SUSNANOFAB

Grant Agreement No. 882506

Review of SUSNANOFAB brokerage activities – first issue

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Document History

Version	Date	Description
1.0	30/06/2022	RINA-C Deliverable Draft including planned methodology
2.0	29/09/2022	RINA-C Final version – including results of the First session of brokerage service deployment and next steps

Abbreviations and Acronyms

Acronym	Description
B2C	Business to Client
CG	Coordination Group
CSA	Coordination and Support Action
DIH	Digital Innovation Hub
EPPN	European Network for Pilot Production Facilities and Innovation Hubs
ETP	European Technology Platforms
KET	Key enabling technology
KPI	Key Performance Indicators
MEMS	Micro-Electronic-Mechanical Systems
NTC	Nanotechnology Coating
NEMs	Nano-Electronic-Mechanical Systems
RIA	Research Innovation Action
RTO	Research Technology Organization
R&D	Research & Development
SDK	Showa Denko's carbon nanofibers
SME	Small Medium Enterprise
US	United states
USA	United States of America

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Acknowledgments

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Executive summary

The present document constitutes Deliverable D4.5 "Review of SUSNANOFAB brokerage activities – First issue", published in the framework of the SUSNANOFAB Coordination and Support Action, entitled "Integrated EU strategy, services and international coordination activities for the promotion of competitive and SUStainable NANOFABrication industry" and funded by the Horizon 2020 Programme, under Grant Agreement nº 882506.

Chapter 1 includes an introduction to the project and to the objectives of the brokerage activity.

Chapter 2 presents the brokerage methodology used to plan, set and arrange the brokerage activity.

Chapter 3 summarises the results of the First session of brokerage services.

Chapter 4 presents the next steps and draws the key conclusions attained by this first issue version of the brokerage activity.

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1 Introduction to SUSNANOFAB

The global target of SUSNANOFAB project is to put in place an integrated concerted action on nanofabrication, sustainable in the long term. The project establishes and promotes a robust network of European and international stakeholders and geographically distributed centres. These activities want to provide current missing links between policy, infrastructure, expertise, and industry requirements, and contribute towards the improvement of the current EU positioning and performance in the global nanofabrication market.

SUSNANOFAB will tackle the needs of the nanofabrication sector by addressing them on three different levels:

- At a general level, SUSNANOFAB will establish and promote a robust network of EU and international stakeholders and geographically distributed centres.
- At a strategic level, SUSNANOFAB will find a common strategy to enable all pre-competitive conditions for a successful market uptake of nanofabricated products and solutions. This will be reached using a structured road-mapping methodology and involving external experts in Coordination Groups.
- At an operational and end-user level, the project will provide affordable services and an easy access point to infrastructures and knowledge to EU stakeholders, and especially to SMEs. This will be reached using different integrated methodologies, such as the organisation of a large set of training and brokerage workshops and services, and via the development of a Digital Platform, which will perform in an interoperable manner with ongoing initiatives (*e.g.,* the European Network for Pilot Production Facilities and Innovation Hubs, the European Material Modelling Council etc.).

1.1 Background and objectives of the Brokerage activity

Nanofabrication has the potential to make a significant impact in several diverse areas and to tackle major socioeconomic challenges for an ever improving yet affordable health care, higher standards of living and quality consumer goods. SUSNANOFAB proposes an integrated strategy at a European level, which articulates throughout the whole value-chain and facilitates interactions among stakeholders, aiming at the promotion of a competitive and sustainable nanofabrication industry.

To involve a high number of key actors, the project has gained the support of several companies, RTOs, European Technology Platforms, clusters and industrial associations, local, national, and international nanofabrication entities. In addition, to promote international cooperation, SUSNANOFAB Consortium includes 3 US partners not requesting EU funding.

To explore potential business and technological collaboration opportunities in the nanofabrication and nanomanufacturing ecosystem (both technology providers and technology customers), brokerage service activities was planned and carried out according to the methodology described in Chapter 2. The pandemic situation has led the Consortium partners to postpone these brokerage activities with respect to the preliminary planning. This report includes results from the first in-person Brokerage session organized during the Joint SUSNANOFAB and NanoFabNet Networking Event[1] held in Braga (Portugal). An additional brokerage session is foreseen for February 2023 in the context of the final event to be held in Wien (Austria).

