

Advanced Materials at the Heart of Industrial Competitiveness

Session M4

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Setting the Scene: EU Advanced Materials Policies and Initiatives

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Introducing the Advanced Materials Partnership, IAM4EU

Eva Schillinger, Secretary General IAM-I

Horizon Europe partnerships



March 2025 (Cluster 4) Digital, Industry and Space

- ☐ ADRA
- ☐ Clean Steel
- ☐ IAM4EU → 250m€ EU budget
- ☐ Made in Europe
- ☐ Photonics21
- ☐ Processes4Planet
- ☐ Textile

Last batch of new partnerships adopted by European Commission on March 19th, MoU signed

Objectives and expected impacts

Contribution to Horizon Europe Strategic Plan for 2025-27
EC Policy on Advanced Materials for Industrial Leadership

OBJECTIVES

EXPECTED IMPACTS

GENERAL

EU leadership in advanced materials innovation and **industrial competitiveness** in strategic markets

Twin Green and digital Transitions
Competitive & sovereign EU

SPECIFIC



IAMs and associated technologies



Cross-enabling tools & methodologies



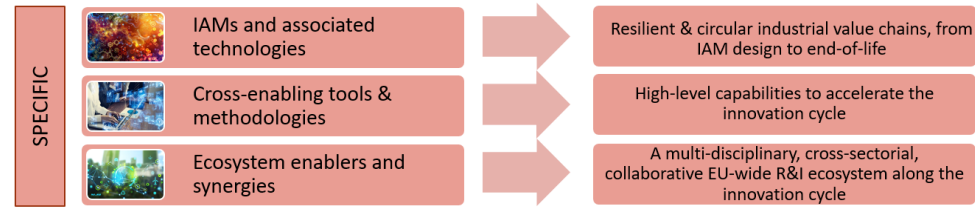
Ecosystem enablers and synergies

Resilient & circular industrial value chains, from IAM design to end-of-life

High-level capabilities to accelerate the innovation cycle and respond to new requirements

A multi-disciplinary, cross-sectorial, collaborative EU-wide R&I ecosystem along the innovation cycle

SRIA – Outline



IAMS AND ASSOCIATED TECHNOLOGIES

- P#1 - CRM-free/lean and efficient catalysts for energy conversion and CO₂ reduction
- P#2 - High-conductivity and durable membranes for efficient H₂ production and conversion
- P#3 - Innovative concepts, designs & components for efficient H₂ and thermal energy storage
- P#4 - CRM-free/lean magnetic phases for high-performance permanent magnets in circular value chains
- P#5 - Innovative electrodes, electrolytes, binders and separators for electrochemical energy storage.
- P#6 - IAM-enabled surfaces & interfaces for multifunctional components & products
- P#7 - IAMs for lightweight, durable and sustainable structural systems
- P#8 - IAMs for energy efficient, multi-functional, photonic, electronics, spintronic, and quantum technologies
- P#9 - IAMS based on (Design for) recyclable polymers/polymeric composites
- P#10 - IAMS as PFAS alternatives or based on PFAS alternatives on PFAS alternatives

CROSS-ENABLING TOOLS AND METHODOLOGIES

- P#11 - FAIR and semantic interoperable digital materials data space
- P#12 - Predicting performance and lifecycle of materials
- P#13 - Valid test methods supporting the implementation of SSbD
- P#14 - Data management & curation for efficient SSbD

ECOSYSTEM ENABLERS AND SYNERGIES

- P#15 - New business models
- P#16 - Synergy with the “Advanced Materials Academy”
- P#17 - Networking and widespread use of technology infrastructures
- P#18 - LRI, OITB and MAP integration
- P#19 - Contributions to further development of standards and norms

I-INTRODUCTION

1. Innovative Advanced Materials
2. Functionality, Performance and Disruption
3. Safety, Sustainability and Circularity

II-INNOVATIVE ADVANCED MATERIALS AND ASSOCIATED TECHNOLOGIES

1. Priority areas
2. R&I Priorities (P#1-10)
3. Overarching needs & challenges

III-CROSS-ENABLING TOOLS AND METHODOLOGIES

1. Materials knowledge valorisation through digitalization (P#11)
2. Materials modelling, characterisation and testing (P#12)
3. Embedding Safe & Sustainable by-Design (P#13-14)

