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Space, a strategic sector at the heart of the challenges of innovation, sovereignty and resilience

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The space industry provides essential services in a wide range of fields (agriculture, maritime surveillance, climate crisis management and monitoring). It also plays a major role in civil and military communications and geolocation services.

Structured around major groups, equipment manufacturers and a network of small, diversified and interdependent companies, the French space industry stands out for its technological dynamism, innovation and export competitiveness.

Space companies are twice as likely to file patents as other companies in the manufacturing sector. Companies in this sector also have a trade surplus 7bn by 2023.

The major changes taking place in the space industry (the rise of *New Space*, increased use of military applications, the challenge of sustainability) mean that public support for the industry needs to be stepped up, as demonstrated by the latest France 2030 guidelines.

1 The French space industry: a strategic pillar for the economy, research and sovereignty

Space activities cover both an upstream and a downstream segment (*see* Box 1). The upstream segment covers activities ranging from research and development (R&D) to the manufacture and launch of a space object. The downstream segment covers activities involving the supply of products and services based on satellite data (operations, data distribution, user terminals, connectivity services, value-added services based on space data, *etc.*).

BOX 1 Is space a "one trillion economy"?

The Draghi report on the competitiveness and future of the European Union (EU)¹mentions space as the future "*one trillion economy*" worldwide. It is based on a study by the *World Economic Forum* and *McKinsey* which projects a growth trajectory for the space sector of 9% per year worldwide by 2035, with the United States and China as the main players².

As the Organisation for Economic Co-operation and Development (OECD)³points out, estimates of the value of the space economy can vary by as much as a factor of two, depending on the field of activity selected. Taking into account only public investment in the sector, the OECD estimates the size of space activities at €66bn or 0.1% of GDP in OECD countries in 2022⁴. Taking into account the downstream applications of space activities, in particular satellite navigation, the European Commission estimated that around 10% of the European economy depended on the space sector in 2018⁵.

¹ Draghi Report, "The Future of European Competitiveness", Part. B, Section 1, Chapter 8 Space, 2024. Link

² World Economic Forum, McKinsey, "Space: The \$1.8 Trillion Opportunity for Global Economic Growth", 2024.

³ OECD, "Handbook on Measuring the Space Economy. 2nd Edition", 2023.

⁴ OECD, "The Space Economy in Figures: Responding to Global Challenges", 2023.

⁵ European Commission Working Document, "Impact Assessment for the EU Space Programme (2021-2027)", 2018. The report particularly highlights the contribution of navigation.

The definition of the French space industry depends on the scope of activities used, which differs from one observer to another. In its survey of the aerospace industry carried out in 2020, the French National Institute for Statistics and Economic Studies (INSEE) includes all companies whose activity is wholly or partly related to space in its upstream segment, including service companies in the tertiary sector⁶. The Centre national d'études spatiales (CNES) - the French space agency - uses a scope that includes all space companies positioned in the upstream and downstream segments, but excludes second-tier suppliers (service companies in the tertiary sector, for example). Several projects are underway at the European Space Agency (ESA), Eurostat and the OECD to converge on a common perimeter⁷.

A An industry structured around a number of major players and diversified equipment manufacturers

CNES estimates that there will be more than a thousand companies in the French space sector by 2022, evenly divided between upstream and downstream activities, of which around 90% will be small and mediumsized enterprises⁽⁸⁾ (SMEs) and intermediate-sized enterprises⁽⁹⁾ (ETIs). According to the agency, the French space sector represents between 65,000 and

70,000 people, divided between the upstream segment (around 30,000), downstream segment (around 30,000) and the academic sector (5 to 10,000)¹⁰. In a study carried out in 2024, the Groupement des Industries Françaises Aéronautiques et Spatiales (GIFAS)¹¹estimated the number of people in the industry dedicated to upstream space activities at around 19,000 full-time equivalents.

