“No EEE, No Sovereignty”

How can Europe secure access to trusted EEE components and dual-use technologies to strengthen resilience, competitiveness, and strategic autonomy in space and defence?

Olga Ramos| PE Department | 15. 10.2026

EEE components determine whether European missions can be built, qualified, delivered and sustained

External dependence

Shortages, export controls and lead-time shocks affect mission continuity.

Technology gaps

Processors, FPGA, memories, RF and microwave, advanced packaging, and IC substrates, power electronics (GaN/SiC), sensors & Imaging device

Industrial consolidation

Acquisitions can move roadmap, IP and supply decisions outside European control.

Mission consequence

A European spacecraft is not autonomous if enabling parts can be restricted.



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Procurement impact: from best part to best trusted part

The EEE selection trade now extends beyond performance, reliability, cost and heritage

Traditional criteria

Performance | reliability | heritage | cost | schedule

Strategic-access criteria

Export-control exposure | ownership | continuity | traceability | second source

Programme effect

Earlier selection | longer qualification | strategic stock | alternative development

Decision tension

Mature global part vs. emerging European alternative



The issue is not whether the part can be ordered. The issue is whether delivery can be controlled.

Procurement is becoming a resilience decision, not only a purchasing decision.

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Market efficiency and strategic resilience are not automatically the same

Globalisation and cost optimisation

Fabs, assembly and test moved toward regions offering scale and incentives.

Fabless and outsourced models

Lower capital intensity transferred control of capacity, packaging and allocation.

Consolidation and acquisitions

Roadmaps, IP and investment decisions increasingly moved outside Europe.

Space remained a low-volume market

Long lifetimes and qualification costs made dedicated product lines difficult to sustain.



Strategic autonomy depends on the complete value chain, from design and manufacturing to packaging, qualification, and long-term supply.

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Retaining capability is strategic

INNOVATION → GROWTH → ACQUISITION → EXTERNAL CONTROL

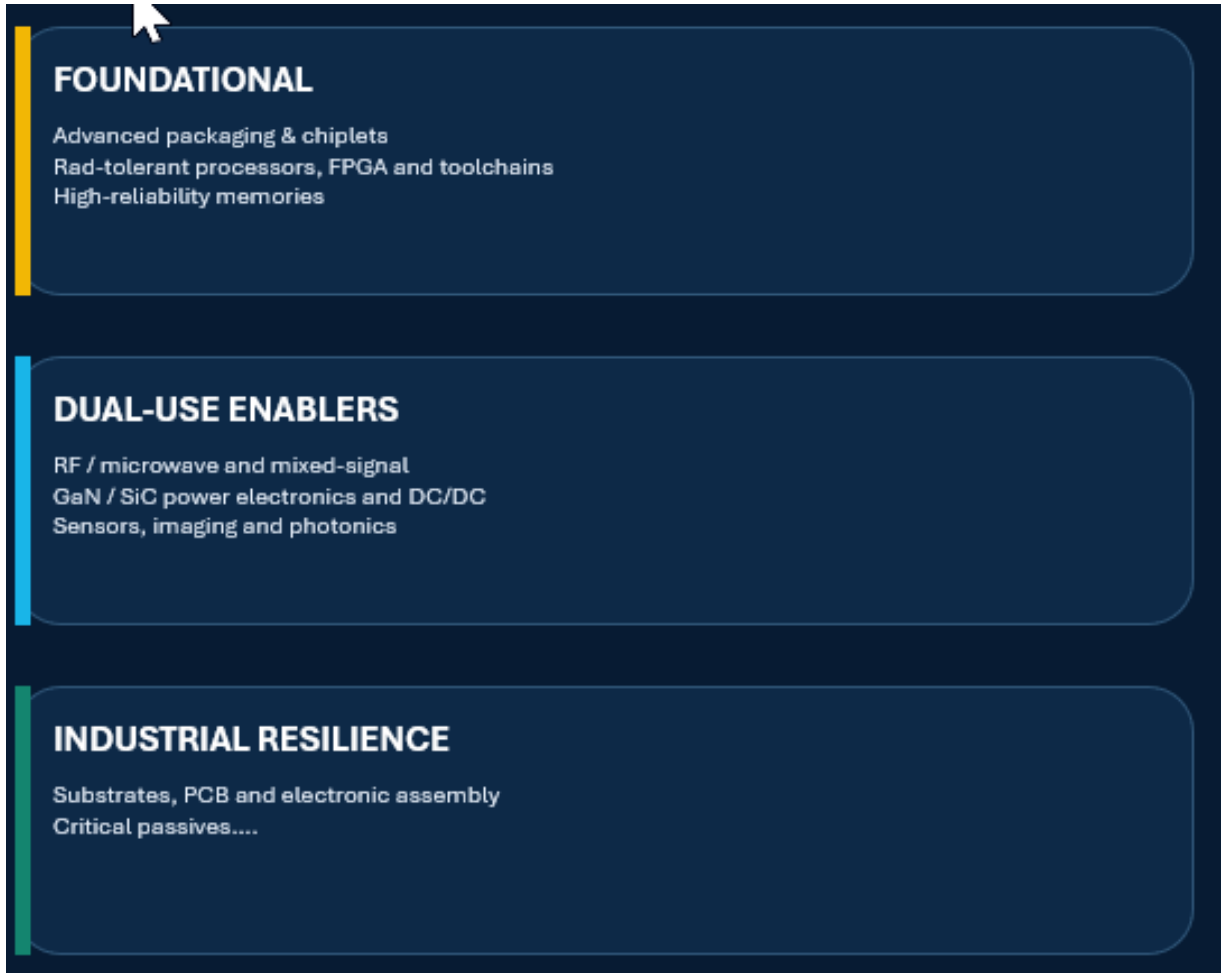
Decisions concerning invesment, product roadmaps, site development, capacity allocation or future restructuring may be made outside Europe.