[1] https://susnanofab.eu/2022/05/sustainable-nanofabrication-joint-networking-event/

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2 Brokerage methodology

A brokerage service consists in a service matching and connecting technology customers with technology providers.

The brokerage service was designed to be implemented through a series of actions:

- Collection of industrial needs on technologies, services, and access to infrastructures.
- Planning and deployment of brokerage services.
- Deploying brokerage services matching identified industrial needs with services from the extended SUSNANOFAB network.

In particular, the Brokerage methodology is structured according to Figure 1.

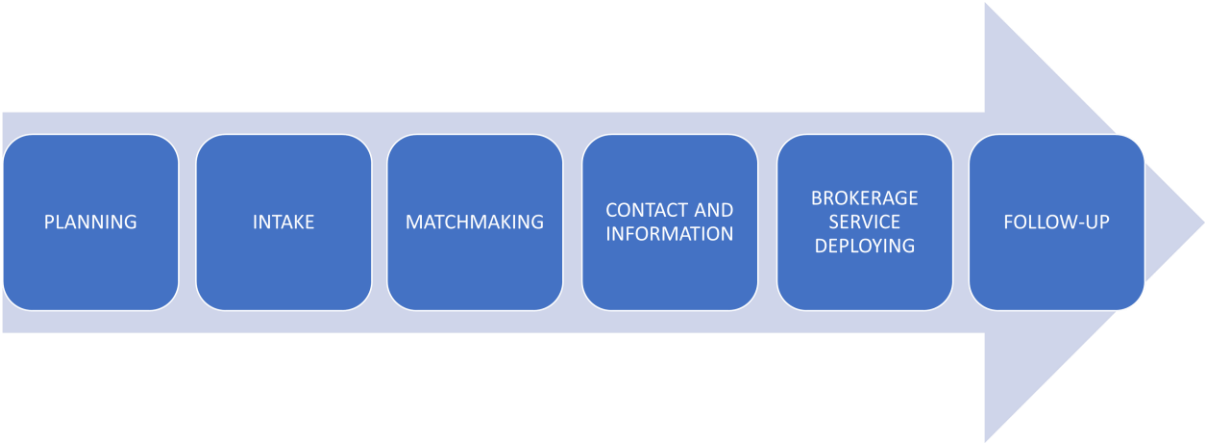

Figure 1 The Brokerage methodology

In the following paragraphs, each of the steps of the methodology depicted in Figure 1 will be discussed in-detail.

2.1 Planning Phase

Generally, the main activity of the planning phase consists in the collection of information about relevant services and infrastructures to provide a comprehensive landscape in the specific field of application.

To this end, an online survey was launched to better understand the difficulties experienced by the European nanofabrication ecosystem. The online survey was directed, following all relevant GDPR policies, at contacts from the EPPN Network, the DIHs Catalogue, the KETs Centres Database, as well as the EuroNanoLab Consortium. Replies to the survey were gathered from nanofabrication facilities owners from 16 different countries. The information formerly gathered about the European nanofabrication landscape, identified in D2.3 – *Report on existing relevant services and infrastructures,* was considered in the planning stage of brokerage services.

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2.2 Brokerage intake Phase

The first activity of the *"intake phase"* is typically represented by the development of a database of interested relevant stakeholders (both technology customers and providers) gathering preliminary information concerning their needs, sector of application and interest. The information gathering is generally performed by means of surveys and individual structured interviews.

In this case, the database was initially populated with nanofabrication organizations belonging to the Consortium Partner network and from the organizations listed in D2.4. The repository list was expanded throughout the project and detailed information concerning interested stakeholders was gathered by means of interviews and survey forms. In particular, the survey was delivered both online, in a printed version, as well as promoted on the SUSNANOFAB website. The interviews and surveys help us to identify, on one side, technology provider's portfolio and the challenges faced in bringing products/services to the market and, on the other, customers' needs and interests. This was done with the final aim of defining effective brokerage services, beneficial for both the sides of the brokerage mediation.

