



NanoMaterials Enhanced
Membranes for Carbon Capture



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Project acronym: NANOMEMC²

Project full title:

NanoMaterials Enhanced Membranes for Carbon Capture

*Nanomaterial based membranes and processes for improved
pre/post combustion Carbon Capture*



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List of abbreviations and definitions

Abbreviation	Definition
EC	European Commission
REA	Research Executive Agency

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Executive Summary

This deliverable deals with all the activities planned to disseminate the NANOMEMC² project results. The document includes a description of the communication channels and of the tools that will be adopted to disseminate the NANOMEMC² project objectives and future results as well as a description of the strategy to reach the different stakeholders.

The key goal is to make sure that the project's outcomes are widespread to the appropriate target stakeholders, at appropriate times, with an appropriate methodology.

This plan includes the initiatives related to project duration and is also to be considered as a guide to support the consortium to carry out the dissemination activities using the right material and channels. For this reason, the present deliverable (D 7.2 Dissemination Plan) will be regularly updated on the basis of the project's evolution and of the acquired new knowledge that will allow adding new dissemination opportunities.

As said, this document defines the dissemination strategies and actions as well as the activities behind the dissemination campaign. The document will look at the communication materials that will be realized in order to create the project visual identity, promotion materials, online engagement with stakeholders, media activity, and technical dissemination.

The document is articulated in 5 main sections:

Section 1

Introducing the purpose of this deliverable and presenting the main objective of the project.

Section 2

Relates to the NANOMEMC² approach to its dissemination where the communication strategy is being presented in order to reach a real impact on the relevant stakeholders.

Section 3

Deals with the aggregation of the NANOMEMC² relevant stakeholders and explaining which methodology has been chosen in order to guarantee their successful engagement.

Section 4

Reports on the dissemination materials developed and the ones planned.

Section 5

Presents the activities carried out and planned by each consortium partner including conferences, press release, presentations and papers.

1 Introduction to the project deliverable

This deliverable presents a plan of the dissemination activities.

Aim of the Dissemination and communication activities is:

- To widespread the project objectives and potential benefits towards the stakeholders in order to generate awareness without compromising IPR;
- To obtain feedback and suggestions about the intermediate project results so as to get a comprehensive validation from stakeholders covering all the targeted market sectors,

The deliverable 7.2 provides a general overview on the dissemination approach, including the following main points:

- The available dissemination channels and instruments,
- The major stakeholders and targets groups to focus on,
- The main dissemination strategies actions for each partner,
- The NANOMEMC² events, publications and all the other disseminations activities to be realised and planned

1.1 NANOMEMC² Project presentation

For the presentation of the project three main aspects have been taken into account: A brief explanation of the project, general goals and the expected benefits as well as challenges that this project presents in its development.

The Project

Membrane separation processes can be applied to many CO₂ capture processes from pre-combustion (CO₂-H₂ / CO₂-CH₄ separation) to post-combustion (CO₂-N₂) and oxyfuel (O₂-N₂) and are generally endowed with high flexibility and potentially low operating costs when compared to other capture methods. However the current materials lack the separation performance and durability needed for an efficient and economically feasible exploitation of such technology.

The NANOMEMC² project aims to overcome the current limitation by focusing on the development of innovative CO₂ or hydrogen selective membranes with high flux and selectivity suitable for application to both pre and post-combustion capture processes.

To address this objective nano-composite or mixed matrix membranes will be developed with particular focus on facilitated transport mechanisms promoted by carrier attached to the polymer or the filler.

Graphene based nanoplatelets and cellulose nano-fibres will be studied in detail along with possible modification to improve polymer compatibility and affinity with CO₂.

New generations of Facilitated Transport Mixed Matrix (FTMM) and Continuous Phase Mixed Matrix membranes for CCS applications will be developed with increased performance for both pre-combustion and post-combustion capture. Both hydrogen selective (for pre-combustion) and CO₂ selective membranes (for both pre and post combustion) will be developed targeting flux and selectivity beyond the current performance for industrial deployment of carbon capture membrane technologies.

Objectives

The general objective of the NANOMEMC² project is to contribute to a real and effective deployment of CCS technologies by reducing the cost and energy penalty of CO₂ capture through the development and optimal integration of innovative membranes for CO₂ separation within different energy intensive industrial processes.

It will be implemented through the attainment of the **scientific NANOMEMC² main goal**: to fully develop the potential of membranes in the selective capture of CO₂ from gaseous emissions, increasing the efficiency of the capture step, and reducing the overall CCS cost below the value of 40€/tonne of CO₂ avoided.

NANOMEMC² will focus on both pre-Combustion and post-combustion strategies thus applying new membranes for separation of CO₂ on both fuels and flue gases. To that aim, both CO₂ selective and hydrogen selective membranes will be considered in the project to increase flexibility thus maximize the chance of success of the proposed technologies. A novel generation of highly functionalized nano-fillers as well as of novel preparation technologies, able to simultaneously increase permeance and selectivity of the final membranes will be used for the synthesis of advanced hybrid materials. The tunable structure of the nano-particles and a proper functionalization design will allow this new class of nano-material-enhanced hybrid membranes to meet the industrial criteria for a wide deployment of capture process in existing and future energy intensive industrial plants.

NANOMEMC² will also address the development of new, high efficiency capture processes by actively coupling the research for novel membranes with the simulation and techno-economic analysis of different possible schemes for the efficient implementation of the capture step in the industrial plants of interest.

