



EuroNanoForum 2019 - Bucharest – June 14, 2019

EUMAT – A4M WORKSHOP

**Nanotechnology and Advanced Materials research in H2020 and Horizon Europe (H-EU)
Strategic planning, impact, governance and public engagement**

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Advanced materials are key to virtually every global challenge, especially for building a decarbonised society



- Advanced Materials (along with the other KETs) are an **essential technology building block** which underpin Europe’s global leadership in various industries, especially in clean energy and mobility technologies
 - Make the next R&I framework programme bigger on KETs
- Advanced Materials are **cross-cutting** activities for Key Strategic Value Chains / Missions / high-level initiatives (EBA, ...)
 - Applied research on Advanced Materials to be **better integrated in an application-driven approach** but with a **higher visibility/explicit focus**
 - Challenges/topics common to all sectors (circular economy, sustainability, impact of digitalization,...) to be tackled in a coordinated/common approach
 - Further build on the success of **public-private partnerships** directly engaging industrial players
 - has proven to be critical for collaborative research productivity and technology development
 - important in building trust in a long-term vision, mobilising private investment in research
- Innovation policy should **consistently cover the full value creation chain**
 - from fundamental research to applied research to product development and business creation
 - aim for the long-term but support both disruptive and incremental improvements in technologies
- Introduce a more **dynamic project management process**, including a stage-gate approach, with specific milestones for go/no-go in projects
- Further develop and exploit the **synergies** between European Structural and Investment Funds, Horizon 2020/Horizon Europe and other EU funding programmes, especially for **inter-regional cooperation**

| | PV | Wind | Energy Storage | Fuel Cells | Grids | CCS | Thermal Solar | Ocean Energy | Nuclear |
|---|--|------|----------------|------------|-------|-----|---------------|--------------|---------|
| Functional particles / filaments | new functional nanoparticles | | | | | | | | |
| | nano imprinting / nano structuring | | | | | | | | |
| | modelling | | | | | | | | |
| Materials for functional layers / membranes / barriers | coatings and coating techniques | | | | | | | | |
| | novel functional membranes with or without electrocatalysts | | | | | | | | |
| Composite materials | high strength, light weight materials | | | | | | | | |
| | fiber reinforced materials | | | | | | | | |
| High performance materials for extreme application conditions | high temperature, low temperature materials | | | | | | | | |
| Novel chemistry / metallurgy for new materials / systems | corrosion resistant materials | | | | | | | | |
| | valid across the board Ex. Inks, new power electronics, new electrochemistry, new HTS,... | | | | | | | | |

Figure 1: Example for the relation of horizontal energy materials platforms and energy technologies. Note that not all relevant energies and energy processes and uses are shown.

Further reinforce the innovation ecosystem of materials technology infrastructures, including open innovation test beds and pilot lines



- Shared facilities allow companies to cooperate and to apply new disruptive capabilities to their specific product, process or system without needing to acquire all the devices and competences from the beginning
- Shared pilot facilities are a key element of improving the impact of research and translating research results into real applications
 - demonstrate the practical applicability of KETs in addressing the real problems tackled by missions.
 - brings high value solutions to the market faster and reduces risk (particularly for SMEs and start-ups)
 - have great potential to gather critical mass
- Open access to infrastructure needs clear, beneficial and fair rules, both for service providers and users (as regards business models, pricing, intellectual property rights,...).
Still work to be done on reaching a balance between open data and strategic data
- Need for a flexible combination of EU, national, regional and private funding

Towards an integrated and balanced Governance for more impactful Advanced Materials R&I activities



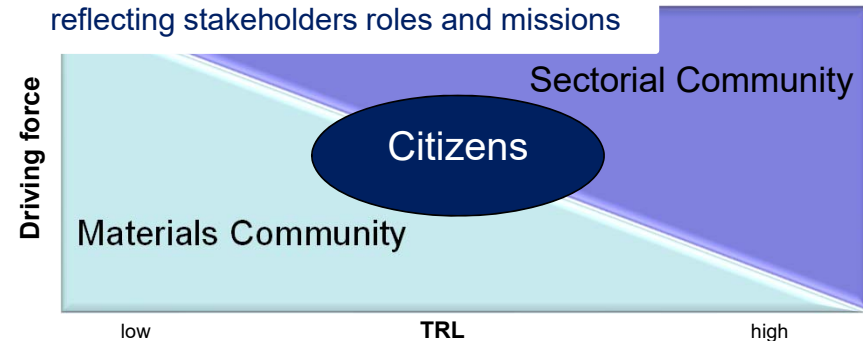
Develop a matrix approach to avoid "silo thinking" and fragmentation between sectors



Common challenges

- Sustainability
- Circular Economy
- Digital revolution
- Safety...

Strategic Planning to be conducted in a way reflecting stakeholders roles and missions



Expected benefits

- a **higher visibility** of the key importance of Materials in innovative solutions, leading to more allocated resources
- a **better multiannual Strategic R&I Plan** (orientations and priorities) and more relevant Work Programmes
- an **increased R&I impact** allowing in fine to
 - deliver on citizens' priorities,
 - boost the Union's productivity and competitiveness,
 - sustain our socio-economic model and values
 - enable solutions that address challenges in a more systemic way

EMIRI works for the future of Advanced Materials* for a decarbonised economy in Europe



EMIRI is an Industry Community coming together ...



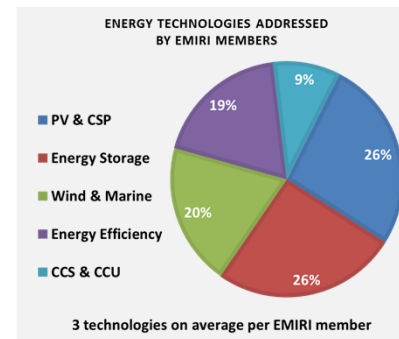
Supported by Research & Technology Organizations



With key Associations bringing in their expertise



Spanning Innovation & Manufacturing



- Presence in 19 EU countries
- Over 80 innovation centers
- Over 50 manufacturing sites

* Advanced Materials such as steel, non-ferrous metals, alloys, glass, ceramics, polymers, composites ...