During the registration to the SUSNANOFAB Networking Event, participants willing to participate to B2C meetings were allowed to submit through a specific form information needed for the matchmaking phase including: short profile, desired role (provider/customer), comprehensive description of what they are searching for/offering and with specific questions in terms of Sector (e.g. Health, Energy, Mobility, etc.), Activities (e.g. Sustainability assessment, Design, Modelling and Engineering, etc.), and Product (e.g. Biosensors and wearables, Fuel cells, etc.).

2.3 Brokerage matchmaking Phase

Typically, the scope of the matchmaking phase is, with reference to a specific brokerage session, to match the available stakeholders between them according to what collected in the previous intake phase.

Before proceeding with the final stakeholder association, a technology customer interest declaration form was designed to take into account the interest of the customers to meet a specific provider. The form was full listing the technology providers with information concerning sector, products and activities as well as a short but exhaustive description of what they are offering. In particular, to gather the interest and establish a priority among the technology providers listed in the database, each customer ranked each provider with a scale from 1 to 5 where 1 represents the lower interest (see Annex 1 - Technology customer interest for further details).

The output of this phase consists in a suitable plan of bilateral meetings taking into account the match between request and offer as well as the collected customer interests (in particular in case of high (4-5) ranks) to arrange the highest number of combinations without repetitions.

2.4 Contact and invitation Phase

Before the brokerage service provision, the arranged meetings have to be shared with all the participants for their information and also as a reminder of the forthcoming services.

To this end a few days before the event, each brokerage participants had received the foreseen brokerage meeting schedule for its own organization including details on timetable and brokerage station. An additional email was sent as a reminder the same day of the in-person brokerage session. In addition, the overall schedule was also screened in the main monitor of the venue hall during the full day of the brokerage in-person session.

2.5 Brokerage service deploying Phase

In this phase, typically bilateral meetings take place with short pitch session between the participants.

In this case, the brokerage is deployed with bilateral meetings of 15 minutes in a speed date mode, when each participant has the possibility to present his/her organization and background to the other one in order to find common interests and start collaborations. Every 15 minutes a bell rang to remember participants to start the next bilateral meeting, sometimes moving to another brokerage station. The Brokerage was held out in a specific lounge area before the lunch time and near to the coffee station, thus facilitating a potential independent extension of the talks after the end of the brokerage.

2.6 Follow-Up Phase

A follow-up email was sent to each event participant including a link for anonymous feedback collection and announcing the forthcoming final event including another brokerage session.

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3 Brokerage activity results: conclusions and next steps

The first in presence-session of the Brokerage activity was an integral part of the Joint SUSNANOFAB and NanoFabNet Networking Event held at Braga (Portugal) from the 5th to the 7th of July. The event, jointly organized by SUSNANOFAB and NanoFabNet, targeted a wide spectrum of organizations in the context of the nanofabrication with a 3-day program regarding sustainable nanofabrication with a panel of speakers from the industry and research area. The agenda also includes trainings, a roadmap co-creation session, a roundtable on innovation for startup and SMEs and presentations of posters and digital platforms (See Figure 2).