This specific objectives will be complemented by the **NANOMEMC² cooperation goal**: to establish a strong cooperation between Europe and the Republic of Korea in the field of CCS in order to exploit complementary expertise and accelerate the progression towards industrial development of CO₂ capture solutions. The project will develop a constant flow of knowledge and information with the Korean partners that is at the forefront of research in terms of membrane technology for CO₂ capture. In line with the strategic approach adopted by the EU in the international cooperation for R&I and as reinforced at the 5th EU-Korea Joint S&T Cooperation Committee in June 2015, the EU and Korea face similar challenges and share many values and concerns. CCS is one of these challenges and thus focusing the collaboration among European and Korean scientists and innovators will provide mutually beneficial effects.

Benefits

The NANOMEMC² approach is to address, through process intensification and technological innovation, three of the highest priorities in the EU energy-intensive industry, namely:

- **CO₂ emissions reduction (- 35% for basic set up);**
- **Energy penalty (from current 30% of amine absorption down to potential 20% expected)**
- **Cost competitiveness (at least -20% for both CAPEX and OPEX).**

The NANOMEMC² project will have relevant impacts in the EU industry and global markets, by:

- **Contributing to advance the knowledge** on new materials, technologies and processes for cost-efficient and high-performance CO₂ capture. The NANOMEMC² project aims at the development of **next generation** capture processes based on **membrane** gas separation processes and the use of innovative solution for hybrid membranes exploiting **facilitated transport** or **sieving** mechanisms;
- **Build a strong and concrete case for rapid industrial application**, by demonstrating and pre-validating the above innovations for two crucial EU industrial sectors during the project (oil refineries and cement production). Several options will be investigated in term of process flow sheet and the combination of synthesis and characterisation with the modelling at the molecular and process scale.
- **Substantially improving the competitiveness of EU industry**, by lowering the cost of CO₂ capture and increasing the overall efficiency, thus promoting a sustainable and competitive European industry at the same time. Moreover, a series of concrete assets (hybrid materials, new membranes and products, new or re-designed CO₂ capture processes, etc.) will be available at the end of the project, to be exploited by project partners, following a well-designed exploitation plan. Finally, relevant project results will be

disseminated to the industrial community via dedicated channels and actions (i.e. industrial workshop), thus enhancing the replicability of the NANOMEMC² solutions.

- Contributing to the full unleashing of the economic potential of CCS and in particular the **CO₂ capture markets** for EU materials and technology providers, process modelling and simulation experts, through the set-up of a **strong business model and related business plan** for the NANOMEMC² innovations.

The impact of NANOMEMC² on the **environment**, and by reflection on society, is also well defined, as the whole project is focused on CO₂ capture technology. The primary goal is indeed the development of highly efficient and effective processes for the reduction of CO₂ emissions in the atmosphere, to reduce the greenhouse effect and the issues related to climate change.

Therefore, the technologies under development, in terms of novel materials and innovative processes, as well as the scientific progresses, are expected to contribute significantly to the reduction of the carbon footprint of industries and power plants and, in the longer time scale, to be capable of mitigating the greenhouse effect and the consequent issues related to climate change.

2 NANOMEMC² approach to Communication and Dissemination

In the next section the approach taken for communication and dissemination purpose will be explained. It is based on three main pillars: The methodological approach, then dissemination and communication channels that will be used and the stakeholders that will be targeted.

2.1 Methodology

Dissemination and communication activities are a key aspect of the project NANOMEMC² and will include the delivery of the concept, basic idea, vision and finally results to the largest possible audience in order to engage every stakeholder and also the general public at European and global scale.

To reach the dissemination goals of the project several routes will be followed in order to tailor the message to deliver to the expertise and main interests of different targets groups.

The NANOMEMC² project will therefore effectively communicate with the external world, in order to:

- Engage the general public in addition to the entire consortium and its relevant and coherent connections;
- Widespread project results to the stakeholders;
- Raise public consensus on the environmental, social and economic benefit of the proposed solution.

To that aim a well-defined communication and dissemination methodology is needed.

2.1.1 Objectives

The NANOMEMC² dissemination and communication methodology is sustained by the following key points:

- The development of a communication and dissemination strategy to establish a plan to promote the widespread adoption of NANOMEMC² initiatives;
- The realization of effective dissemination materials;
- The attainment of a wide visibility through specifically studied activities.

2.1.2 Actions included

These actions included in the strategy are:

- Design of the NANOMEMC² brand and visual identity (logo, colors, pictures, etc.);
- Realization of promotional materials such as: website, brochures, template for project documents, power point presentations, newsletters, etc.;
- Stakeholders analysis to build awareness around project initiatives and valorize project results;
- Launch of a media campaign through the use of articles in magazines, press releases, social networks, newsletters etc.;
- Participation in the most important events such as exhibitions, conferences, workshops, specialized international meetings, etc.;
- Synergies with other projects and initiatives;
- Publications of results (e.g. Scientific Publications, Articles, Conference proceedings, etc.) in high-level international journals, magazines, etc.

2.1.3 Partners responsibilities

The strategy foresees to actively involve all the partners. The partner responsible for dissemination (PNO) is working to ensure proper information within the consortium to support the full communication of the project results.

All consortium partners have an important role in the diffusion of project results and all the partners are committed to present project outcomes in order to obtain a balanced participation from each partner. Partners are contacted to define and execute dissemination efforts in order to provide a structured and dynamic approach to the communication of project results.

