H2020-NMBP-HUBS-2019

FlexFunction2Sustain

Open Innovation Ecosystem for Sustainable Nano-functionalized Flexible Plastic and Paper Surfaces and Membranes

Starting date of the project: 01/04/2020
Duration: 48 months

= Deliverable D8.6 =

Report from 3rd joint workshops with cluster initiatives

Dissemination level		
PU	Public	X
PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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Executive Summary

Deliverable 8.6 summarises the outcomes of the clustering and integration activities of the FlexFunction2Sustain project with other Open Innovation Test Beds (OITBs) framed by task 8.2.

Task 8.2 has kick started with the organisation of regular exchanges with other OITBs projects. Core to this task is the organisation of annual joint workshop for OITB representatives to network, share best practices, exchange experiences, discuss expectations, and generate new ideas to make nanotechnologies and advanced materials more accessible to companies and users. These workshops are an essential component of task 8.2, enabling participants to collaborate and exchange knowledge, ultimately enhancing the implementation of OITBs projects.

The first joint workshop has been held by month 14 (May 2021) as a satellite event of the EuroNanoForum 2021. The EuroNanoForum 2021 is the benchmark European event in the areas of nanotechnology and nanoscience, as well as advanced materials. In 2021 the event was held as full on-line event organised by INL, the International Iberian Nanotechnology Laboratory, under the auspices of the Portuguese Presidency of the Council of the European Union. This first workshop gave participants the opportunity to share their experience, expectations and new ideas to bring nanotechnologies and advanced materials within the reach of companies and users.

A second workshop has been organised on 30 June 2022 as a satellite event of the Conference on Industrial Technologies IndTech 2022, taking place at Maison MINATEC, Grenoble, France. IndTech 2022 was organised under the auspices of the French Presidency of the Council of the European Union.

This deliverable reports on the public outcomes of the second OITB workshop as the finding from the first Workshop are presented in deliverable D8.5.

A third OITB is in the works and will be held as a satellite event of EuroNanoForum 2023 in Lund, Sweden from June 11-13. The workshop is scheduled for June 14 and aims to address critical issues that arise during OITB project implementation. Additionally, participants will explore future actions that can enhance the OITB community and ensure its long-term viability. Join us for this dynamic and informative event.

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1. Introduction

It is expected that test beds link with other existing OITBs with an aim of cooperating in a regular way to exchange services, as well as the outcomes of their experience in providing services, with the final goal of ensuring a systemic sustainability. This can only be achieved through coordination and networking with other test beds as well as with other innovation ecosystems in the EU, whether European, national or regional. This is the rationale behind the implementation of task 8.2 - Clustering and Integration to the OITB Ecosystem - which has led to the interactions and exchanges described in this deliverable.

An OITB is a set of entities providing common access to physical facilities, capabilities and services, to companies and users, required for the development, testing and upscaling of nanotechnology and advanced materials, covering from validation in a laboratory (TRL 4) to prototypes in industrial environments (TRL 7). The open innovation ecosystem aims at gathering all the relevant actors while covering all relevant enablers and services needed for innovation based on advanced materials, therefore reducing technological risk and attracting more users and investors and cutting the time to market.

To date, 27 OITBs in different technical domains have been funded:

- Lightweight nano-enabled multifunctional materials and components
- Safety Testing of Medical Technologies for Health
- Nano-enabled surfaces and membranes
- Bio-based nano-materials and solutions
- Functional materials for building envelopes
- Nano-pharmaceuticals production
- Climate Neutral and Circular Innovative Materials Technologies

Three Open Innovation Test Beds for materials characterisation and three Open Innovation Test Beds for modelling have also been funded.

Test beds are expected to form European networks of competences along the entire value chain and match the needs of industry by providing users with easy access to facilities, at different locations as needed. Besides pooling resources, OITBs are expected to setup networks among themselves as a way of accessing complementary services according to users' needs. System sustainability can only be ensured if testbeds cooperate in a regular way with the central aim of addressing industry needs by promoting a broad and consolidated access to physical facilities, capabilities and services across Europe. The FlexFunction2Sustain consortium is therefore committed with the creation of a more open and connected European innovation ecosystem.

Deliverable D8.6 reports on the outcomes of the 2nd OITB workshop.

