



## Open Innovation Test Bed for nano-enabled Membranes



### Editorial

Welcome to the INNOMEM project. A four year project focusing on the creation of a sustainable Open Innovation Test Bed (OITB) on nano-enabled membranes.

INNOMEM is a joint effort of a multidisciplinary and complementary team of 32 European partners. The project is funded by European Union's Horizon 2020 Research & Innovation programme.

The present newsletter is the first release of the newsletter that will be published by INNOMEM presenting the progress on the project and highlighting information related to the R&D fields addressed. Hope you will find the info in this newsletter interesting.

More info could be found in our website <https://www.innomem.eu>.

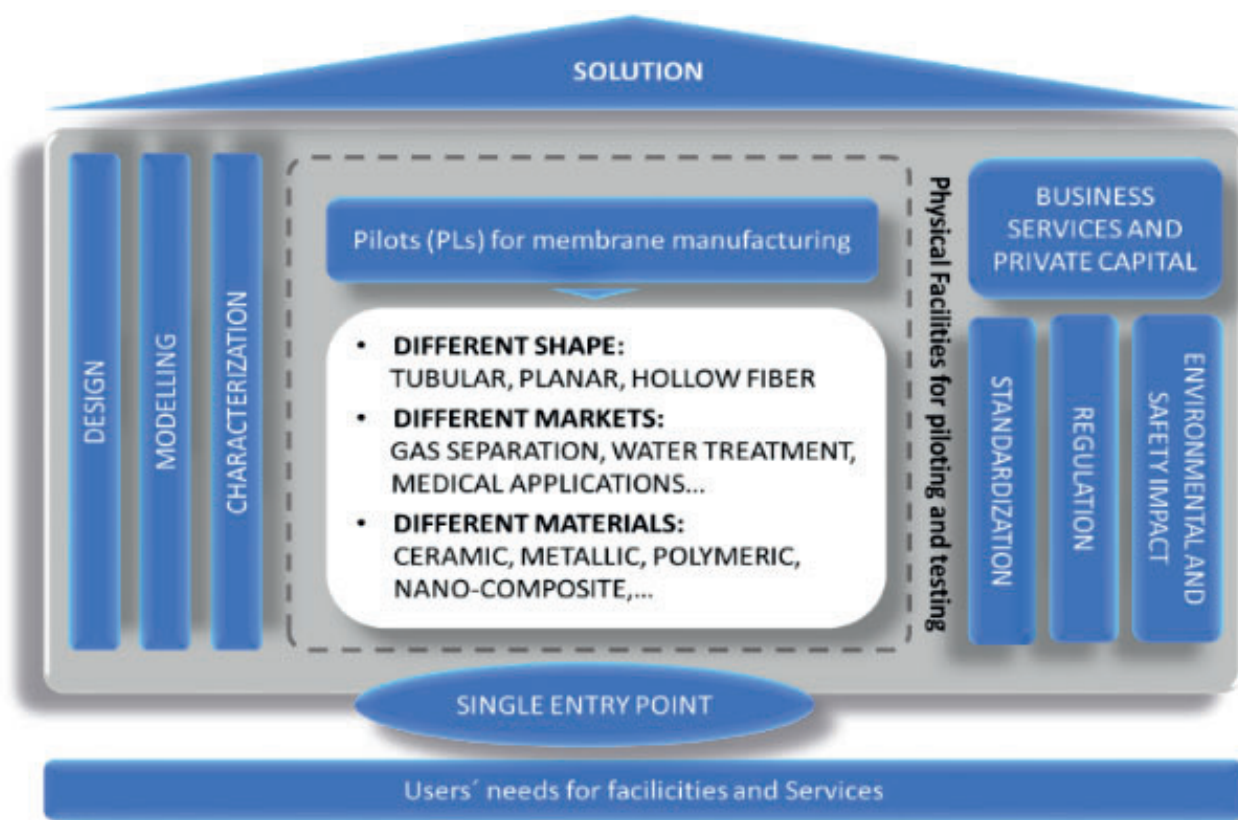
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# 1. What is INNOMEM?