SUSTAINABLE NANOFABRICATION:
JOIN NETWORKING EVENT

	DAY 1 July 5th	DAY 2 July 6th	DAY 3 July 7th
09h00 - 09h15		Welcome Note - Steffi Friedrichs, AcumenIST - NanoFabNet Project	Welcome Note - Lars Montelius, Director-General of INL
09h15 - 09h55		Keynote Speaker: Jürgen Tiedje, Head of Unit, Directorate-General for Research and Innovation, E3 – Industrial Transformation, EU Commission	Keynote Speaker: Nicklas Bergman, Intergalactic Industries AB
09h55 - 10h10		Cris Rocca, "Bridging Communities"	PITCCH Project: Increasing the competitiveness of European Industry by building a Pan-European Open Innovation Network – A Success Case Story
10h10 - 10h25		Karin Wiench, BASF – Regulatory Toxicology, "Safe and sustainable fabrication in the chemical	Michela Mattaloni, INL and Bert Habets,ColorFabb BV
10h25 - 10h30		Giacomo Damilano, Getting ready for the afternoon session	
10h30 - 11h00		Break and Poster Session	Break and Poster Session
11h45 - 12h00	Opening Session - Margherita Cioffi, RINA - SUSNANOFAB Project		
12H00 - 12H15	Thomas Exner, Seven Past Nine - Digitalisation for trust building: Why data management supports sustainability		
12H15 - 12H30	Georges Favre, "Metrology and standardisation to support sustainable nanofabrication: Identified needs and action plan"	Brokerage Sessions	
12H30 - 12H45	Clarissa Marquardt, "Science communication and Research Infrastructures in nanotechnology - current activities from the DaNa Porject and the KNMFi		
12H45 - 13H00	Anna Costa, ISTEC - ASINA Project - Anticipating safety issues at the design stage of nano product development		
11h00 - 12h10			Roundtable on Innovation for Startups and SMEs Moderation: Chiara Venturini, NIA César Martins, Chemitek Bruno Figueiredo, Graphnest Eldara Rodríguez Cobo, NanoGap Andrea Elisabeth Reinhardt, NanoTechCoatings GMBH Antreas Afantitis, Nova Mechanics Open discussion with panel and audience/ Q&A
12h10 - 12h25			Fernando de la Vega, PVNanoCell
12h25 - 12h40			Sascha Sadewasser, INL – REMAP Project: Reusable Mask
12h40 - 13h00			Closing Remarks
13h00 - 14h00	Networking Lunch	Networking Lunch	Networking Lunch
14h00 - 15h00		Training session on Standardization - Sean Kelly and Emeric Frejafon, Deputy Director at BRGM & Chairman of CEN TC352	
15h00 - 15h15	Roadmap co-creation session	Michel de Labachelerie, Research Director at CNRS, EuroNanoLab Coordinator, INSIS-CNRS	
15h15 - 16h00		Funding Opportunities Panel Marina Dias, Coordinator of EU funding, INL João Ribau, National Representative & Contact Point, Horizon Europe – Industry & EIC	
16h00 - 16h30	Break and Poster Session	Break and Poster Session	
16h30 - 17h30	Training Session in Sustainable-Safe-By-Design - Catherine Colin, IPC	Launch of the NanoFabNet Hub	
17h30 - 18h30	Tour INL Facilities		
18h30 - 20h00	Happy hour	Happy hour	

Figure 2 SUSNANOFAB and NanoFabNet Networking Event Agenda

The Brokerage session has represented an important opportunity between the supply and demand with the final aim of developing partnerships as well as joint participation in research projects.

In the Intake phase, 63 contacts from 31 Organizations interested to the brokerage sessions, of which in particular:

- 25 Technology Customers
- 35 Technology Providers
- 3 participants were willing to acting both as Technology Customers and Technology Providers

The schedule of the session meeting with the exact match was shared to each participant in 2 separate emails, one close to the first day of the Event and the second one the same day of the brokerage session, also to take into account some participant that at the last minute was not able to attend.

The final Brokerage schedule is shown in Figure 3.