2. Report on the 2nd OITB workshop

2.1. Executive Summary

The workshop entitled "Open Innovation Test Beds as a Service to the Industry" was held at INDTECH 2022, at the Minatec Conference Center, in Grenoble, on 30th June. The workshop aimed at exchanging experiences between OITBs with the objective of strengthening the ecosystem, identifying the best solutions for common challenges and jointly work towards a fully integrated open innovation ecosystem operating services to the industry. The session was target to OITB coordinators, Single Entry Point (SEP) representatives, business managers and representatives form the EC, namely: Peter Droell, Director at DG RTD from the European Commission; Dominique Planchon, Senior Program Officer at DG RTD; and Susana Xara, Project Adviser on Raw Materials at HaDEA - Health and Digital Executive Agency from the European Commission

Even if Open Innovation Test Beds focus in different application areas, the existing networks share the same challenges with regards to sustainability, legal structure of the SEP, business model, integration of services, how to build trust on customers and on how to effectively manage the open calls during the funded phase of OITB projects. Besides creating a space to strengthen the OITB community and to exchange good practices on how to face common challenges, the workshop also promoted insightful discussions about the future of the ecosystem and gathered inputs to help defining the future policies to frame the OITBs so that they keep on promoting industrial innovation and competitiveness in a sustainable manner.

Peter Droell started the session stressing the importance of this workshop for the DG Research and Innovation and emphasizing the emergencies that we are facing in this twin transition - green and digital: *The geopolitical environment has not become easier, so it is urgent to deploy the knowledge created by the researchers in Europe. It is urgent to translate this knowledge to the society and we are all very much aware of this. From the EU side, there were substantial investments in open innovation test beds based on the principle that we all gain from the cooperation, from collective intelligence, from interactions between the OITB ecosystems and the commission.*

The first message Mr Droell left in the session was about the visibility in relation to the overall objective of deployment. *Firstly, regarding the visibility among clients, notably the small and medium-sized enterprises, which are the key target for the infrastructures and services, we can do better. We need to do more to get visibility and this workshop is a real possibility of mutual inspiration to share what works, and also what doesn't work, in order to increase this visibility. Secondly, regarding the visibility to the public and the policy makers. On this regard, we have a lot of positive things to build on. There is a starting awareness and recognition of the role of OITBs, more generally of what has different names, such as hubs, or research or technology infrastructures, and these are part of a very important wider trend from the EU side to accelerate the deployment of the solutions in the economy and the society. In this sense, it would be great if we could develop some stories which are really inspiring, talking about the power of these OITBs, of what they do to translate knowledge into the economy in society that could create visibility in that aspect, also at the political level. That is a high-level ambition, but it is possible with your openness, your collective power and intelligence. There are inspirations across the room and across the program today.*

The sustainability of open innovation testbeds was also highlighted by Peter Droell: *You [OITB representatives] can count really on the EU to be on your side in the follow-up, not with eternal funding- that's the sustainability you have to achieve - but in the overall direction for the green and digital transition, which is the most compelling overarching objective and remains – as you have seen - with the power on the agenda of the European Union. You can count on us also in research and innovation to support you to make these test beds a great success.*

2.2. Introduction

2.2.1. Background

Advanced Materials and nanotechnology are crucial Key Enabling Technologies (KET), for Europe's competitiveness. They contribute towards giving EU industries the competitive edge they need for industrial leadership in global markets and promise breakthroughs to solving global challenges and achieving a circular, resource efficient and climate-neutral EU economy. The materials development cycle is long and entails several steps such as characterisation, modelling, processing, upscaling and engineering, including a lengthy assessment in industrial environments. To enable uptake by industry, especially SMEs and start-ups, the Horizon 2020 Framework Programme has supported the creation of an open innovation ecosystem in advanced materials. The Commission has invested approximately 250 million euro in Open Innovation Test Beds (OITBs) with the aim to bring nanotechnologies and advanced materials within market reach by providing access to demonstration and upscaling facilities as well as advisory services to advance technologies from laboratory validation to prototypes in industrial environments. The ecosystem currently comprises 26 OITBs contributing to setting the foundation for a European ecosystem focusing in the following application areas:

- Lightweight nano-enabled multifunctional materials and components: LEED-BED, OASIS, LighCoce, LighMe
- Safety Testing of Medical Technologies for Health: SAFE-N-MEDTECH, TBMED, MDOT
- Nano-enabled surfaces and membranes: FlexFunction2Sustain, NextGenMicrofluidics, INNOMEM, NewSkin
- Bio-based nanomaterials and solutions: INN-PRESSME, BIOMAC, BIONANOPOLYS, BIOMAT
- Functional materials for building envelopes; METABUILDING LABS, MEZeroE
- Nano-pharmaceuticals production: Phoenix
- Materials modelling: VIPCOAT, MUSICODE, OpenModel
- Materials characterisation: TEESMAT, FormPlanet, i-TRIBOMAT

In May 2021 the FlexFunction2Sustain Open Innovation Test Bed, supported by the Safe-N-Medtech OITB, have organised a public workshop with the core aim of promoting the OITB ecosystem to relevant stakeholders and Industry. The event gathered representatives of the most relevant participants in this ecosystem: industry, academia, research and technology organisations and business support actors. The workshop took place as a satellite event of the EuroNanoForum 2021, organised under the auspices of the Portuguese Presidency of the Council of the European Union.