The search of relevant events has started already at the beginning of the project, and it will continue until the end of the project. Each semester an update of the list with the relevant events is sent to the entire consortium. The results of the search are posted on the project website in order to promote an active participation by both partners and external contacts.

2.2 Dissemination channels

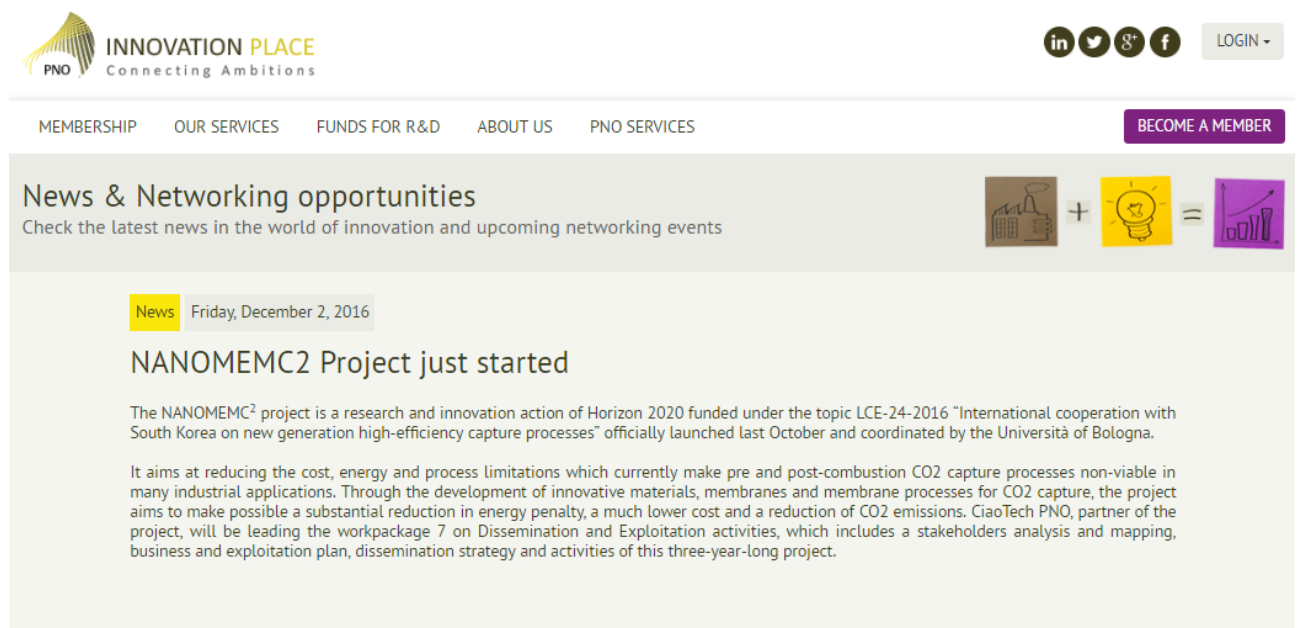
Hereby are listed the main dissemination channels that will be used by NANOMEMC² consortium to communicate and disseminate about the project news and results towards the external world:

- **InnovationPlace** (see figure 1) is an on line service supporting organisations to achieve their strategic R&D objectives through the matching and managing of R&D projects, organisations and grants. InnovationPlace is based on the Open Innovation paradigm, with the active involvement of industry leaders, multinational organisations, high-level research centres, public bodies and innovative SMEs all around Europe. During the last years the number of users registered in the web platform has drastically increased.
- **Ricerca & Innovazione** (see figure 2) is the Italian Open Innovation platform that supports collaborative research through the successful combination of research and development projects, excellent European organizations and the most important public funding opportunities at European, national and regional level.
- The world's most famous social networks: **Facebook, LinkedIn and twitter.**

The external link to the different web based tools for dissemination are reported on table 1 together with the approximate number of users reachable through their use.

Channels	Link	N of users
NANOMEMC ² website	www.nanomemc2.eu	/
Innovation Place: CTECH/PNO web-portal (Europe) (news published through news and newsletter)	https://www.innovationplace.eu/	> 10,000
Ricerca&innovazione: CTECH/PNO web-portal (Italy) (news published through news and newsletter)	http://www.ricercaeinnovazione.it/	6,000
Facebook (By using the INNOVATION PLACE account)	https://www.facebook.com/innovation.place.pno?fbref=pb&hc_location=profile_browser	200
Facebook NANOMEMC ² account	https://www.facebook.com/NANOMEMC2-Project-387139741629754/	
Linkedin Innovation Place group	https://www.linkedin.com/groups/4086674	836
Linkedin company page	https://www.linkedin.com/company/innovation-place	111
Twitter	@INNOVATION_PL	235

Table 1: dissemination channels



The screenshot shows the Innovation Place website header with the PNO logo and navigation links: MEMBERSHIP, OUR SERVICES, FUNDS FOR R&D, ABOUT US, PNO SERVICES, and a LOGIN button. A 'BECOME A MEMBER' button is also present. The main content area features a 'News & Networking opportunities' section with a sub-header 'Check the latest news in the world of innovation and upcoming networking events'. Below this, a news item is displayed with a 'News' tag and the date 'Friday, December 2, 2016'. The headline is 'NANOMEMC2 Project just started'. The text describes the project as a research and innovation action of Horizon 2020 funded under the topic LCE-24-2016 'International cooperation with South Korea on new generation high-efficiency capture processes', officially launched last October and coordinated by the Università di Bologna. It aims at reducing the cost, energy and process limitations which currently make pre and post-combustion CO₂ capture processes non-viable in many industrial applications. Through the development of innovative materials, membranes and membrane processes for CO₂ capture, the project aims to make possible a substantial reduction in energy penalty, a much lower cost and a reduction of CO₂ emissions. CioTech PNO, partner of the project, will be leading the workpackage 7 on Dissemination and Exploitation activities, which includes a stakeholders analysis and mapping, business and exploitation plan, dissemination strategy and activities of this three-year-long project.

