

Earth Observation for the Future of European Defence

Introduction

The European Association of Remote Sensing Companies ([EARSC](#)) is a trade association representing 140 European members in the downstream Earth Observation (EO) Industry. The EO industry has experienced [significant growth](#) in the defence-related applications market segment, primarily caused by a high demand for EO technologies in the context of current geopolitical situation and the development of national constellations.

The EU's [Space Strategy for Security and Defence](#) outlines the key role of space in defence, emphasising the need for a more integrated approach between military and commercial assets. European EO capabilities are vital to achieving the EU's security and defence goals. In a fast-evolving landscape and uncertain future, the European EO downstream industry can contribute with its agility to strengthen Europe's defence posture and reduce excessive reliances, while also ensuring continuous cooperation with partners to ensure the swift delivery of analytics and services is maintained.

The recently published [Competitiveness Compass for the EU](#) stresses the importance of enhancing defence cooperation among Member States through joint defence procurement, collaborative R&D, pooling resources via defence Projects of Common European Interest, and improving access to financing for SMEs.


Additionally, the recent presentation of a new package boosting defence spending seeks to mobilise 800 billion EUR in the next four years, including a new instrument for 150 billion EUR in loans for member states to spend on joint procurement for defence and security purposes. Reducing dependencies on non-EU countries, especially in the technological domain, while maintaining critical partnerships, is one of the key goals of the new initiatives.

In this paper, EARSC seeks to highlight the importance of EO for European defence, looking towards the publication of the *White Paper on the Future of European Defence* and other rapid policy developments both at the EU and Member State levels. This critical juncture presents key opportunities to ensure European EO downstream capabilities are well-reflected and well-utilised as the landscape evolves.

The Role of EO in Defence and Security

EO is an essential tool for rapid response in both civilian and defence contexts. Its role now extends beyond crisis management, preparedness, and prevention, to ensuring timely responses to emerging security threats and providing operational intelligence in times of crisis.

In the defence domain, EO provides strategic and tactical (i.e., operational) intelligence, surveillance, and reconnaissance (ISR), which enhances battlefield situational awareness,



damage assessment, early warning systems, supports decision-making, and tactical near real time intelligence directly to end-users. During recent conflicts, commercial EO capabilities have proven their value and relevance by increasing coverage, providing redundancy, and improving revisit rates, which enhances defence capabilities, while reducing costs. Beyond direct conflict applications, EO contributes significantly to national security and preparedness efforts, including border security, infrastructure monitoring, threat detection, and terrain analysis through products and analytics such as change detection analyses, pattern recognition, data fusion, location-transparent federation, and high-precision [digital elevation models](#) (DEMs), etc. These and other EO-based products are key enablers for strengthening the EU critical defence capability areas.

Furthermore, implementing cybersecurity measures to protect commercial EO and space assets is becoming a strategic imperative. Counter-jamming, encryption, and secure data-sharing frameworks must be established to ensure the integrity and resilience of EO services.

A Sustainable Strategic Investment in Downstream EO

Leveraging the EU Space Programme for Dual-Use and Defence Integration

Building a more robust and agile EU Space Programme enabling dual-use applications, taking into account both civilian and defence needs, is essential for ensuring Europe's strategic autonomy and security. A new EO governmental services programme should complement the Copernicus Programme, integrating data from European civil programmes, national initiatives, and commercial capabilities. A resilient hybrid architecture should be adopted, possibly under a federated scheme, with capabilities coming from European civilian programmes, such as Copernicus, national civilian initiatives, and data and added-value services from existing and future commercial capabilities. These two programmes combined should provide essential services to the EU and partners, addressing gaps not covered by existing services, while still maintaining the European focus on climate change.

Strategic autonomy in EO requires the strengthening of European capabilities. Maintaining interoperability within NATO and with allied nations while also integrating needs of EU defence agencies, will enhance Europe's defence readiness at a reasonable and sustainable cost. However, improved coordination and dedicated funding mechanisms must be established to overcome fragmentation among key stakeholders, including the European Commission, the European Defence Agency, the European External Action Service, Member States, and NATO. This will further enhance strategic alignment and maximise the effectiveness of investments in EO capabilities.

A civil-defence innovation cycle should be introduced. Innovation in the civilian EO sector has proven increasingly beneficial for the defence domain, as well, i.e., through digital platforms, extremely high-resolution data, progress in artificial intelligence, the availability of high-processing computational capabilities, drones, and laser communication for data

downlink. By improving collaboration and cross-fertilisation between the defence and civil sectors, the EU can ensure its space capabilities contribute to broader security and economic objectives.

A Coordinated Approach to Investment in Infrastructure and a Shift Towards an “Intelligence-as-a-Service” Approach

Additionally, balancing continued investment in critical EO infrastructure while also shifting to long-term data and service contracts would ensure sustainable, cost-effective, and continuously evolving EO solutions. This transition would support the shift from data procurement to advanced, EO-derived, security-related analytics, balanced with infrastructure investment, for a coordinated European and national approach to maintain and enhance capabilities over time.

The adoption of procurement mechanisms for EO data and advanced security-related analytics, similar to those implemented in the Copernicus procurement models, ensures cost efficiency and improved operational capabilities for defence users. Long term contracts are the only way to trigger private funding for the development of new EO capabilities taking into account emerging technologies, i.e., laser communications, artificial intelligence for data and imagery processing in-orbit and on-ground, and extracting information from data. Such a procurement approach with clearly defined anchor customers, would nurture and solidify a robust and growing industrial supply chain, vital for European resilience, in which all sectors are well-represented and have provided opportunities to develop and contribute. Competitiveness at the European level is also vital, to ensure that the best capabilities are made available to address emerging security and defence requirements. The governance of such a programme should result from a consensus among all contributing nations and relies on the control of the entire supply chain.

Conclusions and Key Recommendations

1. **Leverage and grow existing EO capabilities to support European defence:** Existing capabilities as provided by both the public and private sectors, complemented by the developments of additional assets to address emerging needs, can support European defence ambitions in a rapid and cost effective way. Leveraging existing capabilities and establishing a comprehensive civil-defence development cycle with pathways for SME involvement and innovation, will attract further investment and strongly contribute to the development of EO capabilities.
2. **Encourage long-term procurement for EO data and services:** A coordinated approach for acquiring EO data and value-added services, building on the approach adopted for Copernicus data and services, will optimise costs, trigger private investment and foster an anchor customer approach, and ensure that European defence users have timely access to essential intelligence and analytics.

3. **Guarantee strategic autonomy while maintaining partnerships:** The EO downstream industry must receive adequate funding and policy support to contribute to European autonomy in EO services while also fostering defence cooperation with allied nations. Developing a secure, resilient hybrid architecture is crucial for long-term stability.
4. **Strengthening EU defence funding and governance:** A coordinated funding approach among EU institutions, EDA, Member States, NATO, and other research and development agencies will maximise EO's contribution to European defence strategies and security endeavours.