Regular exchanges between OITBs are aimed at strengthening the ecosystem, identifying the best solutions for common challenges and jointly work towards a fully integrated open innovation network as a service to industry. One year after the first workshop, the Safe-N-Medtech project takes the lead and, in collaboration with the FlexFunction2Sustain, organised the second workshop as a satellite event of the Conference on Industrial Technologies IndTech 2022. The workshop covered invited members of OITBs and representatives from the European Commission

2.2.2. Objectives and focus of the workshop

The objective of the workshop is to take stock from the experience of existing Open Innovation Test Beds and get new ideas towards the sustainability of OITBs and on how to improve outreach to SMEs. This objective has been addressed throughout 3 sessions:

- Sustainability, business model and legal challenges
- Services, open calls and IP
- Recommendation toward EC for future OITB support and strategy

Concurrently, the event creates an opportunity to continue building the OITB Community, share common challenges, lessons learned and good practices, and finally, to be able to contribute to build the future for OITBs. The workshop agenda can be found in annex.

Session 1: Sustainability, Business Model and legal challenges
***Moderator: Susana Xara** | Project Adviser - H2020 Raw Materials HaDEA - Health and Digital Executive Agency (European Commission)*
Speakers:

- ***Eduard Piqueras** | EURECAT, Project Leader & Program Manager, FormPlanet Project Coordinator*
- ***Maria Taxiarchou** | Assoc. Professor, School of Mining and Metallurgical Engineering – National Technical University of Athens, LIGHTCOCE Project Coordinator*
- ***Ana Cristina Martin** | TECNALIA, OASIS Project*
- ***Ronald Tingl** | General Manager Microfluidic Innovation Hub, NextGenMicrofluidics Project*
- ***John Fahlteich** | Fraunhofer FEP, Research Group Leader, FlexFunction2Sustain Project Coordinator*
- ***Lars Pithan** | Consultant at BKM Consultants, Safe-N-MedTech Project*

2.2.3. Summary of individual presentations

FormPlanet Project

Eduard Piqueras, Project Leader & Program Manager from EURECAT, coordinator of the FormPlanet Project which has finished in December 2021. FormPlanet - Sheet metal forming testing hub- focus on new materials, specifically high strength sheet materials and high-performance sheet metals to be applied in different sectors, such as transport and automotive, but also home appliances and packaging. The project aimed on creating a solid and sustainable user-centered and user-driven ecosystem to offer for characterization, modelling and prediction of material behaviour in a specific manufacturing process.

Main features of the OITB and SEP:

- Apart from providing the services, the project has developed very advanced methods and characterization, integrating them in a single offer and giving the European metal forming industry access to these technological services through a single-entry-point of reference in Europe.
- This single-entry-point gathers the most advanced research centres and infrastructures to serve these companies with similar quality of access and conditions.
- The OITB brings together a huge range of characterization and modelling methods that can be combined to solve specific problems from industry which wouldn't be solved by standalone services.
- FormPlanet covers the whole value chain of the sheet metal forming, from the development and production of new materials to new high strength materials, passing through the forming process and design of new parts, and finally to what refers to the components production, the in-process check systems in-line, and quality part assessment. This capacity prevents rejected parts and secures a near zero defects production.
- All methods have been optimized and validated through different industrial partners from the consortium.

Challenges and lessons learnt:

- The SEP was established as a Private Company (Spanish Limited Liability Company) with the aim of selling products and services. One of the issues encountered was the fact that Universities and Public Bodies usually cannot participate as shareholders in such type of entities due to their non-for-profit educational and research mission. This challenge has been mitigated through the signature of bilateral association and collaboration agreements between the Universities involved and the OITB.
- The location of the company headquarters could lead to scepticism on the territorial neutrality. This can only be addressed through transparency, trust on partners and strong support from a skilled legal team.