Figure 1 : Innovation Place



Figure 2: Ricerca & Innovazione

<https://www.linkedin.com/groups/4086674>

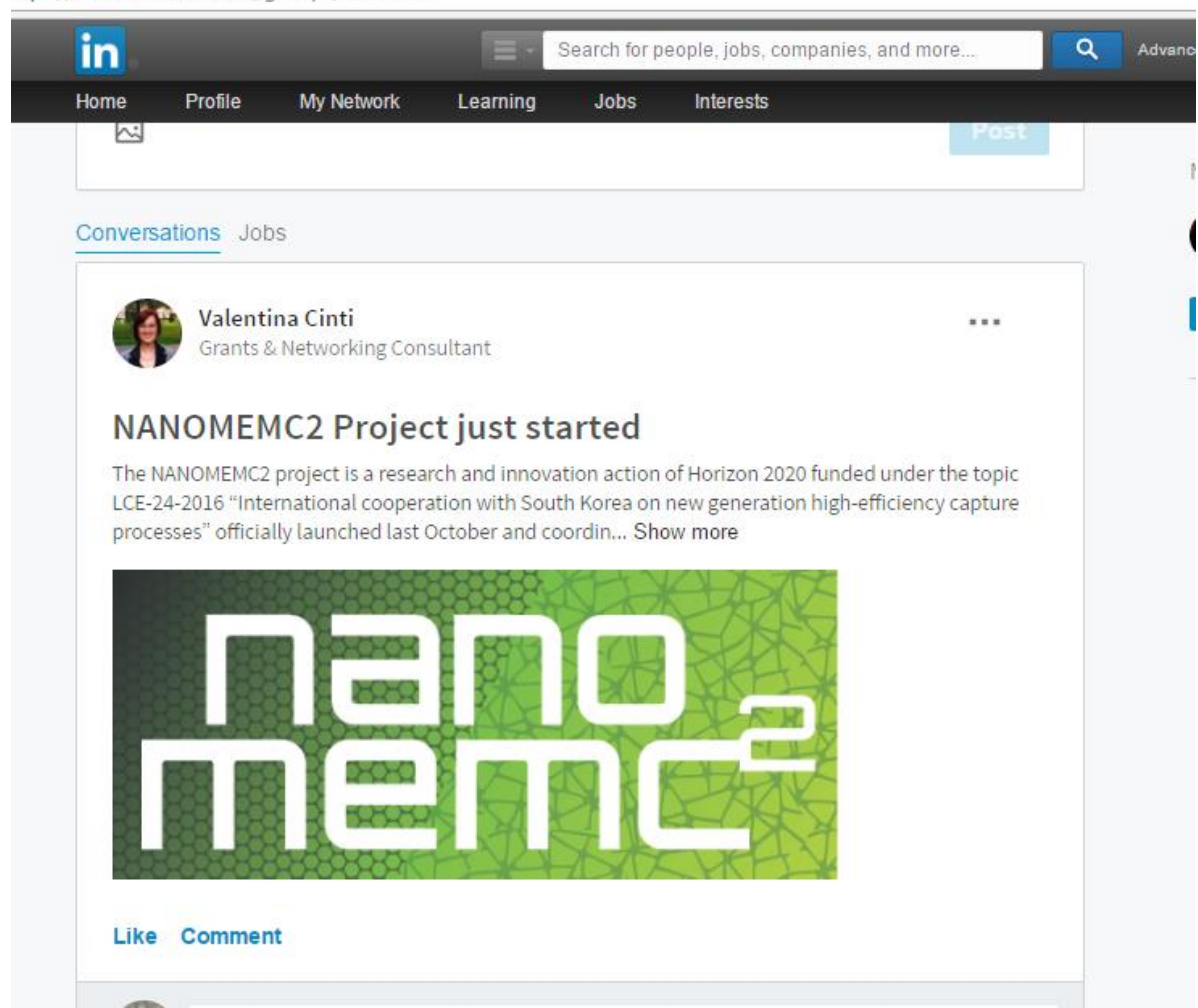


Figure 3: LinkedIn

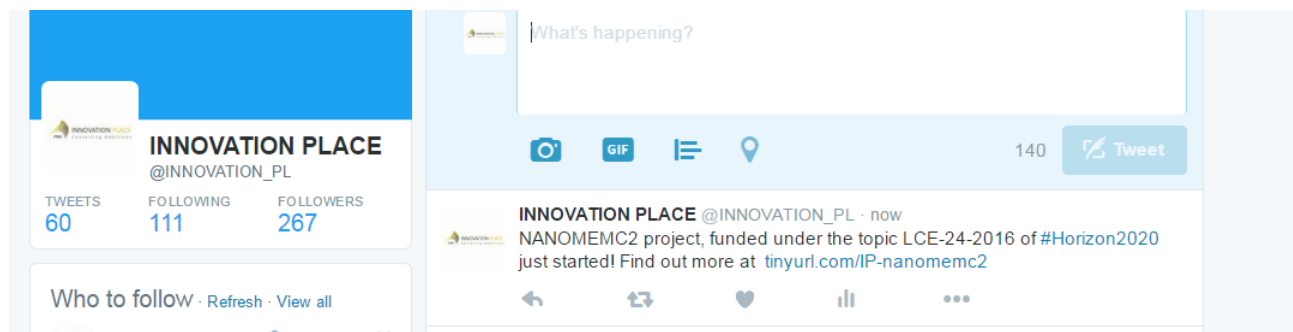


Figure 4: twitter



Figure 5: Facebook

2.3 NANOMEMC² Stakeholders

A systematic stakeholders mapping and analysis will be carried out within WP7, under the lead of PNO. In other EC funded and commercial assignment, such stakeholders analysis has proven extremely useful for an adequate, effective and efficient involvement of the wider stakeholders groups, both for targeting dissemination and communication actions, as well as exploitation strategy development, and will include the categories further described below.

The relevant stakeholders to be involved in the project will be not limited to CCS experts but will target the whole society with particular attention to:

- general public, to increase social awareness of issue related to sustainable energy and climate change that are intimately related to CCS and its acceptance and deployment, and
- regulatory organizations, to push towards the development of a legislation framework that can help the deployment of CCS technologies in the European Community and worldwide.

All partners will take part in dissemination and communication activities, exploiting their different status and therefore their different ranges of influence in terms of stakeholders and EU countries. They will participate to events with the wide public that will be generally lead by Universities given the sensible nature of CCS in the general debate. Industrial end-user, on the other hand, will take the lead in activities focused at:

- European (and global) industrial community, to showcase the high potential of the novel NANOMEMC² technologies and processes in a range of several industrial applications,
- policy makers in order to show the interest around novel technologies and favor the development of regulatory frameworks that will facilitate the deployment of novel solution that can bring a step change to CCS. Industrial partners will take the lead in the preliminary exploitation activity. Given the nature of the project, the research will form the basis for future exploitation that will have to be carefully considered.

NANOMEMC² will in particular address those target groups or consortia, where academia or industry partners, or both, have joined in order to optimize joint efforts towards cooperation, dissemination and exploitation in specific areas of interest related to CO₂ capture technologies and processes. These target groups will include in particular:

- European Energy Research Alliance (EERA), is an alliance of leading organizations in the field of energy research. Many partners of NANOMEMC² are also partners of EERA and this will help the dissemination of NANOMEMC² results within EERA.
- European Technology Platforms, Joint Technology Initiatives and Public-Private Partnerships: ETPs, JTIs and PPP are considered important platforms where results of NANOMEMC² will be advertised to the industry. Key communities are:
 - European Technology Platform for Zero Emission Fossil Fuel Power Plants (ZEP), a coalition of stakeholders united in their support for CCS as a key technology for combating climate change. ZEP serves as advisor to the European Commission on the research, demonstration and deployment of CCS. BP is permanent and proactive member of ZEP.
