innovation in the EU by supporting cross-border projects. **Industrial dimension:** The objectives of Horizon Europe include reinforcing European industrial competitiveness and support the uptake of innovative solutions in industry (in particular SMEs and start-ups). **Space:** Space is fully integrated into the Digital, Industry and Space cluster in Pillar II, which includes a budget of €1.5 billion for Space (destination 5). The latter seeks to enhance the operational "EU Space Programme" components and the competitiveness of the EU space sector. In the 2022-2023 call for proposals of the programme, more than €166 million were allocated to space projects, of which 23.3% of selected participants were SMEs. Other activities under pillars I and III are also sources of funding for space (e.g., European Innovation Council, CASSINI, etc.)
European defence industry reinforcement through common procurement act (EDIRPA)	**Overview & Aim:** EDIRPA seeks to address the most critical and urgent defence capability gaps of the EU and incentivise joint procurement of defence products among Member States. **Industrial dimension:** One of the goals of EDIRPA is to provide the EU defence industry with stronger and more long-term signals to ramp-up its manufacturing capacities and make the defence market ready to face a changed security environment. **Space dimension:** *No specific mention of the space sector.*

Initiatives and programmes led by Member States

Permanent Structured Cooperation (PESCO)	**Overview & Aim:** PESCO is a mechanism bringing together 25 participating states with the aim to jointly plan, develop and invest in shared capability projects. Ownership and control of the projects' outcomes conducted under PESCO remain with Member States. Commitments taken by participating states in the context of PESCO are legally binding. **Industrial dimension:** One of the objectives of PESCO is to strengthen the EDTIB and make it more competitive via an appropriate industrial policy that avoids overlap. **Space dimension:** There are four space-related projects within PESCO – Common Hub For Governmental Imagery (for the exchange of classified governmental imagery), European Military Space Surveillance Awareness Network (to develop sovereign EU military SSA capability), Defence of Space Assets (to increase the EU's operational efficiency in space), and the EU Radio Navigation Solution (for military PNT)

Other EU initiatives and programmes

Strategic European Security Initiative (SESI)	**Overview & Aim:** SESI is a mechanism through which the EIB funds projects addressing dual-use products, services and technologies in Europe, with a budget of €8 billion for the 2022-2027 period. **Industrial dimension:** The initiative finances activities involving dual-use R&D&I, civilian security infrastructure, and breakthrough technology projects. **Space dimension:** Space is a targeted sector under the initiative. Through one of the projects, SES received a loan of €300 million to provide advanced broadcast and broadband services in Western Europe, Africa, and the Middle East.
European Defence Research and Innovation Network (EDRIN)	**Overview & Aim:** EDRIN is a group of independent, not-for-profit research organisations that strive to coordinate the voice of RTOs in defence R&D, integrate RTOs of this sector, provide a network of partners, and provide strategic roadmapping, among others. **Industrial dimension:** Partners of the network reach out to the entire defence value chain, including through high-TRL collaborations with the defence industry. **Space dimension:** Some members are involved in space research and technological development including ONERA, TNO, and FOI.

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