Rebuilding it can require many years of investment , equipment, process knowledge and qualification.



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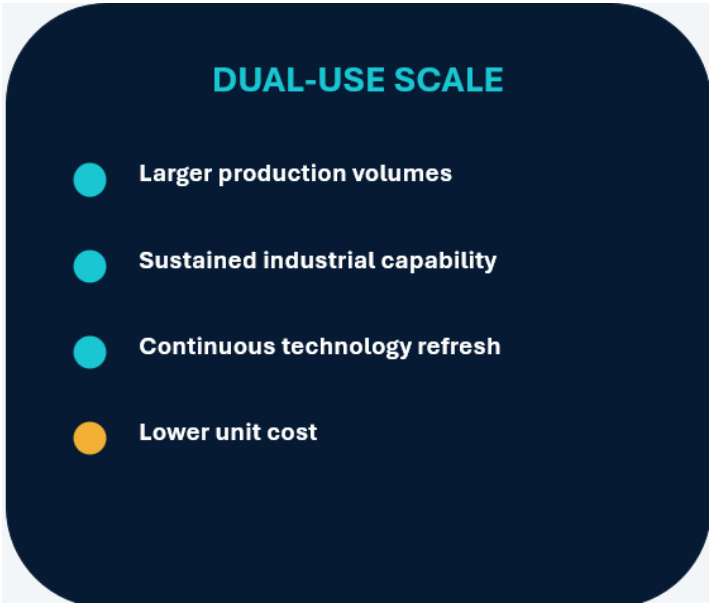
Which EEE technologies and component categories should Europe prioritise



US Space Industry Leverages MIL Specifications

US space sector benefits from decades of investment in military standards and specifications that are widely accepted by NASA, DoD, and commercial space programs.

NASA's parts selection processes continue to recognize components qualified under these military specifications as preferred choices for many space missions.



EEE sovereignty into a sustainable industrial capability

SUCCESS = competitive European products × secure full-chain access × sustained market demand

Sovereignty is achieved only when Europe can design, manufacture, package, qualify and supply for decades.

KYOCERA AVX

ACCELERATING INNOVATION



Interactive Panel Discussion: No EEE, No Sovereignty

Michel Conway

1- Looking back — why are we here?

How did Europe reach its current position in EEE components and technologies? What happened over the past few decades that led to the shift of production and capabilities outside Europe, and did Europe underestimate the importance of maintaining its own industrial and technological base?

Europe's EEE sector faces growing costs, energy, regulatory and supply-chain pressures that weaken competitiveness and increase the need for greater technological sovereignty.

- European EEE manufacturers face rising energy, labour and material costs and has pushed the alterative sourcing of lower cost alternative EEE parts.
- Producers outside Europe often benefit from lower wages, cheaper energy and fewer regulatory controls.
- Energy-intensive component manufacturing is exposed to Europe's high and volatile energy costs.
- Europe lacks a sufficiently robust long-term strategy for energy generation and storage.
- Past reliance on lower-cost solutions has limited European sovereignty in EEE components for space missions. Economies of scale does have an impact but EEE components should not be ignored.
- **Geopolitical changes makes trusted, secure supply chains and production facilities increasingly important.**
- **Dual-use technologies should support—not replace—qualified European EEE components.**

Source: Eurostat Electricity Price Statistics, H1 2025
From <https://www.globalelectricity.org/electricity-prices-by-country/>