- The value proposition was also identified as a challenge. On this regard, the lesson learned is to have a clear value proposition, a defined target market and uniqueness of products and services. This is essential in assuring the sustainability of the new entity.
- It is also crucial that shareholders define detailed rules to drive the relationship among them considering their rights and duties and reaching a consensus on the most relevant aspects that affect the setting up, the operations and even the closure of the SEP entity.
- Negotiations take long periods of time. It is important to start negotiating common rules since the very beginning of the project.
- Other priorities: define a robust service catalogue, pricing and sales forecast, communication and marketing plan, and other aspects to create a solid and credible business plan to help shareholders committing to the new company, and thus guaranteeing a long-term commitment from the beginning.

LIGHTCOCE Project

Maria Taxiarchou, senior researcher at the National Technical University of Athens, coordinator of the LIGHTCOCE - Building an Ecosystem for the up-scaling of lightweight multi-functional concrete and ceramic materials and structures. The core goal of the project is to provide up-scaling, testing and complementary services to support the development and commercialization of multifunctional lightweight concrete and ceramic materials. SMEs and Industry are provided with open access to pilot lines via a one-stop-shop ecosystem reached through a single-entry-point (SEP). The target industry of the construction and building sectors, but also aerospace and automotive. The project also involves 10 end-users through 10 test cases.

Main features of the OITB and SEP:

- LIGHTCOCE ecosystem is represented by the SEP. Initially it was considered to establish a non-profit organisation, composed by the 16 partners, which appointed one Legal Entity Representative (LER) for each entity of the consortium.
- The role of the SEP is to represent the LIGHTCOCE ecosystem across Europe; to have the power to sign contracts; to undertake the administrative effort for the preparation of the contracts with clients, to be paid for the provision of services; to build a community of stakeholders around the ecosystem; as well as to undertake the activities for the promotion and the sustainability of this ecosystem.
- The appointment of the Legal Entity Representative (LER) among all the core partners was critical for the establishment of the SEP. This representative should come from a high-level management or decision-making body, able to take decisions.
- Several meetings were carried out, a questionnaire was circulated among all partners to collect information on their level of interest to host the SEP, as well as regarding the country seen as appropriate to establish the legal entity. Prior information on the running cost according to the country of establishment were also collected. It was finally decided to base the company in Greece.
- Due to the unlimited liabilities arising from a non-profit-organization (NPO), the initial idea of establishing with such format has dropped. The consortium then discussed the most appropriate to legal format, and by majority voting have decided to establish a for-profit company. The company is a spin-off hosted by NTUA and counts with the participation of five additional core partners (6 shareholders in total), instead of the 16 that were initially planned. The core partners that could not be involved in the legal form will sign external contracts with the spin-off.
- Once with the spin-off created, the partnership is currently in the phase of preparing several different legal documents, such as: Non-Disclosure Agreements for customers; Framework Agreement to be signed by the SEP, the core partners and services providers; services' specifications; Research Services Contracts, etc.

- Regarding the sustainability, it was presented the operational costs of the Spin-off, versus the expected revenues (Figure 2). Operational costs include the costs of establishing a company, marketing and promotion, salary of employees, and office running costs. The expected revenues include initial capital investment and funded projects; service provisions of the SEP; membership fees (OITB founding members and associated members); and events and other community services provisions (contests, hackatons, etc.).

Challenges and lessons learnt:

- The large consortium operating within different legal and administrative systems; the internal organization discussions, which were time-consuming, and the decision-making bodies and legal departments; the difficulties in communication brought by the covid-19 impact on the organizations and in the public services, which caused significant delays on the administrative processes; as well as the transition from initial to the implemented concept.

OASIS Project

Ana Cristina Martin, from TECNALIA, on behalf of the OASIS coordinator. OASIS - Open Access Single entry point for scale-up of Innovative Smart lightweight composite materials and components- is an ecosystem composed by 12 nanotechnology manufacturing pilot lines, providing nanomaterials, nano-intermediates, and nano-enabled products and services for the development and commercialization of lightweight multifunctional products based on aluminium and polymer composites. OASIS scaled the pilot lines from TRL5 to TRL7 for providing these services and products beyond the project. The 12 integrated pilot lines are related to nanoscale products and services; intermediate scale and component scale.