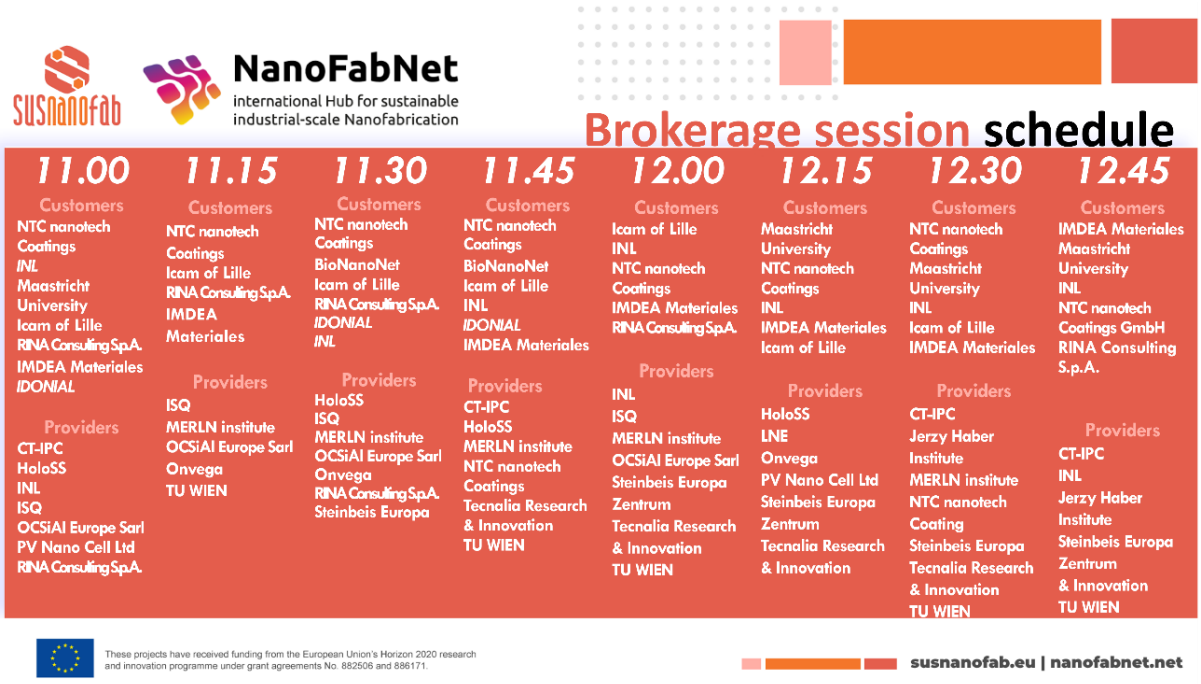

Figure 3 Brokerage schedule and Participants

The results of the first in-person brokerage event are as follows:

- *32 participants belonging to*
- *23 organizations from*
- *13 countries*
- *discussed potential cooperations in 48 meetings*

The sectoral coverage is shown in Figure 4 and Figure 5.