 - European Technology Platform for Advanced Engineering Materials and Technologies (EUMAT), devoted to establishing European R&D priorities in the area of advanced engineering materials and technologies.
 - Sustainable Process Industry through Resource and Energy Efficiency (SPIRE). NANOMEMC² participants (UNIBO, SUPREN) are full member of the SPIRE Association. Moreover, PNO is among the co-developers of the SPIRE 2030 Innovation Roadmap, thus a well accredited actor in the SPIRE PPP community.

Partners of NANOMEMC² are also partners of the target groups and communities that will be contacted for dissemination of the results. Some target groups have already demonstrated their interest in the project and have shown their willingness to actively disseminate the results of NANOMEMC².

These target groups and communities include:

- The CCP - CO₂ Capture Project (<http://www.co2captureproject.org>), a partnership of major energy companies working to advance CCS development for the oil & gas industry. BP is founding member and current leader of CCP and will act as bridging actor to guarantee that synergies are established and relevant feedbacks collected on main project results;
- The Carbon Capture and Storage Association (CCSA) (<http://www.ccsassociation.org>) founded to support the development and deployment of Carbon Capture and Storage (CCS) in the UK, EU and internationally. BP is a member of the association and will act to give NANOMEMC² partners the

possibility to disseminate its results to the association members and to a wider public through contribution to Association newsletter and participation to organized events.

- European Membrane Society (EMS) which is dealing with membrane science and technology in Europe. The consortium will seek contact and commitment to have access and communicate its results on membrane a gas separation technologies in EMS organized events (summer schools, congresses, workshop)

The main identified target groups that will be addressed during the NANOMEMC² project are:

- **Industrial communities/associations:** Industrial communities and associations will be involved with the aim of maximizing the suitability of the solutions, approaches and technologies proposed by NANOMEMC². Special attention will be given to facilitated transport and/or continuous phase membranes advantages, new efficient CO₂ and hydrogen process routes, environmental impacts such as the reduction of CO₂ emission and hazardous by-products in energy intensive industrial processes (power plants, refineries, cement and steel etc.), economic aspects such as the reduction in CO₂ capture cost and energy penalty; improvement of plant efficiency, etc.
- **Scientific community:** research groups dealing with the topic of the NANOMEMC² approaches and technologies related to the use of nano-composite or mixed matrix membranes in gas separation (with a particular focus on CO₂ capture)
- **Policy makers, representatives of Governments, citizens:** dealing with policy drafting and implementation in the fields of, energy, energy security, environmental sustainability, CCS, industrial development, European innovation, regulatory frameworks and standards for new technologies deployment, etc.

