Overview – « zooming in »

• Advanced Materials

• Stakeholders

• Strategic agenda (research/innovation and role of industry)
Advanced materials – engine of innovation

Nobel prizes in physics, 2010
- Andre Geim
- Konstantin Novoselov

Nobel prizes in physics, 2014
- John B. Goodenough
- M. Stanley Whittingham
- Akira Yoshino

Nobel prizes in chemistry, 2019
- Isamu Akasaki
- Hiroshi Amano
- Shuji Nakamura
Advanced materials - inclusive approach

- Nano
- Lightweight
- Multi-functional
- 2-dim.
- Chemicals
- Composites
- Metals
- Graphene
VISION
A strong European Materials ecosystem drives the green and digital transition as well as a sustainable inclusive European society through a systemic collaboration of upstream developers, downstream users and citizens and all stakeholders in between.

MISSION
A systemic approach is needed to develop the next generation solution-oriented advanced materials.
Stakeholders calling for change 2022

Materials 2030 Manifesto
Feb 2022

Materials 2030 Roadmap
December 2022
Commission proposal for Strategic Plan 2025-2027: Innovative Materials for EU (I’M4EU)

### A new co-programmed partnership

Innovative advanced materials are engineered to have new or enhanced properties with superior performance relative to conventional (or raw) materials. They categorise as deep-tech, in line with the New European Innovation Agenda.

These materials provide for new uses essential for the green and digital transition of a resilient Europe. They include composite materials, nanomaterials and two-dimensional (2DM, one-atom thick) materials.

The partnership will focus on research, development and uptake (integration into innovative products and technologies) of a new generation of ‘safe and sustainable by design’ materials fit for the circular economy.
Existing networks on advanced materials in Europe – Need for inclusiveness

• AMI 2030 (launched after Materials2030 Manifesto)
• M-ERANET with national funding agencies on advanced materials (Horizon 2020 – running until 2026)
• ERANET-MIN with national funding agencies on critical raw materials (Horizon 2020 – running until 2025)
• Graphene Flagship (Horizon 2020)
• Malta Initiative (regulatory preparedness – nanomaterials)
• European Lightweight Network
• Others
The issue of industrial leadership

Share of global patent applications, 2017

Source: Technopolis Group, 2020

McKinsey Global Institute (September 2022).
Securing Europe’s competitiveness: Addressing its technology gap.
The issue of industrial leadership

Forthcoming study: The EU-27 owns only **15.5%** of company patents linked to AM while US (27.6%), Japan (24.2%) and South Korea (15.7%). EU stagnating ....
# European competitive edge

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R&D investment data 2016-2021 (Orbis)
Announcement in Critical Raw Materials Act

• March 2023:

• The Critical Raw Materials Communication (COM(2023)165) announces that the Commission will present a Coordinated Plan of Action with Member States on advanced materials (including on substitution)
  • Initial focus on research and innovation
Advanced Materials for Industrial Leadership

KEY PRIORITIES FOR 2024

A European Green Deal
- European Wind Power Package
- 2040 climate target
- Initiative for water resilience

A Europe fit for the digital age
- EU Space Law
- Strategy on Space Data Economy
- Initiative to open up European supercomputer capacity to ethical and responsible AI startups

An Economy that Works for People
- EU Biotech and Biomanufacturing Initiative
- Follow up to the Val Duchesse summit
- Advanced Materials for Industrial Leadership
- Initiative on rules on the European Works Council

A Stranger Europe in the world
- Strengthen partnership with Africa
- European Defence industrial strategy

An Economy that Works for People

6. Biotech and biomanufacturing
   EU biotech and biomanufacturing initiative (non-legislative, Q1 2024)

7. Social dialogue
   Follow-up to the Val Duchesse summit (Q1/Q2 2024)

8. Green and digital transition, open strategic autonomy
   Advanced materials for industrial leadership (non-legislative, Q1 2024)

9. European Works Council
   Initiative on rules on the European Works Council (legislative or 153(2)(b), in conjunction with Article 153(1)(c) TFEU, Q1 2024, responds ‘Revision of the European Works Councils Directive’)
Policy Challenges for Member States and the EU

1. Industrial competitiveness

   - Growing competition among leading economies for technological sovereignty under the Green Deal, for example clean tech and safe and sustainable by design chemicals and materials (Com recommendation) [Safe and sustainable by design (europa.eu)]
2. Material efficiency

- Always increasing demand for materials under the Green Deal; consumers’ interest into environmental footprint of future products
Overall strategic objectives

Develop a strong and inclusive materials ecosystem in Europe

- Industrial competitiveness (twin green and digital transition)
- Material efficiency/circularity = demand for materials
- Economic security and international cooperation