Science Communication Plan of the COST Action <EU-MACE, CA22123>

Each Action MC shall adopt a Science Communication Plan including a communication, dissemination, and valorisation strategy, as well as a plan to implement this strategy. The Science Communication Plan shall reflect the MoU in particular connecting to the aims and objectives of the Action. It is recommended that the Science Communication Plan is approved by the Management Committee not later than 6 months after the start date of the Action. It is recommended that the Science Communication Plan, including progress on implementation, is discussed on a yearly basis by the Action MC and reviewed or amended where necessary. *(Annotated Rules for COST Actions, article 5)*

This template is provided to COST Actions as a support for developing the Action Science Communication plan. Actions can adapt the plan structure and content according to their needs.

VERSIONS AND HISTORY OF CHANGES

Version	Date of adoption by MC	Notes (e.g. changes from previous versions)	Lead author(s)*
1.0			Gloria Botton Ivan Matejak S. Nakamae
1.1			M. Fabrizio

***** *The Science Communication plan is developed, updated and its implementation monitored under the overall supervision of the Science Communication Coordinator, and in close collaboration with other relevant contributors.*

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1. SUMMARY

EU-MACE (European Materials Acceleration Center for Energy) aims to become an ecosystem for accelerated materials development built around ***Materials Acceleration Platforms*** (MAPs) at the user end, gathering researchers and stakeholders with state-of-the-art digital and material competences combined with the market/social pull. We take inclusive & systemic approach to lay the foundation for a future centre of excellence for advanced functional materials to assist transition toward a united and stronger EU. To this end our Science Communications (S&C) plan focuses on key knowledge creation and transfer; e.g., ***Bottom-up and horizontal knowledge transfer***, ***Technology push & Market pull interactions***, ***Trans-national education programmes*** *and* ***Public outreach***. In the context of current paradigm shift in materials science research driven by advancements in automation and artificial intelligence, EU-MACE's S&C should help boost the geographic disparity in the access opportunity to the most advanced research facilities, enhance the young researchers' and investigators' (YRI) career development as well as continued improvement of scientific practices of established researchers.

EU-MACE's goals, specific objectives, and the overall Action strategies for communicating, disseminating and valorising the Action's activities and results are detailed in the Memorandum of Understanding (**MoU**). The responsibilities of bespoke actions are coordinated **by Working Group 5** (WG5) "Dissemination, Communication & Promotion," **WG4** "Training," in synergy with the **Grant Award Coordination team** and the **Action Chair**. The **Scientific Communications Coordination team,** the **Action Chair** and the **Grant Holder Manager** will oversee all communication, dissemination and valorisation action contents to align with the EU-MACE's objectives and to comply with the COST-Action rules.

Continuous interactions with the **COST Science and Administrative Officers** (Radenka Krsmanovic Whiffen and Milena Stoyanova) will be crucial for ensuring successful communication of EU-MACE and for maximising its impact.

2. GENERAL AIM AND TARGET AUDIENCES

EU-MACE identify following target audiences outside the Action: **International research communities, Students and educators (including undergraduate university levels), EU and national energy communities, Industry associations and technology clusters, Professional boards, Policymakers, regulatory & standardisation bodies,** and **general public**. Within the EU-MACE, the audiences can be broadly categorized into: research community, scientific societies (including social sciences), EU and international research programmes and platforms (related to advanced materials and renewable energy) and Industrial participants, each bringing its own expertise necessary for succeeding materials research acceleration. These audiences will benefit from and contribute to the creation and transfer of knowledge areas described in Section 1 through effective communication, dissemination and valorisation of Action results.

The specific objectives related to the communication, dissemination and valorisation and the key messages (goals) are summarized as below. For specific communication, dissemination and valorization actions, please refer to the Sections 3 through 5.

Bottom-up knowledge (Audience: Action community, International research communities, students and educators, Energy communities, Industries)

- *Objective*: Create new, and/or enriching existing data and knowledge-base by contributions from individual research groups for improving the AI-assisted materials design, automated characterization schemes and the result interpretation and optimization of MAPs.
- *Message/Goal*: The stakeholders will gain access to large-scale MAPs and acquire the operational knowhow of such research infrastructures.

Horizontal knowledge: (Audience: Action community, International research communities, students and educators, Energy communities, Industries)

- *Objective*: Nurture interactions between existing MAPs participants, in particular around metadata standardization and exploration of new materials
- *Message/Goal*: Coordinated research dynamics around common pilot materials for multiple renewable energy applications, leading to the creation of new international MAP initiatives.

