

JOINT SATCOM OPERATORS' POSITION PAPER EUROPEAN CONSTELLATION



Eutelsat, Hispasat and SES fully endorse the European institutions' vision on the strategic relevance of a major space programme to build a secure and autonomous European satellite infrastructure for connectivity.

Without such a capability the EU is at strong risk of falling behind other global powers (US, China, Russia) in the global space race, with all the economic, diplomatic and security disadvantages associated with such a relegation.

An infrastructure project of this magnitude would secure the funding and development of the European space segment both financially and in terms of technological expertise, stimulating job creation in the industries of the future.

This White Paper sets out in more detail the technical, strategic, economic and funding considerations surrounding such a project.

A SATELLITE INFRASTRUCTURE FOR THE EU ...

A European satellite constellation based on a mix of constellations in different orbits, would help meet the objectives of the European Commission¹ in terms of connectivity to all European citizens, and would also serve enterprises and public entities across Europe and beyond.

In this respect, Eutelsat, Hispasat and SES together concur with Commissioner Thierry Breton that this EU project for a **high-performance critical infrastructure** is a cornerstone of the digital transformation of the EU, one of its **strategic priorities** in the next decade, and a pillar of Europe's digital sovereignty.

... CONTRIBUTING TO EU STRATEGIC AUTONOMY AND COMPETITIVENESS ...

Eutelsat, Hispasat and SES strongly believe a European satellite infrastructure would strengthen **the strategic autonomy** of the EU by providing it with the ability to compete with ambitious constellation projects being deployed or planned on other continents at an accelerated pace, often benefiting, directly or indirectly, from massive governmental support.

Moreover, Eutelsat, Hispasat and SES contend that an autonomous and secure infrastructure would not only **enhance Europe's ability to develop its digital economy and all the sectors that depend on it** while **strengthening its strategic independence**, but that it would also contribute to extending **Europe's political and economic influence** in the world, in particular in regions of interest that may not be able or do not intend to develop constellations of their own.

Accordingly, the three satellite operators urge the

EU to take a stance in a domain where Europe is lagging behind other space powers. Moreover, due to the limited availability of radio spectrum and orbital positions, only a few worldwide constellations will ultimately be able to coexist: Europe cannot afford to let other countries pre-empt these strategic space-based resources, nor can it be absent from the major new opportunities opened up by this next generation infrastructure, complementary to terrestrial networks.

Finally, the design, implementation and operation of such a **large telecom and space infrastructure** project would give the entire EU Space value chain a level playing field in terms of being able to preserve and enhance its competitiveness on a global scale and to maintain and grow skills, technologies and production capabilities inside Europe.

... BY MEANS OF A HYBRID, EVOLUTIVE AND INNOVATIVE ARCHITECTURE, ...

Eutelsat, Hispasat and SES believe the most **efficient** and **cost-effective** architecture for the future EU infrastructure is based on a combination of satellite constellations in different orbits.

A LEO satellite constellation, jointly operated with existing, planned and future European GEO and/or MEO satellites, would maximize **flexibility, complementarity** and **resilience**, while, thanks to its low latency and ubiquitous coverage (including the Arctic region), offering the requisite capacity over all relevant regions for an optimal cost per byte, leveraging on synergies with current infrastructures.

This approach involves **the implementation of a scalable infrastructure which can deploy services rapidly** and **evolve** in line with the growth in European user needs through the progressive addition and integration of **innovative technologies** (satellites,

¹ European Commission's Communication "Towards a European Gigabit Society"

ground infrastructure, user terminals and/or launchers) delivering new services for 5G and beyond, driving down costs and improving performance. Such an evolutive process is of paramount importance if the EU is to catch up with already advanced projects in the rest of the world. The role of satellite operators is crucial to execute the evolution from existing services and infrastructure to the new services and applications unlocked by these innovative technologies.

With the various satellite components in this mix of GEO, MEO and LEO orbits being managed as a unified system, the new EU satellite infrastructure would be **seamlessly interoperable with the terrestrial ecosystem**, in particular 5G and future cellular generations, eliminating the barriers to satellite adoption and **unlocking opportunities to provide new and innovative services** (e.g. for the automotive industry, typically autonomous cars).

... AIMING AT AN EFFICIENT, COMPETITIVE AND SUSTAINABLE PROGRAMME ...

Institutional demand from EU agencies and Member State governments represents a critical **anchor market** of a future European constellation. However, **this demand would not on its own justify the significant investment** by national governments and private satellite network operators to build a global satellite communications infrastructure.