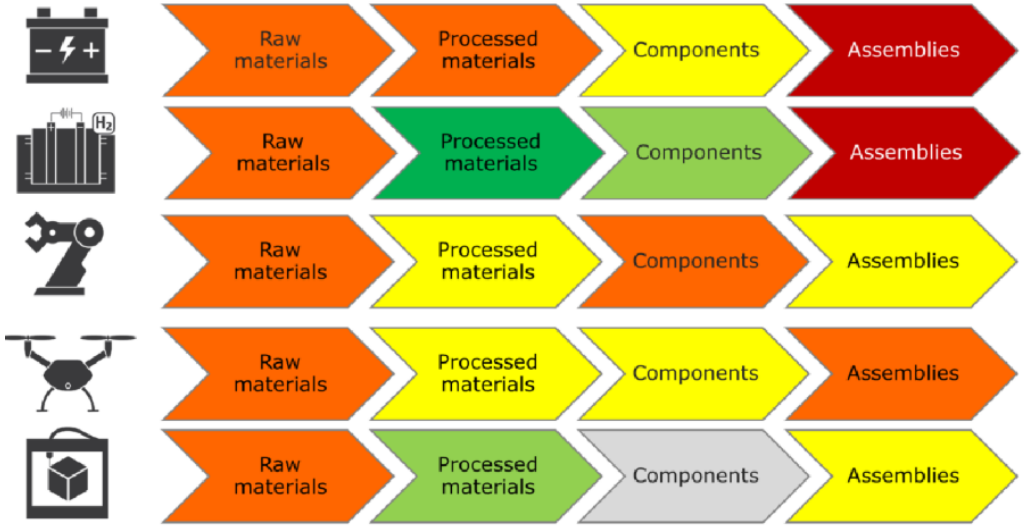
Country	Residential ($/kWh)	Business ($/kWh)
United States	~$0.15-0.16	~$0.12
China	~$0.08	~$0.09
Japan	~$0.25-0.28	~$0.18
Germany	~$0.41	~$0.24
India	~$0.08-0.10	~$0.10-0.12
Brazil	~$0.12-0.14	~$0.10
United Kingdom	~$0.35-0.40	~$0.28
France	~$0.26	~$0.18
Canada	~$0.12	~$0.10
Australia	~$0.25-0.30	~$0.18

Data compiled from multiple sources including GlobalPetrolPrices, Eurostat, and EIA

2- Which EEE technologies and component categories should Europe priorities? You can give your insights from a manufacturer's point of view without giving any data sensitive information.

Europe should strengthen dual-use technology and aerospace and defence supply chains through coordinated policy, domestic capability and greater support for European suppliers.

- In 2019, the EU identified five key dual-use technologies: advanced batteries, fuel cells, robotics, UAVs and additive manufacturing.
- These technologies can meet military requirements while also delivering civilian applications.
- Europe should prioritise raw materials, components and manufacturing and assembly capability.
- These capabilities are shared across dual-use, military and space technologies.
- A coordinated European policy is needed to identify and protect strategically important capabilities.
- **Greater preference for European-made products would help sustain domestic industry.**
- **Aerospace and defence suppliers face low production volumes, high costs and volatile demand, creating financial pressure.**
- Existing European industrial expertise and intellectual property are essential for developing future technologies.