The survey of the aerospace industry carried out by INSEE for mainland France in 2020 has a different scope¹². It paints a picture of a dual industry⁽¹³⁾ (23% of the companies surveyed work together on military programmes), structured around major groups such as *AIRBUS Defence and Space and Thales Alenia Space*,

⁶ Aerospace industry survey 2020 (Insee). According to Insee, all "establishments employing at least one employee dedicated to space" fall within the scope of the industry. According to Insee, the NAF code (nomenclature d'activités française) to which space belongs also includes aeronautical and ballistic activities (manufacture of missiles). A new update of the INSEE survey, based on data from 2024, is scheduled for 2026.

⁷ For the purposes of this publication, we use the INSEE perimeter applied, where possible, to space activities only.

⁸ Small and medium-sized enterprises employ fewer than 250 people and have a n annual turnover not exceeding €50m or a balance sheet total not exceeding €43m. They include micro-businesses.

⁹ Mid-sized companies have between 250 and 4,999 employees and annual sales not exceeding €1.5 billion or total assets not exceeding €2 billion.

¹⁰ CNES, Space Economy Observatory, 2022.

¹¹ GIFAS, "Situation de l'emploi en 2024-2025 dans l'industrie aéronautique et spatiale", 2025.

¹² This publication updates the figures published by INSEE in 2022 using other sources, while retaining the scope of the survey.

¹³ The business is aimed at both civil and military applications.

ArianeGroup or Safran, which generate significant sales and on which a multitude of highly diversified subcontractors and equipment suppliers depend. For example, of the 1,675 companies that generate part of their sales in the space sector, the survey counted only 60 *pure-players*¹⁴, but a high proportion are active in both the aeronautics and space sectors (around 1,300 companies).

In 2020, the space-related sales of companies identified as belonging to the space industry by the INSEE survey will be less than €11 billion. Sales specifically dedicated to space activities appear to be relatively low. For half of the companies, the proportion of sales dedicated to space is less than 3%. On average, it is just 11%.

Companies in the sector employ nearly 32,000 people dedicated to space activities. Occitanie is the leading region for employment in space-related activities, with 38% of the workforce⁽¹⁵⁾ (*see* Figure 1). 60% of space-related jobs are concentrated in large international companies⁽¹⁶⁾ (EGs) and 26% in ETIs¹⁷.

Figure 1: Workforce dedicated to space activities in space industry establishments by region in mainland France in 2020



Note: there are also 534 employees dedicated to the space industry in French Guiana.

Scope: establishments (identified by their Siret number) surveyed during the 2020 aerospace industry survey and identified as belonging to the space industry. The headcount used is the number of employees (excluding temporary workers) at 31 December 2020 in the establishment dedicated to space activity.

Source: 2020 aerospace industry survey (Insee); DGE calculations.

Reading: in Occitanie, there are around 12,500 employees dedicated to the space industry working for space industry establishments.

¹⁴ Insee defines *pure-players* as companies with 80% to 100% of their sales dedicated to space.

¹⁵ N. Morénillas, M. Lafaye and M. Bonnassieux, "Dans la filière spatiale en France, 1 650 sociétés diversifiées et une soixantaine de pure players", *Insee Première*, n°1919, September 2022.

¹⁶ Large companies have at least 5,000 employees, sales of more than €1.5 billion and total assets of more than €2 billion.

¹⁷ N. Morénillas, M. Lafaye and M. Bonnassieux, "Dans la filière spatiale en France, 1 650 sociétés diversifiées et une soixantaine *de pure-players*", *Insee Première*, n°1919, September 2022.

In the remainder of this section, the scope is that of companies identified as belonging to the space industry in 2020 by the INSEE survey, taking all activities together. The scope chosen, which therefore includes both space and non-space activities, makes it possible to update information on the industry by cross-referencing it with more recent data¹⁸.

In 2022, just under 65% of companies in the space sector will be engaged primarily in manufacturing. Around 16% are involved in specialised, scientific and technical activities, 10% are in the information and communication sector and just over 7% are associated with the trade or repair of motor vehicles and motorbikes¹⁹, which shows the diversification of a number of equipment manufacturers beyond the aerospace sector.

In 2022, the space sector will include a large number of small

businesses (just under 25% micro-businesses²⁰ and 50% SMEs excluding micro-businesses; *see* Figure 2). On 31 December 2022, companies in the sector employed around 295,000 people, all activities combined²¹.



