



EARSC proposal to anchor European global leadership in Earth Observation

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Introduction

EARSC, the European Association of Remote Sensing Companies, representing 130 Earth Observation (EO) geo-information service companies in 25 European countries, welcomes the opportunity to contribute to the ESA Agenda 2025 in the preparation of a **European Space Summit in February 2022**.

Our members cover the entire European EO sector along the full value chain, from commercial satellite operation through EO data acquisition and processing, fusion and analysis to provision of value-added geo-information products & services. Therefore, we are well-positioned to actively support European EO activities and provide useful input to help shape future policies that will benefit EO service users, decision makers and industry players alike.

1. EU Space Programme

The EU Space Programme 2021-2027 and the ESA-EU Framework Agreement set a clear direction for the European Space policy and establish objectives to secure European leadership in space activities. With this, Europe aims to foster innovative industries and ensure the availability of high-quality, up-to-date space-related data and services.

Together, ESA and the EU support the coherent and progressive development of a comprehensive European Space Policy, which clearly links available and future space-based assets and tools to users' demand for data and services. The space sector in Europe has shown impressive development for many years, suggesting to place these space tools at the forefront of European priorities. EO data and

services, particularly building on the unique European space assets provided by the Sentinels and the Copernicus Contributing Missions (CCMs), have become essential for monitoring today's most severe global problems (climate change, biodiversity loss, ecosystem degradation, etc.) and supporting tomorrow's sustainable solutions.

In this context, EARSC calls for a double role of public sector authorities (both at European, ESA and Member States level): to act as a long-term key customer for operational EO commercial services and solutions as well as to support dedicated research & development for boosting innovative state-of-the-art applications in the short term. For this reason, EARSC welcomes the renewed interest of ESA, EU and the Member States in supporting the establishment of a solid commercial space in Europe, strengthening the role of the **public sector as an anchor demand for operational EO services and data**.

2. Copernicus, a global game-changer for Earth Observation

As Europe aspires to lead climate change mitigation efforts in the face of global warming, it is critical that actions are guided by reliable and accurate, timely data and related services. You cannot manage what you cannot measure! Thanks to unprecedented technological innovations, EO allows European decision-makers to identify risks, tailor policy responses and dedicated resource allocations, monitor worldwide developments, identify trends and enable forecasts. Satellite imagery provide a unique means for holistic understanding of the Earth by leaving no feature of the planet unseen.

The Copernicus programme has established Europe as a global leader in Earth Observation and is now the most advanced EO system in the world. Its public and commercial (CCM) satellite imagery provides valuable information at unprecedented quality and frequency, on features which remain unseen from one's feet on the ground. They can be leveraged across a wide range of applications, from security and emergency response, urban planning and transport to environmental protection and climate change mitigation.

The programme has provided academia, the public sector, and the downstream value-adding industry with exceptional access to space data, supporting research and policymaking as well as development of innovative services and EO-based solutions. Notably, the continuous growth of the EO sector has resulted in 40% job growth over the last two years, particularly for small and medium players, and 25% revenue growth over the previous twelve months¹.

*Nevertheless, much remains to be done to support the further uptake of Copernicus data and services. EUSPA, ESA and EU Member States should establish a clear roadmap to raise awareness among further user groups and encourage organizations to **increase the uptake of space data and related services into daily operations, in support of timely, objective and evidence-based decision-making.***

3. User needs as the key driver

In view of increasing international collaboration between the space industry, governments and user communities, it is crucial to develop new innovative solutions and improve the European EO industry's capacity to meet end users' needs, specifically as required for achieving the ambitious targets related

¹ EARSC Industry Survey 2021: <https://earsc.org/wp-content/uploads/2021/11/EARSC-Industry-survey-2021-2-2.pdf>

to climate change mitigation and adaptation actions. Particularly timeliness, spatial detail, repetition frequency, long-term reliable service availability and product accuracy are the typical key requirements and drivers for related continuous innovation and development.

EARSC members work closely with the public sector through numerous programmes and continue to welcome upcoming and ongoing collaboration opportunities. Members of EARSC have been highly involved in the Copernicus programme, and are continuously developing efforts also to expand the commercial applications derived from it, both in Europe and abroad, contributing thus to Europe's global leadership in EO.