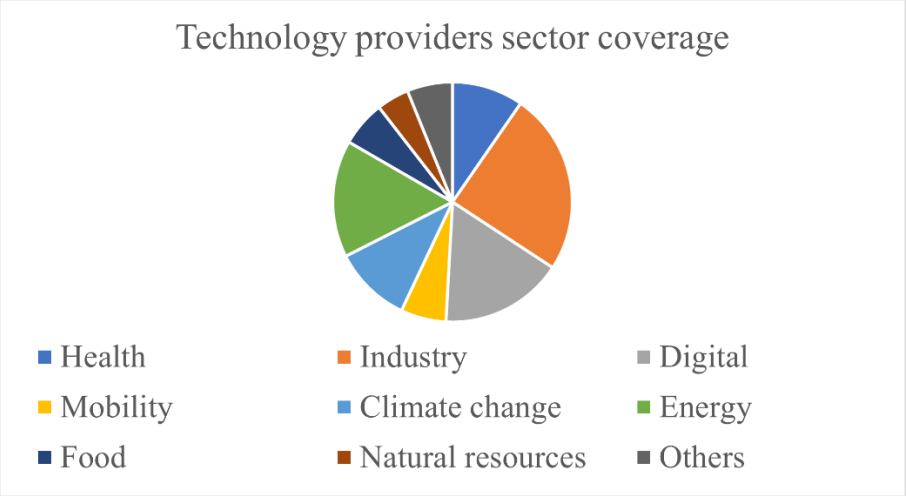

Figure 4 Technology Provider's Sectoral coverage

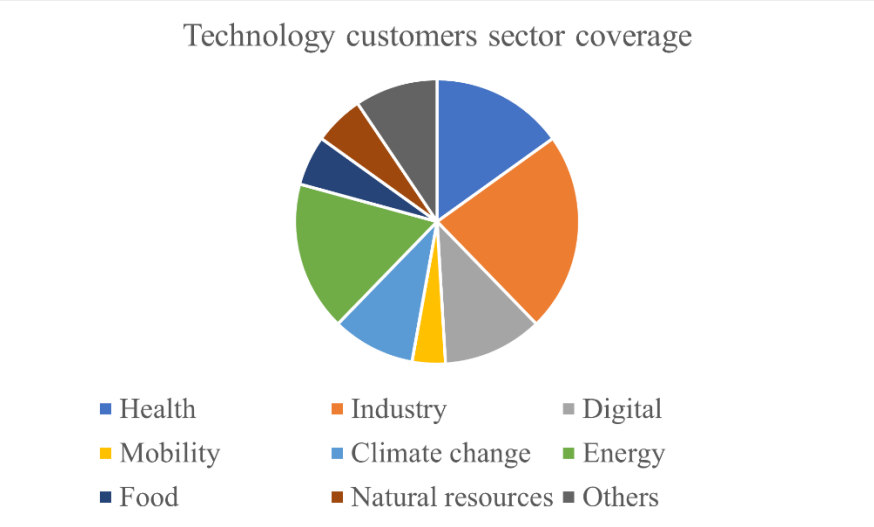

Figure 5 Technology Customer's Sectoral coverage

Next steps will regard stakeholder's intake and matchmaking for the next brokerage in-presence session that will take place during the SUSNANOFAB Final event which is planned for the end of February 2023 in Wien.

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Annex I - Technology customer interest

A reduced version (including only 2 sections on 2 providers) of the technology customer interest form is reported below.

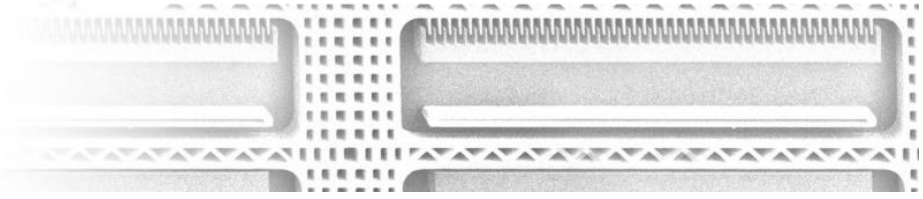
Technology customer interest collection

The scope of this survey is to establish a priority among the technology providers listed, since the time constraints may not allow to meet everyone. Please rank the technology providers below to determine the ones you are most interested to meet. Please use the full 1 to 5 scale for stating your interest in meeting each technology provider; if no prioritisation is given, it will be hard to set up meaningful meetings for you.

Hereafter, you may find the list of the providers participating to the brokerage sessions: BioNanoNet Forschungsgesellschaft mbH (BNN), CEN TC352 Nanotechnologies, CT-IPC, HoloSS, IDONIAL, IMDEA Materiales, INL - International Iberian Nanotechnology Laboratory, ISQ, Jerzy Haber Institute of Catalysis and Surface Chemistry PAS, LNE, Maastricht University, NTC nanotech Coatings GmbH, OCSiAl Europe Sarl, Onvega, PV Nano Cell Ltd, RINA Consulting S.p.A., Steinbeis Europa Zentrum, Tecnalia Research & Innovation, TU WIEN.

Customer Company name	Click or tap here to enter text.
Full name of the brokerage participant	Click or tap here to enter text.
Email	Click or tap here to enter text.

Provider	
Tecnalia Research & Innovation	
Rank from 1 to 5 your interest in meeting this technology provider.	
Sector	Energy; Industry; Health; Food; Natural resources; Climate change; Mobility
Products	Nano-coatings to improve material´s functionalities; Batteries; Others
Activities	Design, Modelling and Engineering; Prototyping, Demonstration and Testing;
Description	



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Fundación TECNALIA Research and Innovation (www.tecnalia.com) is the largest applied research and technological development centre in Spain, a fifth in Europe and a member of the Basque Research and Technology Alliance. We collaborate with companies and institutions to improve their competitiveness, people's quality of life, and achieve sustainable growth. We do this thanks to people who are passionate about technology and committed to building a better society.

We collaborate with an increasingly strategic relationship model with companies, based on trust, collaboration and a shared technological strategy, with our main areas of action being: smart manufacturing, digital transformation, energy transition, sustainable mobility, personalised health and urban ecosystem.

The main products are: novel nanomaterials, nano-enabled materials and products, safe-by-design/EHS&REG, AI and multi-scale modelling and in particular:

-Novel nanomaterials – synthesis and functionalization of nanomaterials, such as nanoparticles, nanofiber including nanocellulose, graphene and other carbon-based structures.

-Nano-enabled materials and products – nanomaterial dispersion and incorporation into different bulk materials, as well as coatings and nanostructured surfaces in order to develop advanced materials for different uses in health, energy, construction, automotive, aerospace and other industrial applications.