Figure 2: Company categories in the space industry in 2022

Reading: just over 350 companies in the space sector are microenterprises.

Scope: companies (identified by their Siren number) questioned in the 2020 aerospace industry survey and identified as belonging to the space industry.

Source: Aerospace industry survey 2020 and Fare 2022 (Insee); DGE calculations.

¹⁸ In particular, the annual structural business statistics from the ESANE (Fare) 2022 system (Insee).

¹⁹ Aerospace industry survey 2020 and Fare 2022 (Insee); DGE calculations.

²⁰ Micro-businesses employ fewer than 10 people and have an annual turnover or balance sheet total not exceeding €2 million.

²¹ Aerospace survey 2020 and DADS établissements 2022 (Insee); DGE calculations.

In 2022, the majority of companies and employees in the industry, all activities combined, will be located in the Paris Region (*see* Figure 3).

Figure 3: Number of space industry establishments by region in mainland France in 2022



Note: there are also 750 employees in French Guiana.

Reading: in the Paris Region, there are more than 90,000 employees working for establishments in the space industry, taking all activities together.

Scope: establishments (identified by their Siret number) surveyed during the 2020 aerospace industry survey and identified as belonging to the space industry. The workforce used is the establishment's workforce at 31 December 2022 (non-adjunct positions, excluding temporary staff).

Source: Aerospace industry survey 2020 (Insee); DADS establishments 2022 (Insee); DGE calculations.

The space industry as a whole will generate total sales of around €75 billion in 2022, all activities combined²². However, this figure conceals a

wide disparity that reflects the heterogeneity of companies in the sector, which can also be seen in terms of added value and investment volume. In 2022, the average turnover of companies in the sector will be $\leq 38m$, but the median will be just $\leq 3m$, and a quarter of companies in the sector will have a turnover of less than $\leq 1m$.

Half the companies in the sector invest less than €40,000 a year

(*see* Figure 4). After a drop of 24% between 2019 and 2020, a decrease that may be attributable to the Covid-19 pandemic, average investments⁽²³⁾ (all activities combined) exceeded their pre-crisis level in 2022, reaching an amount of around €1.3m.

²² By way of comparison, the aerospace industry, taking all activities together, will generate total sales of around €174 billion in 2022 for just over 4,100 companies. Source: aerospace industry survey 2020 and Fare 2022 (Insee); DGE calculations.

²³ Tangible and intangible investments.





Reading: half of the companies in the space sector invested less than 50,000€ in 2018.

Scope: companies (identified by their Siren number) questioned in the 2020 aerospace industry survey and identified as belonging to the space industry. The investments presented are tangible and intangible investments, with revaluations and contributions, net of disposals.

Source: Aerospace industry survey 2020 and Fare 2018 to 2022 (Insee); DGE calculations.

Companies in the space sector are less productive and less capitalintensive than other manufacturing companies

(see Table 1). They also have a lower investment rate, margin rate and export rate, which can be explained by the preponderance of civil and military institutional markets, including exports, and by the structure of subcontracting chains.

Table 1: Comparison of several ratios between space industry companies and	
manufacturing companies in 2022	

	Companies in the space industry	Manufacturing companies
Investment rate	7,8 %	15,5 %
Margin rate	17,4 %	30,0 %
Productivity	231,191 €/FTE	451,030 €/FTE
Capital intensity	82,360 €/FTE	211,438 PER FTE
Export rate	38,7 %	41,5 %

Reading: in 2022, the investment rate of companies identified as belonging to the space sector is 7.8%, compared with 15.5% for manufacturing companies.

Scope: companies (identified by their Siren number) questioned in the 2020 aerospace industry survey and identified as belonging to the space industry and companies in the manufacturing industry in 2022 (NAF C code). Source: Aerospace industry survey 2020 and Fare 2022 (Insee); DGE calculations.

The French Enterprise Directorate (Direction Générale des Entreprises) reports that more than 200 new companies have been set up in the sector since 2010, focusing specifically on space activities. These companies are evenly divided between the upstream activities of developing and operating space infrastructures and the downstream activities of providing space services. They

represent around 3,000 jobs at the end of 2024, with average growth of 500 jobs per year since 2020²⁴. They have raised a total of over €1.5 billion in funds, including €724.8 million from companies supported by France 2030²⁵.