Such close cooperation between the European public and private sectors under favourable economic conditions is essential for the sustainable development of Europe's space activities and the industry's continued ability to serve the users' ever-increasing needs, as well as for strengthening Europe's strategic leadership and the growth of its commercial space sector, driving job creation and economic growth in Europe.

*To ensure the continuation of this development and the growth of the European space industry, **adequate budgetary means and greater cooperation between the public and private sectors is necessary.***

4. Need for suitable EO data

Besides its strong focus on user requirements, the success of the European EO industry and the Copernicus programme is also based on the use of emerging satellite and digital technologies, as users typically require state-of-the-art quality of services, to meet their policy and business-related needs. Just as space is rich in satellites and constellations, the European EO industry is rich in established and new players offering innovative commercial solutions, such as machine-learning and AI based analytics.

In addition to its space ambitions, Europe is demonstrating strong leadership with the European Green Deal, recognising the climate emergency and the urgent need for action across the public and private sectors. Currently, almost three-quarters of the Earth's surface has been altered, the global population of wild species has fallen by over 60% in the last forty years, and one million species are at risk of extinction. Beyond the dwindling health of our natural ecosystems, the continued rise of global temperatures has caused new records in extreme weather events, from large-scale droughts to floods and wildfires, endangering the existence of entire populations.

The aspirations of the European Green Deal and the United Nations Sustainable Development Goals (SDGs) require an abundance of resources. Amongst them, a wealth of objective data sources is needed as the foundation of informed decisions that drive progress towards defined targets, such as through efficient Monitoring, Reporting and Verification (MRV) systems. Earth Observation data are an indispensable tool in this context. For example, high-frequency and high-resolution satellite imagery in combination with sophisticated analysis techniques allow governments to identify risks, tailor policy responses, foster efficient resource allocation and enable progress monitoring and trend identification. According to the United Nations Environment Programme (UNEP), only 42 per cent of SDG indicators had sufficient data to assess progress made in achieving the SDG targets so far. At the same time, it has been confirmed that EO can assist 14 out of the 17 SDGs. So, whilst some

consequences of climate change are already irreversible, data gaps and analytics deficits can still be addressed.

*With the **current and next-generation Sentinels and the commercial satellite systems** collecting vast amounts of data, European policy efforts and investments must support the **development of innovative applications** to analyse and utilise these existing and upcoming huge amounts of data. At the same time, addressing the climate emergency requires immediate and proportionate action, including **leveraging a wide range of existing and upcoming public and commercial satellite capacities**.*

5. Recommendations

Building upon these considerations, EARSC recommends that the following steps be taken:

- As a first priority, further actions should be taken that maximise the utilisation of Copernicus existing capabilities through market uptake initiatives, benefiting from the experience capitalised by European EO service and data providers.
- Any market gaps identified shall be first addressed within the existing programmes from the public and/or the private sector that have demonstrated their agility to deliver state-of-the-art services. Pre-Commercial Procurement can offer innovative tools to achieve this goal.
- Actions should develop and support new commercial services and operational applications based on the already identified new Copernicus Sentinel missions and initiatives coming out of the private sector, benefiting from initiatives launched by the EC and ESA, e.g. Destination Earth or Digital Twin Earth, Accelerators etc.
- The Copernicus programme should be further supported and adequately funded, enhancing and further developing the programme while strengthening its industrial base.
- The procurement of commercial EO data, e.g. in the frame of the CCM, should be based on a demand-driven approach, ensuring to meet the growing service and user requirements through gap-free delivery of the best-quality data and information. Where possible, this should consider models such as anchor tenancy or alternative public-private arrangements.

Conclusions

EARSC members are committed to further supporting European space ambitions, actively participating in developing EO programmes and leveraging European investments to the maximum.

The European EO industry wants to ensure that the European space programmes respond to our planet's emergency and real users' needs, and are developed in a cooperative manner.

We shall welcome the opportunity to further explore these ideas with stakeholders in the weeks to come.