RESEARCH PAPER

Advancing European Military Capacity in Space

Executive Summary

European governments have announced ambitions to significantly build up their military space assets in the context of Russia's war against Ukraine and Europe's overdependence on the United States in the space domain. This report examines how European allies could strengthen their ability to operate in, through and from space in a European-theatre contingency.

Any major Russian military operation against one or more NATO allies would unfold in a contested space domain. Russian counterspace capabilities – including direct-ascent anti-satellite systems, jamming, cyber operations and on-orbit proximity activities – are already operational. European governments, armed forces and societies are dependent on space-enabled services, including satellite communications; positioning, navigation and timing through systems such as the Global Positioning System and *Galileo*; and Earth observation. These systems and their associated ground segments constitute critical assets and would be priority targets in a high-intensity conflict.

However, European allies remain significantly dependent on the US for several high-end space enablers. The most acute dependencies lie in launch; space-based intelligence, surveillance and reconnaissance (ISR); missile early warning; and high-end space situational awareness (SSA). While transatlantic cooperation remains central to European security, shifts in US strategic priorities and burden-sharing expectations underscore the need for its European allies to invest in their own military space capabilities.

Key European actors have set targets of upgrading their space defence capabilities by 2030, including the European Union, Germany and the United Kingdom. The report sets out these current capabilities and plans in Europe, which for the purposes of this report covers EU and European Space Agency (ESA) member states, with a particular focus on France, Germany, Italy, Norway, Poland, Sweden and the UK, referred to here as the European military space-capable allies (EMSCA). It then evaluates which capability gaps would remain even if these baseline plans were implemented successfully and on time against two models. The first model is burden-sharing in the European theatre and establishes which additional space capabilities Europe would need to mitigate the most operationally consequential dependencies on US space capabilities. The second model is autonomy: Europe's ability to establish operational independence from US space capabilities to support defence and deterrence against Russia.

The baseline trajectory is financially substantial but strategically fragmented. Announced commitments in Europe such as Germany's EUR35 billion investment in space security by 2030, France's EUR10.2bn space defence spending, the EU's EUR10.6bn secure-connectivity satellite constellation, and the EUR1.2bn pledged by ESA members for the European Resilience from Space programme, amount to at least **USD109bn**. However, these investments are not structured around a coherent strategy to close the most consequential capability gaps within a decade.

We assess that the burden-sharing model would require at least **USD10bn** to mitigate the most operationally significant shortfalls, with implementation taking at least a decade. The autonomy model would require a minimum of **USD25bn** in additional procurement to establish independent operational space capabilities and could not be fielded before 2040. Both figures exclude most ground-segment infrastructure, personnel, training, cyber resilience and broader programme overheads. Under the autonomy model, in particular, these costs would be significant, because it would

require investment in alternatives to US-provided infrastructure currently integrated via NATO.

Even under the burden-sharing model, Europe could not field a fully sovereign space-based missile early-warning architecture, replicate the global scale and persistence of US ISR, or match the breadth and geographic coverage of the US SSA network within a decade. Expanding medium- and heavy-lift launch capacity within the decade would also remain challenging. Full autonomy would therefore require an even longer time horizon extending well into the late 2030s at the earliest.

The report delivers three main findings. Firstly, European countries, especially the EMSCA states, are investing heavily in military and dual-use space capabilities, but without a coherent strategy, the result will remain an aggregation of national systems rather than an integrated operational architecture. The implementation of the baseline model will not significantly reduce critical US dependencies by the announced programmatic timelines of 2030.

Secondly, the most difficult gaps to close are precisely the areas of greatest dependency on the US, as those capabilities are capital intensive, globally distributed and time sensitive. These include space-based early warning, ISR at sufficient scale and persistence to sustain high-tempo operations, assured heavy-lift launch capacity, and defence-relevant SSA, including persistent custody and attribution.

Thirdly, greater European autonomy in space cannot be achieved solely by increasing available satellites. Operational credibility depends on a resilient European space enterprise: hardened ground segments, assured access to launch, integrated command-and-control arrangements, secure data-sharing frameworks, and agreed NATO procedures for tasking and employment. Without these enablers, additional space assets will not translate into deterrence or wartime effectiveness.

Greater European military space autonomy is technically feasible but politically, financially and industrially demanding. It would require prioritising the most strategically consequential gaps, deeper coordination among EMSCA and other European states, including with ESA and EU programmes, as well as strengthened European industrial capacity.