Main features of the OITB and SEP:

- OASIS has developed from the beginning a catalogue of services in which the consortium has identified the unique services to be provided through the OASIS OITB.
- The definition of the Single-Entry-Point (SEP) has started by month 12. Discussions started by the definition of business model pillars. The first qualification scheme has defined the governance model and the financial model. The implementation of the showcases (figure 3) allowed the validation of the model designed in the first step and led to an elaborated business plan for all the pilot lines.
- Most partners find it interesting to be part of the OITB to attract new users, to establish a strong relationship with other companies and other RTOs across Europe, to provide a full integrated offer to our customers, and, of course, because of the complementarity of the of the offer. This was validated through the demo cases
- The OITB is currently setting up the legal entity and aligning its value proposition. An external legal firm was hired to elaborate a collaboration agreement where the main business model and management pillars are specified. This document is currently under the signature process.
- The SEP will act as an intermediation platform, matching needs with integral capabilities, meaning that the consortium has opted for a brokerage business model. The SEP will not contract directly with customers and instead it will just assume the coordination role. Customers will be directly contacted by the service providers. The idea is to build a lightweight structure, sustained through membership fees.
- The Service Delivery Manager (SDM) is an important role within the OITB. The SDM are representatives of each OITB member combining commercial and technical skills. This role will oversee the SEP commercial activities. This is seen as a commercial strength of the SEP. In addition, it exists a qualification process to become a member of OASIS and an incentive system to promote the involvement of other service providers in the provision of specific services.
- In terms of commercial activity, important to highlight the experience gained with the evaluation/implementation of showcases and demo cases: the search for investors; market search, done through interviews with potential partners and market analysis framed under the

business plan; the business plans elaborated by each service provider, including sales forecast; and the marketing and communication actions.

Challenges and lessons learnt:

- To reach a common vision among all 12 services providers, each of them with their own objectives, different types of organisations, diverse expectations, legal entities coming from six different countries. To this sense, the OITB representative stressed the need to identify not only a value proposition for OITB customers, but also to build a value proposition to attract OITB members and develop business through the SEP, instead of doing it individually.
- As a good practice it's important to start the discussions on the business pillars and business model early in the project, as well as having a partner engaged with the role of the SEP during the project. having a technology venture as partner, allowed to have a strategic business vision. Also, regarding the creation of the legal entity, the advice is to start the process as soon as possible, if possible, hiring an external legal advisor.
- Another big challenge lies in the barriers to the introduction of nano-enabled based materials in the market.
- The pandemic caused some collaboration problems, and the war brought uncertain for the future. Aside from it, the fact that the OITBs aren't just research projects, neither innovation projects, the big challenge lies on the creation of a sustainable business.
- The experience obtained in the OASIS daily business operation through the 6 showcases (involving the project partners) was mainly related to the technical and the management efficiency. To what concerns the technical experience it was highlighted the high quality of the services and results. As to the management efficiency, the role of the Service Delivery Manager and the communication streams were key positive points.
- With regard to the experience obtained in the OASIS daily business operation through the 11 demo cases and the open calls (figure 3), it was stressed the understanding of the customer needs obtained through a good involvement of the customer in the process definition, the use of main interest services and a good service planning. The effective communication, the match consistency between the needs and services provided, the deadline compliance and the provision of innovation, were also pointed as positive.
- OASIS representative also highlighted the support received by the EU Commission during the project and beyond, namely regarding good practices, legal and business support, visibility, marketing, private and public funding support, as well as the relationship with regional funds.
- The search for complementarity and exchange with other OITBs, achieved by workshops like this and the continuity of these type of events beyond the projects' duration, were highlighted as good practices.

NextGenMicrofluidics Project

Ronald Tingl, General Manager of the Microfluidic Innovation Hub (MIH). The NextGenMicrofluidics - next generation test bed for upscaling of microfluidic devices based on nano-enabled surfaces and membranes – is developing in two ways: 1) offering a microfluidic-lab-on-a-foil systems. There are several traditional replication technologies, but the one for the future, that can provide very high quantity, super low price, and being produced at high speed, is the roll-to-roll. And that's the focus of the OITB: to establish a breakthrough technology- roll-to-roll foils; 2) offering systems' development. The OITB cannot only offer simple features or functionalities independent of each other because customers are looking at the whole microfluidics, value-chain: assay design, patterning, surface functionalization, electrodes sensors, backend services, read out device system integration and qquality management.

Main features of the OITB and SEP:

- SEP legal form (Figure 4): the consortium opted for a non-profit association as it was an easy and quick set-up to engage different types of companies. SMEs, Large Enterprises, and RTOs joined the association, which is composed by 20 out of the 21 OITB members. The initial plan

was to create a company with limited liability (business fulfilment) owned by a non-profit association (members).