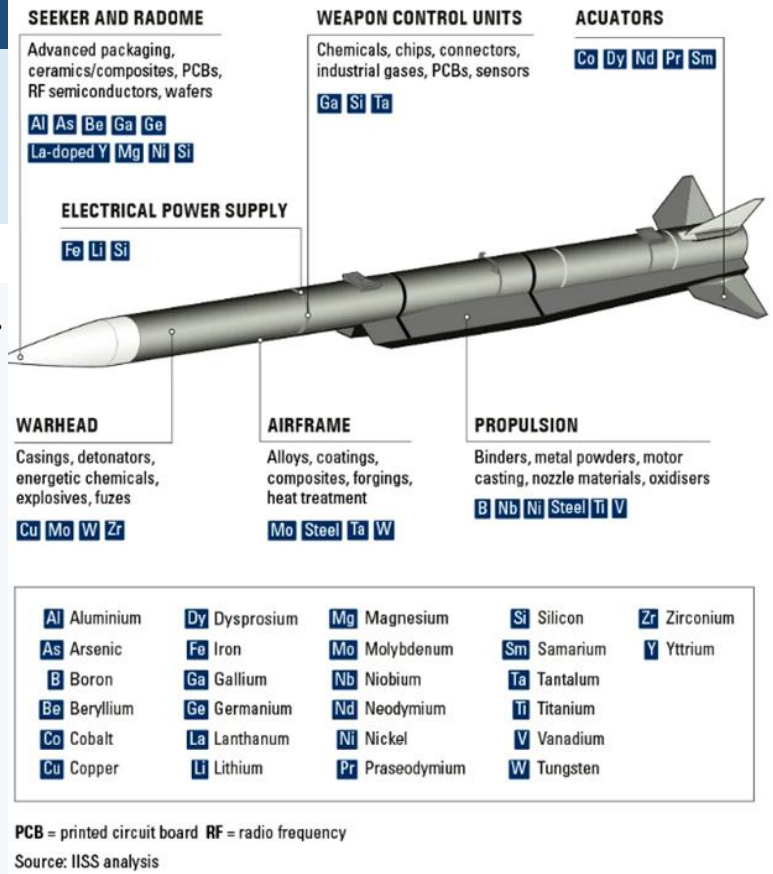


Source JRC 2019.

3- Is having a European supplier enough to ensure resilience, or do we also need secure access to materials, wafers, manufacturing equipment, packaging, testing and other parts of the supply chain?

Ongoing global change makes secure relationships with trusted suppliers essential to the long-term resilience of European manufacturing, particularly in aerospace and defence markets.

- The past decade has brought substantial global change and continued uncertainty.
- **Trusted suppliers are vital to the long-term success of European manufacturers.**
- **Supply-chain cooperation should extend across Europe and its allied countries.**
- **Reliable access to raw materials is critical for passive electronic components.**
- These material dependencies also affect the wider aerospace and defence sector.
- Missile systems illustrate the broad range of elements and materials required by defence products.



4-What should Europe do differently over the next 5–10 years to turn EEE sovereignty from a strategic objective into a sustainable industrial capability?

Summary

Europe needs a coordinated, long-term industrial strategy that pools demand, combines established and dual-use technologies, and strengthens traceable, trusted supply chains.

- A joint European policy is preferable to fragmented national approaches.
- Europe should identify critical components, materials, manufacturing and assembly capabilities.
- **Multi-year requirements should be pooled across Europe to create a sustainable demand.**
- Achieving alignment between governments may be the greatest implementation barrier.
- Sector needs should be met through a blend of established suppliers and new dual-use technologies.
- **European suppliers need full traceability of components and materials.**
- Alternative supply chains should be developed with trusted allied countries.
- Clear government strategies, industry standards and trusted oversight by ESCC would be welcome for defence market sector.



SPCD 2026

Interactive Panel Discussion: No EEE, No Sovereignty

15/10/2026

Lionel Bonora – PhD.

EEE Engineer

EUROPEAN SPACE AGENCY

SPCD 2026 - Interactive Panel Discussion: “No EEE, No Sovereignty”

Can we build a satellite only with European parts ?

- Question that popped up several times in the last years

The answer is simple : NO

- traditional equipment … 40-50% of the part types max
- even less where COTS are the baseline

So, **do we need to improve European resilience** against political and economical instabilities across the World ? Obviously **YES** (just think about all what happened since 2019)



Then come the next questions:

- What can be a realistic target ?
- What can be done to mitigate the various risks ?

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OK … let’s imagine … all the manufacturing and testing facilities are in Europe



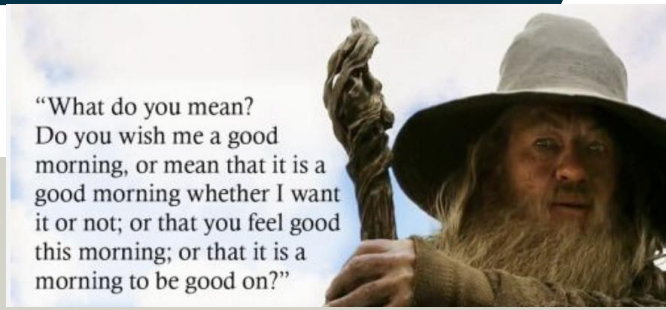
- What about raw materials ? Do we have a real grip if mined in Asia or Africa ?

- Is the cost affordable ? Is the European market alone sufficient to sustain such production ? What about parts not available in Europe (maybe less common for passive but…)

- Shouldn’t we consider parts that can serve several markets (Space is and remains a small one) ? Any risk such products are phagocyted by these (bigger) markets ?



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Obviously, **these questions have multiple answers**...and better this way !

What about :

- Multiple sources, different manufacturers / geographical origins (but proper quality)

- Can we compete with parts from mass production, made for other applications but suitable for Space ?
- Or can we use them where they do the job ?
- And focus on
  - critical technologies
  - products with specific added-value not available / accessible



One always needs a big enough market to make these products available over a sufficient period.

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THANK YOU!