B An export industry, *a leader* in space technologies in Europe

The French space industry has four long-standing areas of excellence: geostationary communications satellites, optical observation satellites, navigation satellites and bi-ergos launchers (solid/liquid propulsion).

In terms of intellectual property, the number of patents filed by upstream players in the space sector will remain more or less stable between 2018 and 2021 (between 930 and 1,150 approximately), with a slight increase in

2019 (almost 1,150 patents filed; *see* Figure 5). The number of upstream companies filing patents fluctuated between 75 and 84 over the same period, with a peak in 2019. On average, the number of patents filed per company is around 13. This is around twice as many as for companies in the manufacturing industry, reflecting the high R&D intensity of companies in the upstream segment of the space industry and the importance of innovation in the sector.

CNES itself holds a large number of patents resulting from its research and made available to the ecosystem (400 patents and software available under licence). Internationally, France will be the world's fifth largest filer of space patents in 2021, behind the United States, China, Japan and Germany²⁶.

²⁴ CNES, Space Economy Observatory.

²⁵ Source DGE.

²⁶ European Patent Office, "Cosmonautics. The development of space-related technologies in terms of patent activity", 2021. <u>See link</u>.





Note: the left-hand axis shows the blue curve (number of patents filed) and the right-hand axis shows the pink curve (number of companies filing patents).

Reading: in 2018, 988 patents were filed by 79 companies identified as belonging to the space industry.

Scope: companies (identified by their Siren number) questioned in the 2020 aerospace industry survey and identified as belonging to the space industry.

Source: 2020 aerospace industry survey (Insee) and Institut National de la Propriété Intellectuelle (INPI) 2018 to 2021; DGE calculations.

Although initially designed to meet national needs, the French space industry is dependent on institutional and commercial export markets. In

2020, 43% of space business will be with foreign customers, including European ones²⁷. Companies in the sector are net exporters, with a trade surplus of around €7 billion in 2023⁽²⁸⁾ (see Figure 6). The number of importing companies is greater than the number of exporting companies, which suggests a high concentration of exports in terms of value, particularly on the part of a few major space players such as *AIRBUS Defence and Space, Thales Alenia Space* and *ARIANEGROUP*. These major customers export complete space systems or high value-added equipment produced by the entire industry, which imports lower value-added components.

²⁷ N. Morénillas, M. Lafaye and M. Bonnassieux, "Dans la filière spatiale en France, 1 650 sociétés diversifiées et une soixantaine de pure-players", *Insee Première*, n°1919, September 2022.

²⁸ Customs data do not include satellites manufactured in France and launched from the Kourou base for foreign customers, as they did not cross the French border. They also do not include trade in goods for military use.

Figure 6: Balance of trade in 2023 for companies in the space industry, making up trade



Reading: just over 1,000 companies identified as belonging to the space industry imported around €14 billion in 2023. Scope: companies (identified by their Siren number) questioned in the 2020 aerospace industry survey and identified as belonging to the space industry.

Source: Aerospace industry survey 2020 (Insee) and Customs 2023; DGE calculations.

Exports are particularly high for communications satellites (historically civil and military satellites in geostationary orbit), which will be the largest export item in value terms in 2024 (*see* Figure 7)²⁹.



Figure 7: French space imports and exports in 2024

Reading: in 2024, parts of telecommunications satellites were imported into France to a value of around 120 M€ and exported from France to a value of around 40 M€.

Scope: imports and exports recorded by customs. Source: customs kiosk.

²⁹ Customs devotes a chapter to air and space navigation (CN8 code 88). The two fields are grouped together in most of the entries, but it is possible to identify a few entries specific to space.

The United States is France's leading space trading partner (imports and exports);

(*see* Figure 8). European countries are also key trading partners: Germany is the sector's second largest importer and exporter, and the country with which companies carry out the greatest number of import transactions. The UK and Italy are also among the industry's leading partners, as is China, although more companies import from China (594 companies) than export to it (282 companies). Outside Europe, companies in the sector import comparatively more (in value terms) from Asian countries (Japan, Taiwan) and export more to North African and Middle Eastern countries (Morocco, Turkey, United Arab Emirates⁾⁽³⁰⁾.