- As per the business model and sustainability, the SEP acts as sale representative financed by sales commission and membership fees. The SEP identify the lead, take it to the service provider and they do the business fulfilment. Nevertheless, they can consider changing their legal form for the future by creating a start-up.
- The reduced complexity and low effort required from users enables SMEs and start-ups to have easy access to these types of services.
- The feedback received from the current OITB activities demonstrated the willingness of some external stakeholders in joining the microfluidics ecosystem, both the market ecosystem to gain greater visibility through joint promotion campaigns, as well as the microfluidics competence centres.
- As for the internal experience acquired by the operation of the SEP, the good cooperation between the members and the open and predominately constructive discussions was featured as crucial. The OITB has experienced quite a lot of administrative effort, namely on the stakeholder management. The business and administrative efforts were a lot higher than expected.

Challenges and lessons learnt:

- Time and the team are the essence. Having the people with the right mind-set, as well as the right technologies, are key elements. Even if some pre-investment is required and there's some risk, the focus must be in developing the market and bring your product out. It's not exactly about setting up the SEP. The SEP is just an administrative task to be accomplished and taking a lot of money and time.
- To have the team members' commitment is everything and you need to have go-getters so people are interested. It´s about intrinsic motivation inside the consortium, but also in the team you hire.
- As per the technology, partners must understand that an OITB is not R&D projects. It is about going to the market.
- NextGenMicrofluidics and other SEPs act like start-ups, so they would like to see some "series B funding" to allow them to pitch, present their results and to receive additional funding for additional open calls.
- OITBs should make sure they act together right from the start. This would contribute to increasing the operating efficiency, such as having a common open call procedure, and to leverage know-how by improving the support for cross-OITB communication. The organisation of events like this one are great example. Specific workshops on different themes could be organized among OITBs in a structured way.
- Participation of "low performers" in OITBs could be increased through the creation of a specific EU instrument to motivate their participation.
- OITB face very specific and concrete issues and questions. The creation of a hotline was suggested as means to provide OITBs with support and answers within 24h.

FlexFunction2Sustain Project

John Fahlteich, from Fraunhofer FEP, representing the FlexFunction2Sustain- Open Innovation Ecosystem for Sustainable Nano-functionalized Flexible Plastic and Paper Surfaces and Membranes- which aims at supporting the industry with a sustainable open innovation ecosystem that will enhance innovation for nano-functionalised flexible plastic and paper surfaces and films.

Main features of the OITB and SEP:

- Three-step business model (Figure 5): 1) each OITB member has its own business model that needs to be respected so that they are willing to join the OITB. 2) the association is a network of excellence, dealing with standardization, regulation, dissemination, and aiding in developing the

service portfolio; 3) The SEP deals with the commercial part of the OITB exploitation and operates as an authorized dealer, providing services and getting commission on sales.

- Different legal models for the SEP have been discussed: the Grant Agreement considered the 100% subsidiary of association for the SEP. Founding a new company or contracting an independent company has been also considered as an option. Another interesting aspect discussed was the possibility that partners could act as regional SEP. All these models have been deeply discussed and the voting process led the consortium to choose either the 100% subsidiary of association or the contracted independent company.
- Challenges on setting up the legal entity: three partners were legally not allowed to join the association with commercial subsidiary. The second challenge was related to the high costs for the creation of the association owned SEP. The third challenge relates with the timeline for legal approval of the final documents (originally calculated between 3 to 6 months and took more than 12 months).
- The OITB is now contracting the SEPs through an EU wide tender. The selected company won't have exclusivity. Multiple SEPs can be selected, and the members may act as regional SEP upon approval. The SEP will act as an authorized dealer and will receive the communication and sales package, the contract framework, and the operational procedures.
- The expected products and services from the SEP to the OITB include: the commercial marketing and sales of OITB, the coordination of joint contracts and services, and access to new industry partners and markets. The expected products and services expected from the SEP to the customers include: problem solving, technology consulting, coordination of distributed R&D services and access to finance and funding. The Association services will mostly rely on the networking aspects, such as: technology information exchange, establishing the joint competences, developing networking opportunities and dissemination and communication. The association should also address regulations, standards, future topics for public funding, synergies with other relevant organisations and networks and collaborate strategically with one or more companies for the exploitation of the OITB assets.
- The governance structure of the association will be composed by a Board of Directors (BoD), with 5 members, in which at least 2 should be from the industry sector. The BoD will be in charge of the strategic management, will represent the association in public and will approve the operational procedures. The Operative Management will oversee the daily management. It is expected to hire one person to this position. The General Assembly of the Association (AGA) will be composed of 1 representative of each member, which shall meet once per year. The AGA will be responsible for electing and dismissing the Board of Directors; to validate strategic documents; to nominate a technical committee(s), as well as deciding on any statutes changes. The technical committees (or working groups) will advise, prepare documents and report to the BoD and the AGA on topics as OITB operation quality management; regulation and standardisation; knowledge roadmap; OITB interactions; OITB business and service portfolio; and dissemination and events.
- Looking ahead to 2027, the expectation is to see an integrated EU Open Innovation Ecosystem delivering a set of services to a common database, creating a unique portfolio of OITBs for testing and developing innovations, bringing circular materials to key value chains. The SEPs that are being created now in the framework of each OITB could act as regional SEPs, which could provide these range of services in different languages.