## 1.1. The concept

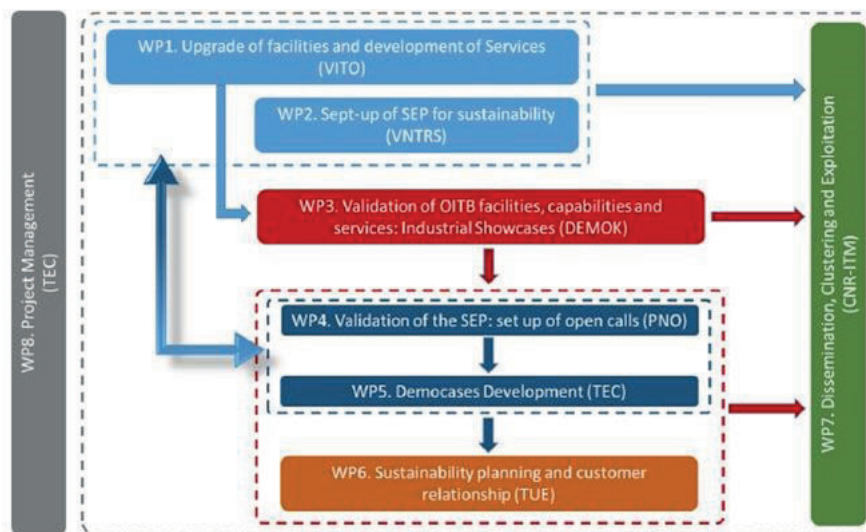
INNOMEM aims at developing a sustainable OITB (Open Innovation Test Bed) to foster deployment and scale-up of innovative nano-enabled membranes and their derived products. Within the scope of INNOMEM, different types of membrane materials (polymeric, ceramic, metallic and nanocomposite), surface modification, membrane morphology and geometry and applications will be covered, providing for the first time a Single Entry Point (SEP) to provide the businesses in the sector with a one-stop-shop of the best available experts and technologies. European companies, mainly SMEs, will access through the SEP to develop, test and adopt, new high performance, multifunctional, safe and environmentally friendly nano-enabled membranes in a cost-effective and sustainable way while opening-up opportunities for demonstration of innovative nanomembranes in real life industrial problems (TRL7) and thus accelerating the market opening for these new products.

INNOMEM gathers some of the most recognized Membrane departments (>20) in Europe and acknowledged facilitators of technology transfer, corporate finance, funding and coaching, making available (i) the most promising and breakthrough manufacturing pilots and (ii) advanced characterization techniques and modelling together with (iii) non-technical services through this Test Bed: while relevant improvement metrics can be defined, the potential network of reachable stakeholders counts thousands of businesses on an international scale.



## 1.2. Project structure

The project will implement a methodology in 2 phases. The Phase 1 (M1 to M18) will provide a SEP to upscaled facilities ready for testing. The Phase 2 (M19 to M48) will aim at validating the SEP's procedures and methodologies to optimize the test bed business plan and guarantee its sustainability after the project. INNOMEM will be structured around: WP1 to profile the sustainability and upgrade the PLs facilities, develop their associated services and definition of a methodology to select additional PLs. WP2 to setup the SEP, its governance, associated activities and procedures to ensure an open access of the INNOMEM OITB at fair conditions. WP3 to produce the 10 showcases in order to validate the upscaling and synergies between all PLs upscaled during Phase 1 and to illustrate the services provided by the INNOMEM during Phase 2. WP4 to open the test bed services to the democases selected through Open Calls. WP5 to validate the access conditions to the INNOMEM facilities and services through the development of democases. WP6 to optimize the OITB and SEP operations according to lessons learned in showcases' and democases developments and to set up a Customer Relationship Management. WP7 dedicated to networking activities with other OITB and other projects, EMMC, EMCC, EPPN and NSC to generate synergies between these complementary initiatives. WP8 dedicated to guarantee an efficient and smooth project coordination. And, finally, WP9 will address ethical requirements.



### 1.3. Scientific and Technical objectives

- Development and organization of the OITB: by upscaling/upgrading of 14 Pilot manufacturing lines, and developing associated Technological and non-technological services.
- Set-up a Single Entry Point for easier access to SMEs and sustainable operation/commercialization of the OITB service offer Validation of the upscaled/upgraded pilots and services through 10 Showcases.
- Set-up of two waves of Open Calls to validate the SEP and ensure the sustainability of INNOMEM.
- Development of the Democases selected in the Open Calls with the project partners in continuous collaboration with the applicants (Industries, in particular SMEs).