Figure 8: Top 10 countries with which space companies will do the most business (by value) in 2023

Reading: the United States is the country to which and from which the largest flows of imports and exports have been recorded in value terms in 2023, with €4,000m of imports and €5,500m of exports.

Scope: companies (identified by their Siren number) questioned in the 2020 aerospace industry survey and identified as belonging to the space industry.

Source: Aerospace industry survey 2020 (Insee) and Customs 2023; DGE calculations.

³⁰ With the exception of India, which is better represented among exports.

While the industry is successful on the export front, it remains heavily dependent on foreign materials. It imports many components (aluminium, cast iron, steel, plastics, copper and nickel; *see* Figure 9).



Figure 9: Materials most imported by space industry companies in 2023

Reading: companies in the space industry imported around €490m worth of aluminium and aluminium products in 2023.
Scope: companies (identified by their Siren number) surveyed during the 2020 aerospace industry survey and identified as belonging to the space industry. Only the CN8 codes for which at least 90 companies traded were included.
Source: Aerospace industry survey 2020 (Insee) and Customs 2023; DGE calculations.

2 Changes in the space industry: new opportunities and challenges for France

A The *New Space*: a transformation of economic and industrial models that is reshuffling the cards of global competition

Emerging in the United States in the early 2000s (see Box 2), the New Space represents a paradigm shift resulting from a combination of three factors:

- The emergence of highly integrated and vertical private players, driving short innovation cycles and supported by public policy;
- Industrialisation of part of the space business *through* mass production, standardisation of components and digitisation of processes, creating economies of scale;
- The emergence of new uses integrated into the digital economy (satellite internet, use of space data for multiple purposes) for a growing number of customers and commercial users.

BOX 2 The Space X model

Founded in 2002 by Elon Musk, *Space X* is the paradigm of the American *New Space*. The company is active in both the upstream (manufacturing launch vehicles and satellites) and downstream (distribution of Internet connectivity services) segments of the space industry. It was the first company to launch a mega-constellation of satellites into low-Earth orbit, *Starlink*, with 6,500 satellites deployed to date. More than half of the 261 launches worldwide in 2024 were carried out by *Space X* on its reusable Falcon 9 launcher for its own constellation.

By enabling the deployment of mega-constellations of satellites in Low Earth Orbit (LEO⁾⁽³¹⁾for Internet connectivity applications³², New Space has posed a challenge to French players, who have historically been closely involved in the manufacture, launch and operation of geostationary (GEO) satellites³³. The industry is therefore also embracing *New Space* in order to remain competitive with foreign players and increase the resilience of France and Europe.

B New uses for space in many sectors of the economy

By providing broadband Internet services to isolated geographical areas or areas poorly served by terrestrial infrastructures, such as rural regions, the oceans or developing areas, or to mobile objects (planes, trains, cars, etc.), low-orbit satellite constellations are opening up new prospects in the field of connectivity.

Thanks to their low altitude, these satellites offer reduced latency and improved performance, particularly for real-time applications such as videoconferencing and telemedicine. At the same time, the development of low-speed services (constellations dedicated to the Internet of Things and *direct-to-device*) is opening up new uses for tracking fleets (containers) and managing infrastructures (power lines, forests, *etc.*). This space connectivity market is transforming

³¹ The Low Earth Orbit varies between 500 and 1,000 kilometres in altitude.

³² Projects Starlink (Space X; 42,000 satellites targeted), Kuiper (Amazon Web Services; 10,000 satellites targeted), OneWeb (Eutelsat; around 650 satellites, complete), GUOWANG (China Satellite Network Group Corporation; 13,000 satellites targeted) and Qianfan (Shanghai Spacecom Satellite Technology; 15,000 satellites targeted). See the report by the French Academy of Sciences, "Grandes Constellations de satellites: enjeux et impacts", 30 March 2024.