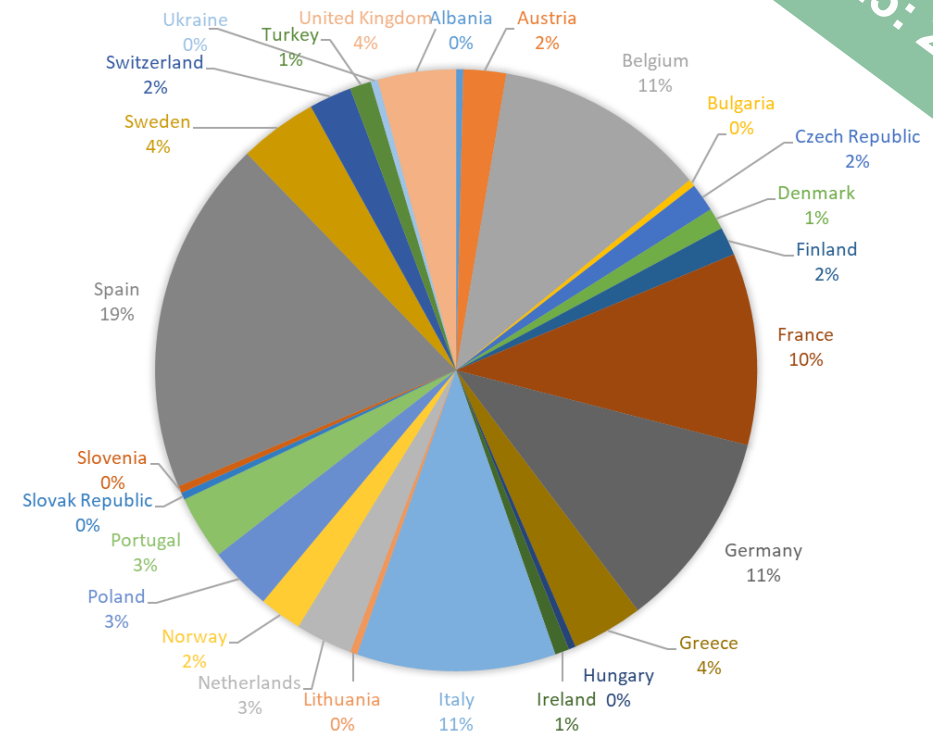
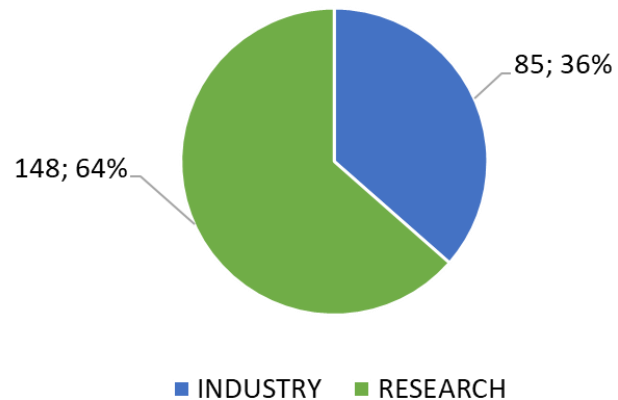
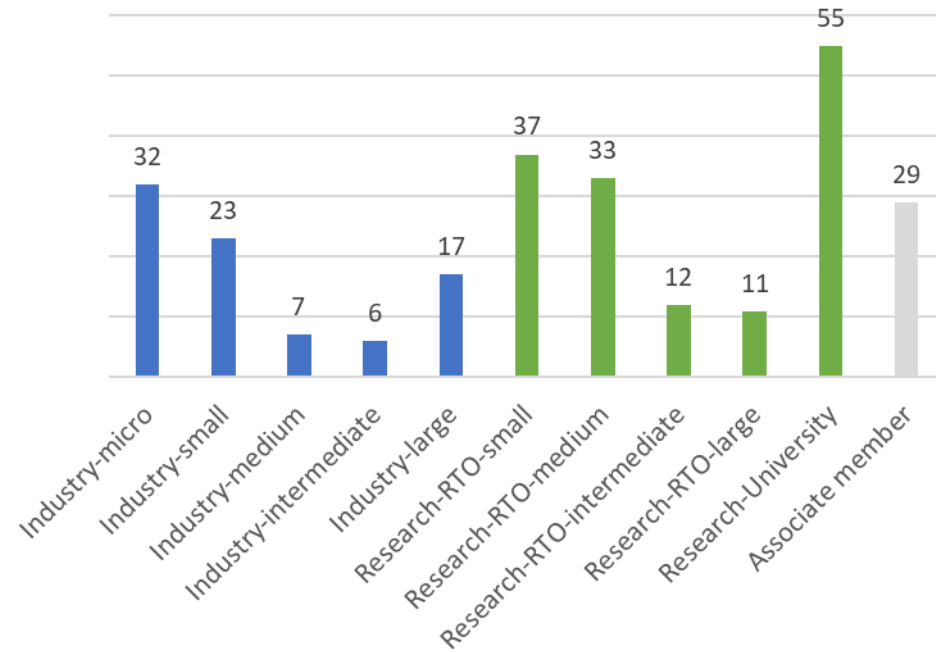
IV-ECOSYSTEM ENABLERS AND SYNERGIES