### 1.4. Impact

INNOMEM will upgrade and up-scale 14 Pilot Lines facilities. These Pilot Lines and technological services come from past investments at Regional (RIS3), National and European levels. The goal is to upscale/upgrade them to achieve a future sustainable manufacturing ecosystem and to complement them with technological and non-technological services to support companies for further development of marketable nano-enabled membrane products.

	Technical	Non-Technical
Membrane Productivity Improvement	>20%	10
Membrane Verification Improvement	>30% faster	>20
Co2 emission reduction per showcase	>40%	>100
Energy reduction per application	>40%	>300



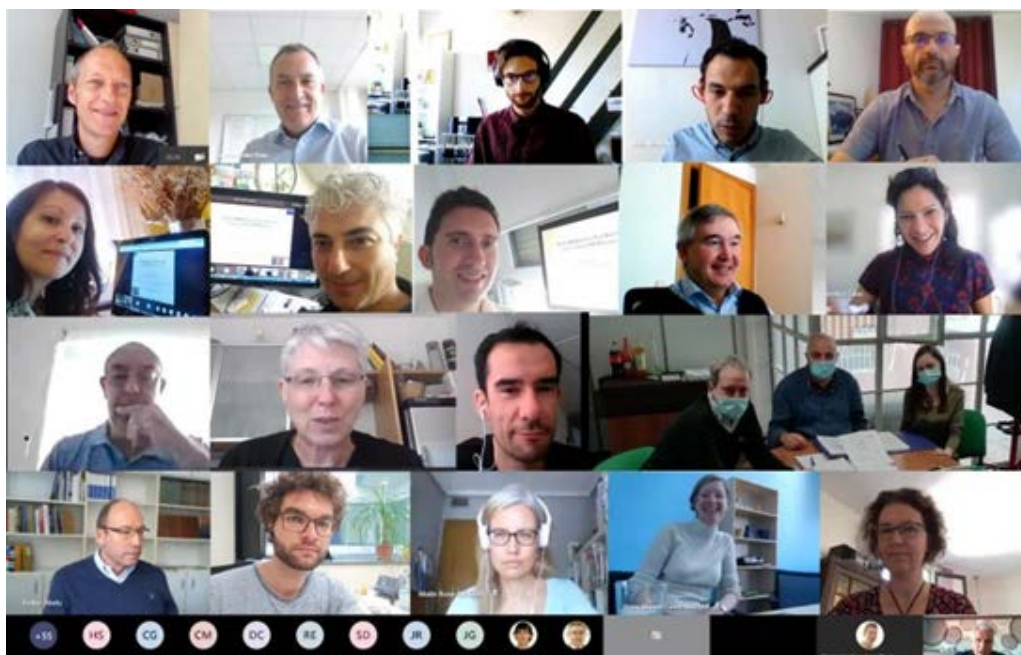
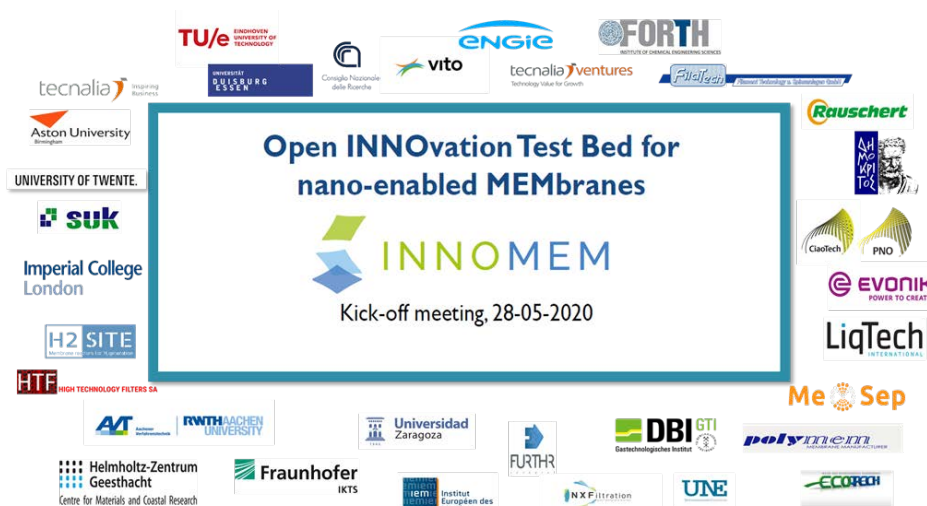
## 2. DEMCAMER in progress