-Digital Technologies- Tools for accelerating novel material development and for predicting material properties. Multi-scale modelling

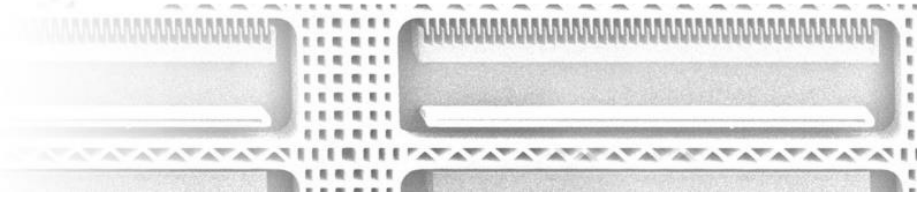
INL - International Iberian Nanotechnology Laboratory

Rank from 1 to 5 your interest in meeting this technology provider.

Sector	Health; Energy; Industry; Food; Natural resources; Climate change; Mobility; Digital; Others
Products	Biosensors and wearables; Smart drug delivery; Thin-film photovoltaics; Nano-catalysts; Batteries; Power electronics; Nanostructured LED; Micro and Nano Electronic-Mechanical Systems; Food packaging; Smart sensors; Water decontamination; Precision agriculture and breeding; Food processing to improve nutritional values; Nano-enabled imaging systems; Nano scale 3D printing; Nano-coatings to improve material´s functionalities; Smart devices for impair and elderly people; Implantable devices
Activities	Sustainability assessment; Design, Modelling and Engineering; Regulatory and Standardization; Project Management; Training and Skill Reinforcement; Prototyping, Demonstration and Testing; Scaling up and Industrial Production; Business Strategy and Marketing

Description

INL was created under an international legal framework with the aim to become a global centre of excellence in applied nanotechnology research. INL´s mission is to perform cutting-edge R&D in interdisciplinary nanotechnology and to function as an innovation integrator in multiple application domains. INL provides a high-tech research environment to address major challenges of nanotechnologies in six main areas: Clean Energy, Sustainable Environment, Smart Digital Nanosystems, Food, Personalised Health Tech and Advanced Materials & Computing.



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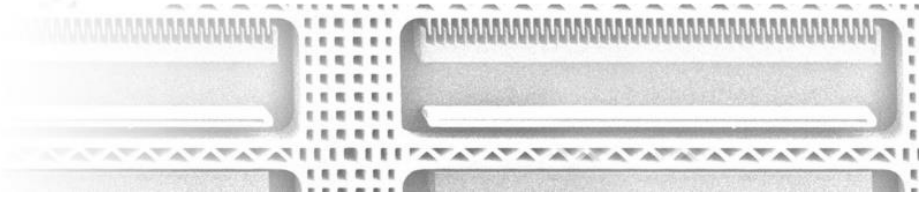
INL user facilities provide support throughout all research and development chain in cleanroom processes (device modelling and design, process integration and device fabrication, packaging, and testing) as well as in advanced microscopy and spectroscopy, X-ray diffraction and scattering techniques, photonics, spintronics devices, bioimaging, and magnetic resonance imaging. A heterogeneous set of techniques available under the same roof leads to competitive integration of different technologies and rapid prototyping thus paving the way to methods and devices with performances out of reach of a given single technology.



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Annex 2 - Email communication templates

A2.1 Reminder to the customers

Dear *Whom it may concern* of *Organization*, technology customer participating to the brokerage session on the 6th of July,

A simple form aimed at matching you with the most relevant company with respect to your individual interest is in attachment to this email.

Please provide us the filled in form as soon as possible, **at latest by the 30th of June.**

Kind regards,

SUSTAINABLE NANOFABRICATION: Joint Networking Event

Attachment as follows:

A2.2 Brokerage meeting schedule

Dear *Whom it may concern* of *Organization*, technology provider participating to the brokerage session on the 6th of July,

This email is aimed at sharing with you your meeting schedule for the brokerage session, which is scheduled as follows:

- At **12.15**, you will be meeting with *Name Surname* of *Technology Customer organisation* by the brokerage **station number 3.**
  Brokerage meetings will be held in the corridor next to the clean rooms. Please follow closely the timetable listed above as the sessions are tightly scheduled one after the other.

  Kind regards,

SUSTAINABLE NANOFABRICATION: Joint Networking Event