<u>Challenges and lessons learnt:</u>

- An OITBs should help user connecting with investors, connecting with R&D institutes, and also support in the supply chain formation. Taking the FlexFunction2Sustain as an example, from the potential customer requests, at first step, about 80% were more interested in the financing rather than the technology. This is the bigger challenge.
- OITBs need to deliver a two-sided value proposition: from the OITB/SEP to the members, and from the OITB/SEP to the SMEs. It may be even a three-sided value proposition if we think about the investors. The SME wants to have fast track access to the right technologies, to IP services,

to partners and customers, as well as the support in finance and funding. As per the members of the OITB, they want industry revenues from service sales. Sometimes more important for RTOs, especially for Universities, is the reputation of their research community, the success stories and the publications. These differences create the first conflict in running an OITB, because sharing information with the public is often the contrary of getting industry revenue, or the contrary to the customer need in terms of exclusive access to the technology.

- Language may be also a challenge. SMEs often require a reginal contact in their local language, as it is very common that SMEs don't speak English.
- Customer demand is often not clearly defined. It leads to the identification of the following needs: a consultancy role of the SEP and technically skilled people working at the SEP. As consequence, the SEP is very expensive to maintain. This is something to be considered for the business model.

Safe-N-MedTech Project

Lars Pithan, consultant at BKM Consultants, representing the Safe-N-MedTech, a test bed for assessing nanotechnology-based medical devices. Safe-N-MedTech is a OITB for nanomedicine which provide open access platform and a single-entry point to a comprehensive range of services for the nanotechnology medical device market along the entire value chain, from initial characterization of nano-enabled medical devices to commercialization.

Main features of the OITB and SEP:

- The mission of the Safe-N-MedTech OITB it the establishment of the first European Open Innovation Test Bed with a Single Entry Point to support nanomedicine innovators by offering an integrated and comprehensive range of services, from initial characterization to commercialization. The vision is to become a global reference for providing highly specialized and state-of-the-art services to nanomed innovators throughout the innovation cycle.
- Market opportunity: there is an increase in the adoption of nanotechnology in the medtech and pharma industry. The outsourcing of research, development, and testing is a key business activity in this sector. The EU public investment in nanomedicine R&I is also increasing. The regulatory framework for nanomaterials and medical devices is evolving and more stringent each day. There´s a lack of comprehensive support and domain on expertise to overcome the specific challenges of nano-enabled medical products; as well as difficulty to find service providers that gather all the necessary capacities.

Challenges and lessons learnt:

- While in a regular business development environment you don't have international partners immediately, in the context of a EU Project there is already a communication infrastructure in place. So, when you grow your business and you want to go internationally, one of the aspects you are going to look at is for offices in the countries and markets that you are trying to target. Within a EU Project we already have a large number of countries, and different offices in the markets where members of the project are already present. So, making use of the capabilities of all the members of the project is certainly key.
- Challenges posed by having different legal entities in the OITB: not all of them can become a member of a business. Nevertheless, including them all into the new structure, in whatever capacity, is certainly something that we all should take advantage of.
- The transformation from European Projects to Health Technology Services: (Figure 6). The European projects are up and running, they are functioning, and they have an infrastructure in place. The major differences lay on the international management, but also in the fact that it must be taken into consideration from the start on the need to build an independent legal structure capable of doing business with customers. In a company, attracting customers, communicating skills, it´s very different from a funded project and we must really take care of doing that successfully.

- The 3Cs: Contracts, Collaboration and Clients. Regarding the contracts, this is an important and difficult part, but progress was made and once it is signed by the partners a founding event of the OITB Pathway will be held. As for the collaboration, the connection with other OITBs is also an important point, promote services to potential new partners beyond the project, as well as reveal and consolidate synergies. As for the clients, promotion of OITB on events, to make use of existing contacts to potential clients, and closing the first deal are a must.