³³ The *Geostationary Earth Orbit (GEO*) is circular and lies in the plane of the equator at an altitude of around 36,000 kilometres.

not only Internet access, but also the business models of many sectors, from transport to energy management.

In the field of Earth observation, improvements in sensors (optical, radar, *etc.*), advances in data fusion (artificial intelligence, *etc.*) and the greater revisit³⁴made possible by constellations are fuelling the development of application services for monitoring the environment, climate, biodiversity, agriculture, urban planning, insurance and mobility³⁵.

C Environmental challenges for a sustainable space

The environmental impact of space activities is a matter of concern³⁶. In 2025, CNES and all the players in the sector have estimated the overall volume of emissions associated with the French space sector at around 1.8 Mt CO_2 equivalent, from the extraction of raw materials to the operation of infrastructures. To this estimate must also be added the effects of components on the upper atmosphere³⁷, not quantified to date.

In addition to its terrestrial footprint, the rapid growth in the number of satellites in orbit raises the question of the sustainability of space activities. Relying on satellites with a shorter lifespan (between five and seven years) than geostationary satellites (between ten and fifteen years), constellations accentuate the risks of collision and the production of space debris. There are over 9,300 active satellites and around 54,000 pieces of debris measuring more than 10 centimetres will be tracked in 2024, not counting millions of smaller fragments³⁸. Combined with the proliferation of space debris, the phenomenon of fragmentation (Kessler syndrome) threatens to render certain orbits unusable, with the risk of permanently compromising access to space in a few years' time.

3 National public space policies and European policies are being put in place to meet these challenges

France's space policy supports the space industry in two ways:

³⁴ The revisit period of a satellite is the time required for it to pass over the same point again.

³⁵ These services are in addition to those provided by the European institutional programme Copernicus, which provides free access to more than 20 terabytes of data per day on the monitoring of the terrestrial, marine and atmospheric environment to more than 500,000 registered public and private users. <u>Link</u>

³⁶ See, for example, the report on the space sector by the association "Pour un réveil écologique", published in January 2024. <u>Link</u>

³⁷ Soot, alumina and water vapour generated during the launch and atmospheric re-entry phases.

³⁸ ESA, "ESA's Annual Space Environment Report", March 2025.

- Capacitated, so as to meet the objectives of all the public policies that can benefit from it (agriculture, ecological transition, *etc.*) as well as those of defence, sovereignty, resilience and scientific objectives;
- Economic, to support jobs and competitiveness in a sector that must export and serve an international, institutional and private market if it is to be sustainable.

Public budgets contribute to the purchase of capabilities and the support of technological developments. European cooperation has emerged as a means of sharing these development and procurement costs between several countries, particularly for launchers. At national level, funding for France's space policy is divided between various budget programmes, totalling around €2.5 billion in 2024. At European level, in addition to its annual contribution to ESA, France participates in the European Commission's space budget. In total, France will have spent more than €3.5 billion on its space policy in 2024, at both national and European level, to achieve a range of objectives. In comparison, it is estimated that the sum of public budgets allocated to space will amount to around €118 billion worldwide in 2024, divided between civil and military budgets. (€54bn) and military (€64bn)⁽³⁹⁾.

A Ensuring autonomous access to space for France and Europe

Sovereign access to space is a central pillar of French space policy, which has been promoted at European level since the 1970s through the Ariane programmes developed under the aegis of the ESA⁴⁰. France's launcher policy has two main objectives:

- Ensure the ramp-up and operational support of Ariane 6, a pillar of the French and European strategic autonomy strategy, along with the Vega C launcher (see Box 3). In this context, France is defending the adoption of a policy of European preference for launches by the EU and its European partners.
- Support the development of at least one reusable French minilauncher capable of competing in the European launcher *challenge* led by ESA. In advance of this, four launch demonstrations have been contracted by CNES as part of France 2030 (with *Maiaspace*⁴¹, *LATITUDE, Sirius* and *HyPrSpace*) with technical and financial milestones to ensure performance and competitiveness.

³⁹ Novaspace, "24th annual Government Space Programs", 2024.

⁴⁰ The principle of geographical return means that each country contributing to the ESA budget recovers, in the form of contracts awarded to its industry, an amount equivalent to its contribution.