For this reason, the audience for dissemination activities will include for example national or local policy makers, NGOs, citizens associations, responsible for many decisions.

The success of the NANOMEMC² results to enter the market and be accepted by the society is based on the knowledge that the different target groups have about the NANOMEMC² project. But different stakeholders groups have different interests, agenda and even 'speak different languages'. Therefore it is important that Dissemination and communication activities are tailored to each group, by using different dissemination channels and materials, and conveying the project messages in the most appropriate manner.

The Table 2 below shows for each group the most effective dissemination tools and channels to be used:

Target group	Short and long term impact	Communication material, tools & channels
Companies and industrial communities (industrial associations, producers, end-users)	<ul style="list-style-type: none"> - technology and knowledge transfer from precompetitive research to the industrial level; - IPR protected or non-protected results selected and made available to the industrial sector 	NANOMEMC ² website News/newsletter Press release NANOMEMC ² electronic brochure NANOMEMC ² paper brochure Public dissemination events at industrial meetings and workshops Recourse to the industrial members in the AB Use of work related social media (LinkedIn, IndustryHuddle etc.) Exchange of links with related project/websites Industrial, Energy, environmental journals/magazines Invitation to NANOMEMC ² events Direct link on websites of partners involved Partners communication channel (CIAOTECHPNO): Innovation Place, Ricerca & Innovazione
Researchers (The scientific community, end-users, main scientific research group, either academia or not)	<ul style="list-style-type: none"> - Dissemination of non-protected project results - Deliver the advanced knowledge developed in the project (CO₂ capture materials and technologies); - Setting a stage for further research collaborations 	Communication in international conferences (oral/written) Posters Scientific papers News/newsletter NANOMEMC ² electronic brochure NANOMEMC ² paper brochure - preparation of scientific papers and articles; - participation to EU or international conference and symposia International conferences Scientific journals Direct link on the website of partners involved NANOMEMC ² website Social network: LinkedIn, twitter Partners' communication channels (CIAOTECH PNO): Innovation Place, Ricerca & Innovazione, ... Invitation to NANOMEMC ² events
Policy makers (decision makers, European stakeholders)	the development guidelines for future policies and regulation related to CO ₂ capture.	project website -dissemination material specific technical workshops
Wide audience	Disseminate main project results in a non-scientific way to impact a wider audience Increase awareness on CCS benefits and potential outcomes.	News/newsletter NANOMEMC ² articles NANOMEMC ² brochure NANOMEMC ² Website Popular journals/magazines Invitation to NANOMEMC ² events Social network: LinkedIn, twitter, facebook Project website, newsletters, public dissemination event

Table 2. identified stakeholders

3 Dissemination and communication materials and tools

Several dissemination materials and tools will be produced throughout the entire course of the project. The dissemination materials will be realized according to different communication needs, to various event typologies and to follow the project evolution and results.

In the following points a schematic recap of the dissemination tools realized and to be realised are reported.

3.1 Visual identity: Logo and project templates

The dissemination of the project starts with the project visibility. The project identity is linked with a consistent representation of the NANOMEMC² logo on project materials and tools. An attractive graphical representation helps to provide interested parties with the message that the project is disseminating. The logo has the capability to make the project recognizable as it defines its identity for its whole duration. It's used in every document produced within the project context and in every kind of contact to the external environment.

It's necessary that every event, presentation, newsletter, deliverable, brochure, poster, etc. make use of this image and be consistent with its style.

For the NANOMEMC² project a **graphical logo** has been selected by all partners among several ideas realized by CIAOTECH PNO with the main intention to remember the name of the project in one hand and the main project goal on the other.



Logo n. 1



Logo n. 2



Logo n. 3



Logo n. 4

Figure 6: proposed project logo ideas

The 4 logo templates were presented by CIAOTECH PNO to the partners, who gave comments and inputs for adjustments. The final logo was voted via email and it is the logo number 1, the same presented in the heading of this document.

Together with the logo, the visual identity of the project has been defined as a basis to structure the project website (see next paragraph).

NANOMEMC² project templates for presentations are shown in figure 7 and have been realised by CIAOTECH PNO with main attention to recall the project logo and visual identity.

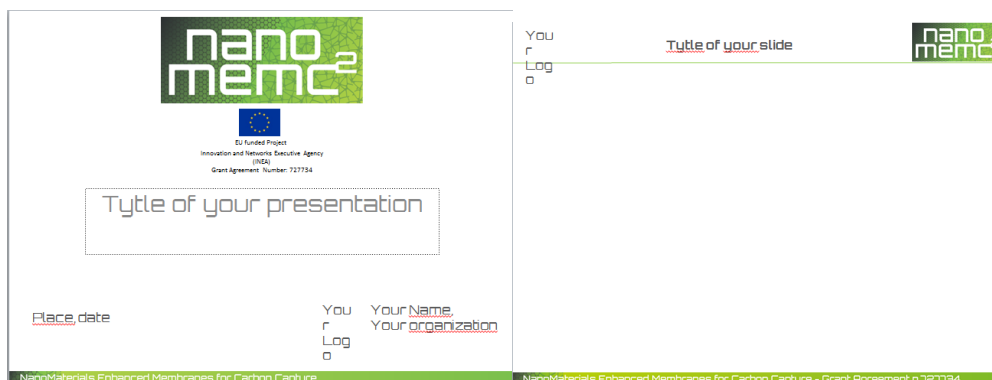


Figure 7: project presentations template

3.2 NANOMEMC² Website

The NANOMEMC² website has been implemented at M3 and will be continuously updated. Here below the main sections of the web.