Technology push vs. market & society pull: (Audience: Action community, International research communities, students and educators, Energy communities, Industries, Professional boards, Policymakers & Regulatory /standardisation bodies)

- *Objective*: Foster interdisciplinary and cross-sectoral collaborations between materials between R&D, industries and regulatory bodies
- *Message/Goal*: Identification of limitations and gaps between existing technologies, manufacturing capacity and market needs will be achieved. Legal framework for intellectual property rights (IPR) surrounding the materials data and metadata ownership will be addressed.

Trans-national education programmes: (Audience: Action community, International research communities, students and educators, Energy communities, Industries)

- Objective: create the appropriate scientific and academic environment for the setting up of an ERASMUS-Mundus type master project related to the accelerated and innovative design of materials for energy.
- Message: to build up a pool of young materials scientists whose academic skills will be both specialized and transverse encompassing the modern numerical tools (AI, big data, etc.), robotics, sustainability, etc.

Knowledge Transfer to public: (Audience: Action community, International research communities, students and educators, Energy communities, Industries, Professional boards, Policymakers & Regulatory /standardisation bodies, Public)

- *Objective*: Promote members' achievements, advocate the advantages of accelerated materials research approach
- *Message/Goals*: Democratize MAP concepts to larger public and shift the common sense

3. PLAN FOR THE COMMUNICATION OF ACTION RESULTS

WHY It is relevant to disseminate Action activities and results?	• Within EU, MAPs are highly concentrated in Germany, UK and few other countries. Effective communication can reduce the geographical disparity in the knowledge level and competence is alarming • Urgent need for accelerated deployment of clean energy technology requires even faster development of advanced functional materials requiring truly

	interdisciplinary and cross-sectoral engagement from all stakeholders.
WHAT is the key message?	• Provide an example R&D roadmap for accelerated materials integration built upon a truly systemic approach • Change the current common sense regarding the research methodologies and its funding scheme
WHO is the target audience?	• Scientific community, Scientists, Academia; • Industry, SMEs, investors • Policymakers, regulatory bodies • University students and educators
WHERE and how to communicate & disseminate?	• Through the Action and members' website; • SNS (LinkedIn); • EU organized forums • Industry and technology fairs (booths, flyers) • Popular science events (booths, demos) • Experts and MAPs searchable platform
WHEN it is appropriate to start communicating & disseminating?	Throughout the Action lifetime • Action logo is selected in M3. • Action website & social media are online since M6 • Participation at bespoke events takes place at 1-2 times a year; • The searchable platform is made online in year 1 and continuously updated and enlarged. • Flyers and Roll-up banner are created for strengthening the visual identity of EU-MACE

4. PLAN FOR THE DISSEMINATION OF ACTION RESULTS

WHY It is relevant to disseminate Action activities and results?	• To create inclusive and interdisciplinary knowledge-sharing space for researchers and investigators from all innovation/value chains needed for efficiently integrating advanced materials (born out of MAPs) into technology. • To ensure generation and gender balance and thus minimize the prejudice in the decision making processes when seeking future application and market opportunities for newly developed advanced materials • To promote the creation and funding of new MAPs for a new class of promising materials (WG3). • To increase the preparedness of YRIs in advanced numerical and automation tools and in sustainability issues for leading the future 'systemic approach'
WHAT is the key message?	• MAP needs improvements and a wide spectrum of expertise outside of materials science is needed. • Change the current common sense regarding the research methodologies and its funding scheme • There is a dire need for experts capable of building, operating and leading self-driving laboratories.

WHO is the target audience?	• Scientific community, Scientists, Academia; • Industry, SMEs, investors (energy sectors) • Policymakers, regulatory bodies • University students and educators
WHERE and how to communicate & disseminate?	• Action workshops and webinars • Conference presentations (WG1, 2, 3) • Training schools (WG5) • Action Website and SNS platform • OA publications
WHEN it is appropriate to start communicating & disseminating?	Throughout the Action lifetime • 2 hybrid-events (workshop/seminar/forum) are organized every year • Webinars are incorporated into the monthly update meeting from year 2 • Training schools (WG5) • The website and SNS (Linkedin) platform are used to disseminate Action activities and members' achievements, events, vacancies, etc. • We encourage publications of scientific work achieved through STSM collaborations between members

