

Advanced Materials for Industrial Leadership



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Summary

The European Commission has issued a Communication proposing a strategy for advanced materials. These are materials that are intentionally designed and engineered to have superior performance or special functions. Advanced materials are considered crucial to ensure the competitiveness of the EU economy, its resilience and open strategic autonomy, and for the attainment of ambitious climate targets set out in European Green Deal. Aside from their performance improvements, advanced materials also hold the potential of reducing dependence on current practices, such as the use of hazardous and critical raw materials.

The demand for advanced materials is expected to rise in the coming years through the increased production of net-zero technologies (such renewable energy and batteries), semiconductors, and space and defence technologies. In this respect, the Commission calls for the EU to accelerate R&I in advanced materials, scale up manufacturing capacity, and increase industrial take-up of such materials.

Challenges Identified

Several challenges have been identified to achieve these objectives. This includes the current fragmentation of R&I efforts on advanced materials and long innovation processes, given the fact that only a few EU member states have specific material strategies. There has also been limited progress on the circularity of materials and material efficiency, which should be a key trait of advanced materials. This is further compounded by the lack of testing and experimental facilities within Europe.

Private investment and uptake of advanced materials has so far not caught up with the expected demand in the coming years. This should be coupled with increased capacity building and skills development of researchers and workers, and standard harmonisation.

Five Pillars

With this context, the European Commission has identified five priority pillars to support the research, production, and uptake of advanced materials.

1. European R&I on Advanced Materials

Under the first pillar, the Communication urges the Commission and member states to establish shared goals and priorities for R&I investments in advanced materials. Additionally, they are encouraged to devise a strategic framework for advanced materials, aimed at supporting the EU's twin transition, resilience, and strategic autonomy.

Such framework should be developed by the end of this year. The priorities and strategic framework should be updated regularly, considering socio-economic, scientific, or technological developments. Preliminary priority areas identified by the Communication include advanced materials to be used in energy, mobility, construction, and electronics.

On its part, the Commission shall identify additional R&I needs for the substitution of critical raw materials by Q1 2025.

2. Fast Track from Lab to Fab

The second pillar focuses on expediting the transition from laboratory research to large-scale manufacturing of advanced materials, encompassing all stages of advanced material development. The main aim is to enhance digitalization, facilitate access to testing and experimentation facilities, and ultimately streamline the innovation process. This should reduce the time to market for advanced material innovations.

By mid-2025, the objective is to establish a durable and sustainable European digital infrastructure for R&I in advanced materials, known as the 'materials commons.' in the meantime, innovators and SMEs will be supported in accessing technology infrastructures.

Finally, stakeholders will explore the feasibility of funding new Open Innovation Test Beds (OITBs) for applications related to mobility and advanced materials. OITBs are collaborative initiatives that provide common access to physical facilities, capabilities, and services necessary for development, testing, and upscaling

3. Increasing Capital Investment and Access to Finance

The European Commission will explore various mechanisms to boost public and private funding, R&D investment of advanced materials, and create novel funding opportunities.

A new co-programmed partnership between the Commission and industry has been proposed under the Horizon Europe instrument, with a budget of EUR 500 million. Industry is expected to co-fund at least 50% of this budget. The partnership promises to scale-up and accelerate the deployment of advanced materials. At the same time, the Commission and member states will collaborate on projects under the *Joint European Forum for Important projects of common European interest* (IPCEI) to find potential projects on advanced materials.

4. Fostering the Production & Use of Advanced Materials

To help industrial adoption and production of advanced materials, it is imperative to set up proper standards and expand the pool of skilled professionals. To this end, the Commission will mobilise public buyers with strong purchasing power ('Big Buyers') to stimulate innovation through public demand.

On the educational front, in 2024, an *Advanced Materials Academy* will be set up through a competitive selection process. The academy's primary goal is to speed up the creation of curricula and credentials focused on developing essential skills within the advanced materials sector. At the same time, the Commission will collaborate with standardisation bodies (including CEN/CENELEC/ETSI and ISO) to assess existing standards and find gaps.

5. Overall Governance Framework

Achieving a coordinated approach needs collaboration among various European stakeholders, such as academia, industry, funding bodies, and policymakers. To help this, a common reference body is essential. The Commission will thus set up the *Technology Council on Advanced Materials* in 2024, which will serve as an advisory body, providing guidance to Member States, Associate countries, and industry stakeholders.

Link to more information:

[New initiatives boosting European industrial leadership \(europea.eu\)](https://europea.eu)

Disclaimer: This is a policy brief to create awareness about the legislative proposal and for information purposes. It is not an official position of the Malta Business Bureau.

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