The following is the Homepage : www.NANOMEMC2.eu. The web areas that will be available to each user are:

- HOME
- ABOUT NANOMEMC2 PROJECT: The Project – Objectives - Benefits
- PARTNERS
- NEWS & EVENTS
- PUBLIC DOCUMENTS
- LINKS
- CONTACTS
- PRIVATE AREA

A specific deliverable on the website preparation has been prepared and submitted by CIAOTECH PNO (D 7.1 Project Website) where more information can be found about the topic.

Additionally, the website contains a private restricted area for internal use (only for the consortium partners), for document sharing, storage of project deliverables, etc. The private website, set-up at M3, is updated on a regular basis. After the login in the private area the users are redirected to the Innovation Place web-platform at the following link: <https://www.innovationplace.eu/>.

3.3 Social Media Channels

In order to increase the project visibility and implement an effective dissemination strategy, NANOMEMC² accounts have been created on the world's most famous social networks (i.e. LinkedIn and Facebook).

3.4 Brochure /Leaflet

The first brochure is reported hereafter (figure 7). In the brochure, the NANOMEMC² objectives and benefits are described. Additionally the consortium partners are listed together with the coordinator contacts. The Dissemination material will be updated at the end of each year of the project (M12, M24, M36).



Figure 8: NANOMEMC2 brochure

3.5 Poster

A project poster, will be realised in concomitance with the participation of NANOMEMC² partners to a relevant international event (i.e. scientific conference, international fair, or similar), where the NANOMEMC² ratio, objectives, benefits and innovations will be described, together with a contact sections and the logos of the partners involved in the project.

3.6 Press releases

Short press releases announcing the project progresses, updates, news, relevant participation to the main events will be periodically prepared (each semester) by partners and widespread through the channels

reported in the table 1 and by using the partners' websites. Mailing lists (and Press releases) will be sent to journalists and trade associations to stimulate article editing on newspapers.

3.7 Newsletter

Project updates and relevant news will be widespread to the wide audience through a newsletter produced twice a year, with a special annex for project partners. Below the relevant issues that will be treated are reported:

Newsletter number	Month	Issues of the newsletter
1	6	Roles of the partners involved in the NANOMEMC ² project.
2	12	Updates of the first year project results
3	18	Updates on partners participation to relevant events (realized and planned)
4	24	Updates of the second year project results
5	30	To be defined through the third year project
6	36	Updates on the final project results

Table 3: project newsletters

3.8 Dissemination workshops and conference attendance

In the framework of the NANOMEMC² project, at least **3 dissemination workshops** will be organized approximately at months 18, 28 and 36, where a comprehensive overview on the achievements of the project will be offered to interested stakeholders and users at various academia, industry and public levels.

These three events will indeed be dedicated to different aims:

- an introductory workshop with a more scientific/academia focus, to present project scientific objectives and foreseen results
- an industrial workshop, with the aim of spreading the results of the project to relevant industrial stakeholders at different levels and as part of this workshop, relevant industries in the CCS, gas and process industry sector will be also contacted to ;
- the last NANOMEMC² event will be in correspondence with the final conference, to be organized the end of the project.

In all projects events, particular care will be devoted to give substantial visibility to the **joint EU-Korea activities** and collaborations within NANOMEMC², in the form of jointly chaired sessions, presentation of joint scientific/technical papers, as well as through the specific organization of joint workshops, as requested by EC and further detailed below.

Joint EU-Korea twinning workshops will be organised, as requested by the European Commission and the Ministry of Science, ICT and Future Planning of the Republic of Korea, to further align and enhance the twinning activities in the European projects, with the aim also to promote synergies and exchange of knowledge with the Korean projects. To this goal, at least two twinning workshops will be organised jointly by the European projects funded under the topic LCE-24-2016, one in the early stages of the projects and one after mid-term. They will foresee the participation of representatives from the Korean twin projects. At least one of these workshops shall be organised in the EU and one in the Republic of Korea.

The NANOMEMC² project in particular will be in charge of the organization of the first workshop to be held in Trondheim - Norway the 15th of June 2017 soon after the 9th "Trondheim Conference on CO₂ Capture, Transport and Storage" (June 12 - 14, 2017) which will also represent the first opportunity for project partners to present preliminary results of project.

Many events will be indeed attended from all partners in order to ensure a wider dissemination of the NANOMEMC² outcomes (**conferences/workshop attendance**): an intense effort will be made to disseminate findings through presentations and posters at international research and professional conferences, meetings, events, congresses, fairs, at a National as well international level (about 12 international events over the entire duration, examples of such events are: NAMS, ICOM, Euromembrane, Tappi Nano, ACS conference).

3.9 Publications

A series of **Publications** (at least 7) are foreseen during the project, such as:

- Scientific publications (peer reviewed articles on scientific journals, including open access ones);
- Conference contributions (invited, oral and posters);
- Articles in magazines;
- General audience articles will be submitted to magazines and others (e.g. CORDIS news, EurActiv.com, etc.).