### 2.1. Meetings (on-line)

INNOMEM has officially kicked off on the 28<sup>th</sup> of May, 2020, by virtual meeting due to the limitations imposed by COVID-19 pandemic!

The second INNOMEM meeting hold again on-line on November 25, 2020. Providing for the first time a single-entry point for industrial partners, mainly SMEs, INNOMEM aspires to answer their concerns but with minimum investment costs and reduction of risks associated with technology transfer, while opening-up opportunities for demonstration of innovative membranes in real life industrial problems (TRL7) and thus faster opening the market for these new products.

The meeting involved all partners to discuss about the first actions launched and the first results obtained. It gave the start to a virtual meeting's agenda for the first WPs to set up the upgrade of facilities, the development of services and the definition of the business plan for the management of the SEP!



## 2.2. Project's Current State

During the first months of the project, the following activities have been carried out:

### **WP1 – Development and organisation of the OITB: upgrade of facilities, specs and services**

One of the activities that has been carried out in this WP is the definition of the INNOMEM Sustainable Manufacturing Framework (SMF) approach. The methodology will be based in three pillars: Economic performance, Social performance and Environment performance.

The upscaling and upgrading of the 14 Pilot lines for manufacturing of membranes has been started. In addition, the creation of the Virtual Testing Lab and the Virtual Modelling Lab has started and for this, the services that can provide all the partners to these Labs have been gathered.

### **WP2 – Setup of SEP for sustainability and management of the ecosystem**

In this WP, the preliminary version of the definition and business model of the Single Entry Point (SEP) has been developed. The aim is to define a business model to enable the OITB sustainability beyond the project end.

On the other hand, a preliminary version of the market analysis and the SEP value proposition has been carried out.

### **WP7 – Dissemination, clustering and exploitation**

In this WP, the materials for dissemination and communication activities have been prepared, including the design and set-up of the INNOMEM website. Moreover, the relevant standardisation fields and the main standards relevant for the project have been identified. The first dissemination strategy of INNOMEM has been also designed.

### 3. Forthcoming events

We are pleased to announce the **12<sup>th</sup> edition of the International Conference on Hydrogen Production (ICH<sub>2</sub>P-2021)**, which will be held fully online on the next **September 2021 (from 19<sup>th</sup> to 22<sup>nd</sup>)**. The ICH<sub>2</sub>P-2021 conference will be a successful continuation of the past ICH<sub>2</sub>P events and there will be the opportunity to discuss about various and interesting topics. The ICH<sub>2</sub>P-2021 edition will be focused on the scientific developments on the sustainable generation of hydrogen. Furthermore, the conference will provide the possibility to share the latest researches on the hydrogen utilization in transportation, fuel cells, for greenhouse gases mitigation, and industry, as well as on the hydrogen storage (chemical carriers, hydrides, gas, liquefaction). High quality conference papers will be selected for publication in our partner journals: International Journal of Hydrogen Energy (IF: 4.939) and International Journal of Energy Research (IF: 3.741). Please visit and explore our official conference website at <https://www.ich2p-2021.org/index.html>.

Within this conference a INNOMEM special session will be organized fully devoted to the recent advancement obtained by INNOMEM in the field of hydrogen treatment and production as well as gas separation.