Bridging the still-large digital divide in Europe, notably in rural areas, offers a double opportunity: addressing a strategic priority for Europe while developing a fast growing market. Satellite broadband can serve the demand for connectivity from private citizens (with an estimated addressable market of up to 4-5 million households in Europe), small and medium enterprises that need to thrive in more rural or peripheral areas, and telecom operators seeking to extend their reach or improve the performance, flexibility and resilience of their networks.

Without diminishing the merits of policies encouraging the development of terrestrial networks, at both EU and Member State level, satellites will remain an indispensable complementary asset to providing connectivity to those who will remain unserved or poorly served in the short- to medium-term. Moreover, it can be provided significantly more cheaply than the cost of deploying terrestrial infrastructure in remote areas. In other words, there is **a very large, latent unmet demand** for connectivity that a constellation can help fulfil, with major direct benefits: stimulate economic activity in currently underserved areas, make the European digital economy more inclusive, and increase the EU's competitiveness in the global economy.

The combination of governmental and digital divide needs will unlock massive economies of scale and is a necessary prerequisite to reducing the unit cost of bandwidth, thereby ensuring the viability of such infrastructure.

This comes on top of the strategic aim of the EU of **shareable access to effective, sovereign and secure satellite-based solutions for defence, institutional and security networks all around the globe**.

The deployment of such European infrastructure raises a number of challenges and opportunities, related inter alia to the ground segment (access to low cost user terminals based on flat panel antennae), space segment (quantum technology, optical laser communication), regulation (access to spectrum based on ITU rules) and standardization (integration of satellite in 5G). Further advances in these areas from all European satellite industry players, from manufacturers, operators and launchers, as well as ground segment and user equipment manufacturers are required to make this initiative a reality.

... JOINTLY FINANCED BY PUBLIC AND PRIVATE FUNDS

The investment required to design, develop, deploy and operate a multi-orbit constellation could be raised through a joint public/private effort in a form of Public-Private Partnership. Such a structure would ensure superior economics for the project and the sharing of operational and financial risks between public and private stakeholders, of particular importance in the economic context caused by the COVID-19 pandemic. A joint commitment to the economic, strategic and societal success of such a programme would serve as a guarantee of its financial soundness and long-term viability. The role of commercial satcom programmes and the provision of communication services and solutions is key to achieving a constellation that is delivered to end users in a reliable, timely and cost-effective manner.

THE ESSENTIAL LEADING ROLE OF COMMERCIAL EUROPEAN SATCOM OPERATORS

Commercial satellite operators play a central role in the satellite communications ecosystem by linking the technological advances of the industry with the needs of society in a cost-effective way. Europe counts several of the world's largest commercial satellite operators in terms of fleet size, services and revenue.

Thanks to the procurement, launch and operation of multiple satellite assets with the attendant ground infrastructure, satellite operators play a fundamental role in the EU Space industry both in terms of investment and driving innovation.

In this respect **their leading role** in the design of the new space flagship programme for connectivity is **mandatory: first, as private players operating space infrastructure in these commercial markets in which they invested 5Bn Euros over the last five years²; second, also as future investors.**

Eutelsat, Hispasat and SES are willing to join forces to co-invest with the European Commission in such an infrastructure while bringing critical expertise in:

- **Competitive products and services:** European operators are obliged to regularly provide new, competitive products and services as they are constantly challenged by competing satcom operators, as well as alternative connectivity solutions;
- **Business case:** European operators are scrutinised by the financial markets on return on equity. Their projects are primarily driven by market pull and customer demand rather than technology push;
- **Time to market:** Thanks to their deep knowledge of customer requirements, European operators can help accelerate the lead time on the design and implementation of the selected architecture, as well as shorten the time to its operational service date;
- **Synergies:** European operators have deployed or are in the process of deploying European-built space assets that are complementary, in terms of timing or performance, to a newly-built LEO constellation thereby contributing to the more rapid and efficient attainment of the challenging EU objectives;
- **Operation of critical infrastructure:** European operators have long-standing experience in operating very large fleets providing critical services worldwide and are already recognised as world-leading players of vital importance;
- **Innovation:** European operators' investments and service solutions have, for many years, fostered world-leading research, development and innovation in the satellite space (e.g. electric propulsion, high throughput and flexible satellites, software defined satellites).

IN SUMMARY

It is vital that the EU develops, in a timely fashion and taking account of the rapidly evolving competitive environment, new services through a satellite infrastructure:

- i. combining GEO and/or MEO satellites with a LEO constellation;
- ii. fulfilling governmental and security requirements in Europe and worldwide;
- iii. while bridging the digital divide for individuals and businesses throughout Europe;
- iv. financed through a combination of public and private contributions; and
- v. designed, built, launched and operated by established satellite players from inside the EU.

² Cumulative CAPEX of Eutelsat, Hispasat and SES between 2015 and 2019