These will be selected on the basis of the article topic among conventional peer reviewed Journals and Open Access publications, such as: Journal of Membrane science, International Journal of Hydrogen Energy, Macromolecules, International Journal of Green House Gas Control, Soft Matter journal, Energy & Environmental Science, Biomacromolecules, carbohydrate polymer, Cellulose etc... Publishing on Open Access will provide the additional benefit of strengthening the reputation of these journals. Still concerning scientific publications, in selecting international conferences for presenting NANOMEMC² results, priority will be given to those whose proceeding are published in international peer reviewed journals. The pre-prints of all publications will be made available to Project partners in a reserved area of the Project website, for effective knowledge sharing before dissemination.

4 List of Dissemination events

4.1 Partner dissemination

Partners are requested to maintain an active participation within the dissemination strategy.

Proactive and balanced levels of participation will have profound effects throughout the whole project, and will guarantee that the dissemination techniques are applied to the fullest possible extent.

Dissemination Tables will be distributed to each partner in order to collect and monitor dissemination progress. Each table will summarize the dissemination activities attended or foreseen by each partner within the coming months.

4.2 Dissemination Plan Table

The tables below report all the dissemination initiative planned for the NANOMEMC² project.

As reported below the first months of the project have been focalized more on structuring the overall project's dissemination strategy and on the realization of the dissemination tools. In the following months we envisage to plan to participate in several other events to widely disseminate the project results. In addition the most interesting results are expected during the second and the third year of the project, this is the reason why the consortium will plan to participate in more events in those periods of the project timeline.

The present plan will be constantly updated with specific tables describing relevant dissemination activities implemented and planned at partners' level.



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Grant Agreement n° 720714

Description of coherent events planned:

Type of activities	Title	Date	Place	Type of audience	Size of audience	Countries addressed	Link to the website
Conference	ECOMONDO	November 2017	Rimini (Italy)	Companies/ Research organizations/ Industrial associations	1300 tbc	Europe	http://www.ecomondo.com/
Conference	Third European Workshop on Membrane Reactors: Membrane Reactors for Process Intensification - MR4PI2017	March 9-10, 2017	Villafranca di Verona, Italy	Companies/ Research organizations/ Industrial associations	Cca 200	Europe	
Conference	World Circular Economy Forum	June 5-6, 2017	Helsinki, Finland	Companies/ Research organizations/ Industrial associations		Europe	http://www.sitra.fi/en/events/circular-economy/world-circular-economy-forum-2017
Conference	FARETE 2017	September 2017	Bologna (Italy)	Companies/ Research organizations/	1500	Europe	

				Industrial associations			
Conference	Engineering With Membranes (EWM2017)	April 26 - 28, 2017	Singapore	Companies/ Research organizations/ Industrial associations		World	http://www.ewm2017.com/
Conference	3rd Instruct Biennial Structural Biology Meeting	24-26 May 2017	Brno, Czech Republic	Companies/ Research organizations/ Industrial associations		Europe	https://www.structuralbiology.eu/update/biennial2017
Conference	6th International Conference on Organic Solvent Nanofiltration, OSN 2017	4 June 2017	Saint Petersburg, Russia	Companies/ Research organizations/ Industrial associations		Europe	http://www.osn2017.org/
Conference	2017 International Congress on Membranes and Membrane Processes	29 July – 4 August 2017	San Francisco, CA USA	Companies/ Research organizations/ Industrial associations		World	http://www.icom2017.org/

Description of other dissemination activities (press releases, news, nonscientific publications, etc.) already implemented:

Type of activities	Main leader	Title	Date	Place	Type of audience	Size of audience	Countries addressed	Link to the website
News	CIAOTECH PNO	NANOMEMC2 Project just started	2 December 2016	Innovation Place, PNO Europe web portal	Companies/ Research organizations/ Industrial associations	>10.000	Europe	https://www.innovationplace.eu/news/NANOMEMC2-PROJECT-JUST-STARTED

Deliverable D7.2



Post on LinkedIn	CIAOTECH PNO	NANOMEMC2 Project just started	2 December 2016	Innovation Place , Linkedin account	Companies/ Research organizations/ Industrial associations	>800	Europe	https://www.linkedin.com/groups/4086674
Tweet on Twitter	CIAOTECH PNO	NANOMEMC2 Project just started	2 December 2016	Twitter Innovation , Place Account	Companies/ Research organizations/ Industrial associations	>200	Europe	https://twitter.com/INNOVATION_PL
Post on Facebook	CIAOTECH PNO	Project just started	12 December 2016	Facebook project account	Companies/ Research organizations/ Industrial associations		Europe	https://www.facebook.com/NANOMEMC2-Project-387139741629754/
News in newsletter	CIAOTECH PNO	Lanciato il progetti NANOMEMC2	13 December 2016	Ricerca e Innovazione (PNO IT)	Companies/ Research organizations/ Industrial associations	>6.000	Italy	
News in newsletter	CIAOTECH PNO	NANOMEMC2 Project just started	13 December 2016	Innovation Place (PNO Europe)	Companies/ Research organizations/ Industrial associations	>10.000	Europe	

Scientific publications (This field is only for peer reviewed articles)

Type of scientific publication	Title of the scientific publication	DOI	ISSN or eSSN	Authors	Title of the journal or equivalent	Number, date	Publisher	Place of publication	Year of publication	Relevant pages	Public & private participation	Peer-review	Is/Will open access provided to this publication

*Publications accessible via OpenAIRE will be displayed automatically. Beneficiaries will only need to check if the publications are linked to the project.

** In case of publications not registered via OpenAIRE, the beneficiary encodes the Digital Object Identifier (DOI) and all the rest of information is completed automatically.