5. PLAN FOR THE VALORISATION OF ACTION RESULTS

WHY It is relevant to disseminate Action activities and results?	• The coordination among MAPs is a strategic imperative at national and international scales, requiring the on boarding of science and research policy makers.
WHAT is the key message?	• Regulatory framework on all aspects of renewable energy technology (from safety to data/metadata structuration) need to be considered. • Mutual understanding and balance between the technology push and the market/society pull requires direct exchanges between the stakeholders • Creation of MAPs on strategic material class is needed
WHO is the target audience?	• Scientific community, Scientists, Academia; • Industry, SMEs, professional boards • Policymakers, regulatory bodies
WHERE and how to communicate & disseminate?	• Online channels (website, SNS (LinkedIn)) (Deliverable D5.1); • EU organized forums • Workshop invitations • Industry and technology fairs (booths, flyers) • Experts and MAPs searchable platform (DT1) • Roadmap papers (DT3)
WHEN it is appropriate to start communicating & disseminating?	Throughout the Action lifetime • Continuous updating of Action website & social media • Participation at bespoke events takes place at 1-2 times a year;

	• Members of local authorities (e.g., regional scientific, energy program officers), industrial society boards, etc., are invited to Action workshops and events. • The searchable expert and MAP platform is made online in year 1 and continuously updated and enlarged for consultation

ANNEX 1

The tables below are meant to provide an overview to the Action of relevant dimensions to be considered while structuring the Science Communication Plan. Table 1 highlights the different scope of Dissemination and Communication activities, while Table 2 underlines key questions to be addressed in each plan.

TABLE 1. COMMUNICATION – DISSEMINATION – VALORISATION

	COMMUNICATION	DISSEMINATION	VALORIZATION
Objectives	Promotion of the Action and its results. Raise awareness about the topic. Inform, promote and communicate – Visibility	Public disclosure about the Action results only.	Make concrete use of results for research, knowledge transfer or commercial use.
Expected Impact	Show the success of research collaboration. Engaging with society to show how it can benefit from the Action results.	Maximise result's impact. Allow researchers to go a step forward. Make Action results a common good.	For socio-economic purposes, further research, market validation, licencing, norms setting, standardisation. Represents society's direct & indirect return on the public sector's investment in research.
Audiences	Reaching multiple audiences from general public, citizens, civil society, and mass media	Groups that may use the results in their own work including peers, industry, stakeholders. Regarding policymakers, engage and share evidence-based results during the legislative process.	Not only researchers: incubators, venture capital, local, national or EU-related innovation ecosystems including policy-makers, industry, SMEs, sector of interest, civil society.
Languages	Non specialist language, layman – avoid jargon Be understandable.	Scientific and specialist language/jargon.	Combines both general and technical language to present reports, results, prototypes, software, data, etc.
Channels & Tools	Public debate, TV channels, radio, newspapers, websites, social media targeting general public. Leaflet/brochure, infographics, multimedia (podcast, webinars, videos)	Peer-review journals, scientific or stakeholder conferences, online repository of results, etc. Leaflet/brochure, infographics, multimedia (podcast, webinars, videos) EU related platforms and services such as Open Research Europe, European Open Science Cloud.	Stakeholder groups and events, industry publications/reports, competitions/awards. EU related platforms and services such as CORDIS, Horizon Results Booster, Innovation Radar, Horizon Results platform, European Patent Office.

TABLE 2. THE 5 W TO STRUCTURE YOUR PLAN

WHY It is relevant to communicate about the Action?	A few examples: • Research has been scattered across Europe; • Urgent need for a coordinated and joint effort to build a collaborative platform linking science, industry, and management; • Raise awareness; • Bring added value of belonging to a multidisciplinary network involving numerous countries; • To spark new collaborations.
WHAT is the key message?	Consider the Action MoU to set the objectives and develop the main key message. A few examples: • Improve the quality of the air, water, health, roads, buildings; • Change the current legislation; • Explore new techniques in treating cancer.
WHO is the target audience?	A few examples • Scientific community, Scientists, Academia; • Businesses, industry, SMEs: • NGOs, Citizen organisations, patient groups; • Authorities, Policymakers and specify at what level: local; regional; national; European or international…
WHERE and how to communicate & disseminate?	Use the tools and channels to convey the key message of your network • Public debate; • TV channels, radio, newspapers, websites, social media; • Workshops, training schools, conference, fairs, festivals, campaign…
WHEN it is appropriate to start communicating & disseminating?	A general recommendation - From the start to the end Think of timeliness – key moments during the lifetime of the Action when there is something new to release. • When setting the network to introduce the Action; • When the website & social media are set; • When there are some results to release; • When participating to an activity that has a wider scope with key stakeholders; • When a joint scientific publication is published; • When other evidence-based results and output are available. In short: not only at the end of the Action but during the lifetime. Planning is key: a dissemination calendar based on the Action planned activities and milestones is helpful to identify key moments.