⁴¹ Subsidiary of ArianeGroup.

BOX 3 Ariane 6, a French launcher the result of close European cooperation

Developed by *ArianeGroup* on behalf of the ESA, Ariane 6 is the latest addition to the Ariane family of heavy-lift launchers, which have been providing Europe with autonomous access to space since 1979. The programme is based on the principle of geographical return⁴², which ensures that contributing countries receive industrial spin-offs commensurate with their investment. France has historically been the biggest contributor, accounting for more than 50%.

The programme has a commercial logic: launchers and launch services, operated from the Space Centre in French Guiana, are marketed internationally.

The Ariane 5 launcher, which will be decommissioned in 2023 after 27 years in service and 117 launches, including more than 90 commercial missions, has set a worldwide benchmark.

B Having sovereign and competitive communications capabilities

In an uncertain geopolitical context marked by increasing dependence on digital infrastructures, guaranteeing the security, resilience and autonomy of communications is essential for defence, crisis management and the continuity of public services.

This is the rationale behind France's support for the IRIS² (Infrastructure for Resilience, Interconnectivity and Security by Satellite) programme of secure satellite connectivity constellations, launched by the European Union in 2022 with a budget of €10.6 billion. The plan is to deploy 300 satellites in Medium Earth Orbit (MEO)⁴³ and Low Earth Orbit (LEO) by 2031, operating in different frequency bands. Launched as a public-private partnership, the programme was the subject of a concession agreement signed in December 2024 between the European Commission and the SpaceRISE consortium, made up of the three main European operators (EUTELSAT, SES and Hispasat), which are responsible for implementing and co-financing the project.

In addition to its support for the IRIS²programme, France actively supports innovation in space telecommunications through several key subsidy and public procurement schemes. France 2030 has

⁴² This principle is at the heart of ESA's operations, with the exception of scientific programmes which are subject to compulsory contributions. States decide on their new subscriptions every three years at ministerial conferences, the next of which will take place in 2025.

⁴³ The Medium Earth Orbit is between 2,000 and 36,000 kilometres above the Earth's surface.

investment in optical links, for example

inter-satellite communications for faster, more secure communications, in non-terrestrial 5G to integrate satellites into 5G networks for global connectivity, and in the standardisation of satellite ranges (LEO and GEO platforms, integration models using off-the-shelf equipment).

C Ensuring the resilience of satellite positioning and navigation systems

Since its launch in 1999, France has played an active role in the Galileo European satellite navigation system, contributing around 18% of the budget - one of the highest national contributions ever. Galileo is an alternative service to the American GPS (*Global Positioning System*) developed under a European public procurement contract. It is based on a constellation of 30 satellites (24 operational and 6 in reserve), more than 20 of which are already in service. The programme covers several services, including a free open service with an accuracy of around one metre, a high-precision commercial service, an emergency service capable of locating an emergency beacon in less than ten minutes, and an encrypted public regulated service for the authorities.

D Supporting new space-related markets and uses

Through the space component of France 2030, France has strengthened the role of CNES in aggregating public user demand for space data and enabling private players to position themselves in new markets (*SSA* or *Space Situationnal Awareness*⁴⁴, in-orbit services, exploitation of space data; *see* Box 4).

France (with its Pleiades and Spot satellites, *etc.*) and Europe (with Copernicus and the Sentinel satellites) have paved the way for data access and commercialisation.

⁴⁴ *Space Situational Awareness* (SSA) refers to the set of capabilities aimed at detecting, tracking and analysing objects in orbit to ensure the safety and sustainability of space activities.

BOX 4

France 2030: a financing plan to secure the future the competitiveness and autonomy of the French space industry

The France 2030 space programme, an exceptional measure to be implemented from 2022 onwards to supplement space policy funding programmes and respond to market imperfections and the challenges faced by the sector⁴⁵, has so far allocated more than €1.2 billion to support innovation and competitiveness in the French space industry, with a number of objectives:

- In certain segments, in particular launchers, stimulate the national offer with a view to renewing French capacities in a context of opening up to competition and European consolidation;
- Catalyse the creation of new companies, targeting in particular new markets such as constellations, earth observation and in-orbit services, to improve the sector's agility and competitiveness;
- Emphasise new downstream services based on the exploitation of space data, in particular through the purchase of services by CNES on behalf of public bodies.