Please find more details at: <https://www.ich2p-2021.org/innomem%20project.html>





### 3.2 Other events of interest

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#### **EUBCE 2021 – 29<sup>th</sup> European Biomass Conference and Exhibition**

*Online and Marseille, 26-29 April 2021*

[https://www.eubce.com/?gclid=EAlaIqobChMliaCiv4ra7wIV3QWiAx1kOQAwEAAYASAAEgLYCfD\\_BwE](https://www.eubce.com/?gclid=EAlaIqobChMliaCiv4ra7wIV3QWiAx1kOQAwEAAYASAAEgLYCfD_BwE)

#### **ESCAPE-31 – 31<sup>st</sup> European Symposium on Computer Aided Process Engineering**

*Istanbul, Turkey, 6-9 June 2021*

<https://www.escape31.org/>

#### **MEMPEP 2021 - 13<sup>th</sup> Scientific Conference "Membranes and Membrane Processes in Environmental Protection"**

*Kościełisko, Poland, June 9-12, 2021*

<http://mempep2021.systemcoffee.pl>

#### **12<sup>th</sup> European Symposium on Electrochemical Engineering – ESEE 2021**

*Leeuwarden, The Netherlands New date: 13-17 June 2021*

<http://www.electrochemical-engineering.eu/2021/>

#### **ACHEMA 2021**

*Frankfurt am Main, Germany, 14-18 June 2021*

<https://www.achema.de/en>

#### **XXIV International Conference on Chemical Reactors - CHEMREACTOR-24**

*Milan, Italy, New date: 12-17 September 2021*

<http://conf.nsc.ru/CR-24/en>

#### **ICH2P 2021 - 12th International Conference on Hydrogen production**

*On line, 19-23 September 2021*

<https://www.ich2p-2021.org/index.html>

#### **ECCE13 & ECAB6–13<sup>th</sup> European Congress of Chemical Engineering & 6th European Congress on Applied Biotechnology**

*Berlin, Germany, 19-23 September 2021*

<http://ecce-ecab2021.eu>

#### **2<sup>nd</sup> International Symposium on Nanomaterials and Membrane Science for Water, Energy and Environment – SNMS 2021**

*Tangier – Morocco, 5-6 October 2021*

<http://www.smmd.ma>

#### **African Membrane Society 3rd International Congress (AMSIC-3)**

*Dakar, Senegal, November 2-5, 2021*

<http://sam-ptf.com/amsic3/index.html>

### **18<sup>th</sup> Network Young Membrains**

*Copenhagen, November 25-27, 2021*

<http://euromembrane2021.eu/nym.html>

### **EUROMEMBRANE 2021**

*Copenhagen, November 28 - December 02, 2021*

<http://euromembrane2021.eu/>

### **World Hydrogen Energy Conference**

*Istanbul, (TK) June 26-30, 2022*

<https://whecistanbul.org/>

### **15<sup>th</sup> International Conference on Catalysis in Membrane Reactors (ICCMR15)**

*Tokio, JP; July 31 - August 4, 2022*

<http://iccmr15.org/>

## **4. Innomem Survey**

INNOMEM has just launched a survey targeting the stakeholders of the nano-enabled membranes sector. The survey presents for the first time an overview of the Service Catalogue that will be offered by the INNOMEM OITB. The goal is to gather feedback and validate the services to meet the needs of the main actors in the field.

Completing the survey takes less than 10 minutes and gives the stakeholders the opportunity of being heard to influence the definition of services that will be accessible to them through the Single-Entry-Point (SEP) to support nano-enabled membranes development and scale-up.

The SEP will provide access to the Open Innovation Test Bed (OITB) for nano-enabled Membranes that the INNOMEM project is developing. The OITB will provide EU companies with tailor-made support and access to INNOMEM technical and business services suppliers and facilities to develop, test and adopt, new high performance, multifunctional, safe and environmentally friendly nano-enabled membranes in a cost-effective and sustainable way, opening-up demonstration opportunities and accelerating the market opening for these new products. Furthermore, the project will organize two Open Calls to select 20 Democases which will be granted free of charge access to the INNOMEM OITB, starting from July 2022.

Be part of the progress in the membranes sector! Answer few questions on your organization, your current needs, potential solutions, and future useful services. You can access the survey at the following [link](#).

#### **Your privacy matters**

This survey is conducted in accordance with the EU-US Privacy Shield Framework: the data you provide will be collected and maintained with full confidentiality, since they will be coded and anonymised from the point of submission and will no longer be individually identifiable; the data will be analyzed and reported collectively

# INNOMEM Consortium



## Project details

Start date:

2020-05-01

Duration:

48 months

Project cost:

16.001.766.25 euro

Project funding:

14.716.872.26 euro

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STAY IN TOUCH

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