1. Stakeholders' collaboration (P#15)
2. Fostering the production, use & re-use of advanced materials (P#16-18)
3. Standards & norms (P#19)

IAM-I membership (GA Jan '25)



Update GA May 2025: 291 members



- 262 members
- 26 Countries (7 EU13; 5 AC)

WGs & TFs

...under implementation...



Seven Working Groups

- WG#1 – AI, Materials digitalization & Data management
- WG#2 – Resilient & circular value chains
- WG#3 – Materials Innovation Markets (CONSTRUCTION)
- WG#4 – Materials Innovation Markets (ELECTRONICS)
- WG#5 – Materials Innovation Markets (ENERGY)
- WG#6 – Materials Innovation Markets (TRANSPORT)
- WG#7 – Materials Innovation Markets (HEALTH)



Four Task Forces

- TF#1 - Education & Workforce
- TF#2 - Standards & Norms
- TF#3 - Infrastructures, support to SMEs & Upscaling
- TF#4 - Policies, Funding & Strategy beyond HE

BECOME A MEMBER!

IAM-I Application to become members:



<https://www.iam-i.eu/become-a-member>



Stay tuned!



<https://www.linkedin.com/company/iam-i/>



<https://www.iam-i.eu/>

Panel Discussion

Gerd Löhden
Nicola Piccirelli
Kostas Kostarelos

Gerd Löhden, Evonik, Germany



“Advanced materials are the crucial enabler for a number of key technologies for the green transition, such as green H₂, Carbon Capture and Batteries as examples.

Being at the beginning of the value chain and therefore the first ones to invest into new, not yet existing markets, we need the right conditions to contribute to a green competitive industry.”

Nicola Piccirelli, Safran, France



“Advanced materials are essential to the aeronautics industry for the development of high-performance products that are more durable, and more eco-friendly.

Competitiveness in the field of advanced materials requires a collaborative approach at the European level to ensure sustainability and sovereignty, which are vital for the aeronautics industry.”

Kostas Kostarelos,
Catalan Institute for Nanoscience and Nanotechnology (ICREA/ICN2), Spain
and University of Manchester, UK



“Europe has the opportunity to lead the translation and use of advanced materials in technology spaces and markets of high-value/worth generation (e.g. medical).

We must break the stereotype ‘Europe-for-Regulation / US (and now China)-for-Innovation’ but assure safe, sustainable and socially-acceptable use of advanced technologies.

Encouragement for dual use of advanced materials and technologies is full of challenges and should be paired by careful communication and engagement of all stakeholders - opportunity for town hall meetings and other forms of direct action and engagement can accelerate this urgently needed dialogue.”

Panel Discussion

Gerd Löhden
Nicola Piccirelli
Kostas Kostarelos

Fireside Chat

Maria Cristina Russo, Director for Prosperity, DG Research and Innovation,
European Commission

Q&A