Between 2022 and 2024, €725m was raised by *startups* supported under France 2030, including €222m for *French Tech* 2030⁴⁶. More than In less than five years, 1,200 jobs have been created within this new ecosystem⁴⁷, positioned on priority innovation topics.

E Ensuring the sustainability of space activities

CNES and a number of industry representatives have drawn up a roadmap for the decarbonisation of the space sector⁴⁸to complement the initiatives already taken at regulatory level (*see* Box 5). The aim of this roadmap is to reduce the sector's CO2 emissions by 49% by 2040 compared with their 2023 level, in line with the French National Strategy.

Low-carbon.

⁴⁵ M. Gradeva, V. Dillies, "France 2030: an economic response to the challenges of tomorrow", *Les Thémas de la DGE* n°5, November 2022.

⁴⁶ Source: DGE.

⁴⁷ Alliance New Space France. <u>Link At this stage</u>, it is too early to tell me how many jobs will be specifically induced by the France 2030 projects.

⁴⁸ This follows the request made by the Minister for the Economy and Finance, Bruno Le Maire, in October 2023.

BOX 5 Space law for the sustainability of the sector

France is a party to the four international treaties on space law and takes part in the work of multilateral bodies such as the CUPEEA (standing committee on the peaceful uses of outer space) and the IADC *(inter-agency space debris coordination committee*). Its legal framework is based on the 2008 Law on Space Operations (LOS), which aims to guarantee safety, sustainability, environmental protection and the defence of national interests.

In May 2023, the European Commission launched a draft regulation called the *Space Act*. This will help to boost European competitiveness in the face of international competition by imposing minimum technical requirements in terms of sustainability on all players operating in the EU. It will enable the EU to play an influential role in global debates on space traffic management and to integrate the ecological transition as a lever of innovation for the European space industry.

To find out more, click here:

ASD-Eurospace, "Facts and Figures - 26th edition", July 2022.

Cambon G. and Mouhali K., "La chaîne d'approvisionnement aérospatiale du grand sudouest: atouts et défis", *Insee Analyses Occitanie* n°91, January 2020.

ESA, "Report on the space economy 2024", December 2024.

ESA, "ESA's Annual Space Environment Report", March 2025.

ESPI, "Space Venture Europe 2023: Investment in the European and Global Space Secotr", *ESPI Report* 91, May 2024.

GIFAS, "Situation de l'emploi en 2024-2025 dans l'industrie aéronautique et spatiale", 2025.

Gradeva M. and Dillies V., "France 2030: an economic response to the challenges of tomorrow", *Les Thémas de la DGE* n°5, November 2022.

Hild F., Régnier V. and Voisin P., "Une dynamique toujours favorable dans la filière aéronautique et spatiale du grand sud-ouest", *Insee Analyses Occitanie* no. 90, January 2020.

Labaye B. and Régnier V., "The aerospace industry in the south-west: recovery accelerates in 2022

in aeronautics, space is marking time", Insee Analyses Occitanie n°145, December 2023.

Morénillas N., "La filière aéronautique et spatiale en 2020", *Insee Première*, no. 1882, December 2021.

Morénillas N., Lafaye M. and Bonnassieux M., "In France's space industry, 1,650 diversified companies and around sixty *pure-players*", *Insee Première*, no. 1919, September 2022.

Morénillas N., "Innovation remains a driving force behind the aerospace industry in the Greater South-West", *Insee Analyses Nouvelle-Aquitaine* n°131, April 2023.

OECD, "The Space Economy in Figures: Responding to Global Challenges", 2023.

OECD, "Handbook on Measuring the Space Economy. 2nd Edition", 2023.

OECD, "Space Economy Investment Trends: OECD Insights for Attracting High-Quality Funding", April 2024.

Xerfi Innov, "The space industry and the rise of the *new space*", 2022.

World Economic Forum, McKinsey, "Space: The \$1.8 Trillion Opportunity for Global Economic Growth", April 2024.

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