2.2.4. Detailed Q&As

How to convince SMEs and Start-ups to use the OITB services without the funding support, instead of using other organization services, also considering the overhead costs of the OITBs? How to overcome this issue and include it in the OITB Business Models?
• The OITBs should include in their offer access to venture capital. Another suggestion is to have agreements with regional funding agencies, which could provide support to the regional companies. • OITBs should include in their service portfolio, as an integral part of the OITB offering, a business service to support users in getting the investors readiness. OITBs could actually do the bridge between SMEs and investors. For that, we must treat the investors as OITB clients, meaning to have a value proposition for investors. • Rethink the model of the funding, such as crowd-funding solutions. • OITBs do not only provide services, but also the coordination of knowledge, contacts to different providers. The overhead exists to cover this added value to the customer.

There are some suggestions about organising a Single-Entry-Point around a pool of regionally distributed Single-Contact-Points which would be based in every, or in many European countries. For those OITBs establishing a legal entity in a specific country, how to reach each customer in every European country?
• Any legal entity needs to have a country to be established. Nevertheless, such entity can have the participation of different organizations coming from other countries. As new suppliers join the network, more countries will have representation in the ecosystem.

What are the main reasons you can find for the SEP to last, and how to get the partners involved?
• The OITB market might be too small to finance a separate private SEP dedicated to a single OITB. So the options are to use an existing one, or we share a SEP, and we share a sales infrastructure. If an existing sales infrastructure is used, the SEP is just adding more to its service portfolio. If the option is to create a separate company, costs will increase (about 200 to 300 k€ per year for a company with 3 employees) and the SEP sustainability will be more challenging.

For projects that have created a commercial company, how did you manage the contribution to the share capital for the commercial company? How to manage expectations among the consortium members and the acceptance that they will not provide services on their own and that they will have a new entity maybe competing with them**?**
• Partners must be very clear that the beginning of the OITB will not be sustainable from the beginning. The initial contribution is an investment for the future. • Important also to reflect on the acceptance that a new entity will provide services on its own and rules on how to manage competitiveness must be settled. An RTD service provider may have its own customers in a certain are of influence and it is important to define how this will interact with the OITB.

2.3. Session 2: Services and Open Calls, IP

***Moderator: Susana Xara** | Project Adviser - H2020 Raw Materials HaDEA - Health and Digital Executive Agency (European Commission)*

Speakers:

- ***Hugo Thienpont** | Full professor at the Faculty of Engineering of the Vrije Universiteit Brussel (VUB), ACTPHAST Project Coordinator (DIH)*
- ***Angel del Pozo** | Biokeralty, Deputy Manager of Programs Strategy, SAFENMT Project Coordinator*
- ***Mariana Fernandes** | Business and Strategic Relations Officer at the International Iberian Nanotechnology Laboratory (INL), INNO4COV-19 Project Coordinator*
- ***Carlos del Castillo** | Project, Sustainability and Advocacy Manager at European Convention for Constructional Steelwork, NewSkin Project Coordinator*
- ***Stefano Carosio** | Executive Director of STAM, INN-PRESSME Project*
- ***Robert Harrison** | Technology Licensing and Intellectual Property Attorney at Sonnenberg Harrison, FlexFunction2Sustain Project*

2.3.1. Summary of individual presentations:

ACTPHAST Project

Hugo Thienpont, full professor at the Faculty of Engineering of the Vrije Universiteit Brussel (VUB) presented the ACTPHAST project which provides photonics innovation services to all European companies, in particular to small and medium-sized enterprises.

Main features of the project:

- The processes of innovation and digitization are currently supported by 8 key digital technologies, and one of them is photonics - the science and technology of light. It allows to innovate products with the unique properties of light. This is most probably the least understood key digital technologies, but couple of real-life applications make it very clear how important photonics is in daily life: optical fibre, data communication, solar cells, led lightning, display technologies, lasers in manufacturing, medical optics, machine vision, and optical components.
- Europe is the number two worldwide in photonics production, with a compound annual growth rate of 7%. So, photonics is a core technology for Europe, with 5.000 SMEs and 380.000 high-tech jobs. However, we do believe that all industry sectors can benefit from photonics to innovate their products. There are actually about 260.000 high potential SMEs.
- If those companies that do not know much about photonics, if they want to successfully innovate with photonics, they need support along the entire innovation value of debt. And that comes from idea, feasibility study, prototyping, upscaling, manufacturing, up to commercial diffusion, which is strong technology support. Besides the technology support, SMEs also need business coaching and investment coaching.
- The address the challenges above, the partnership created the PhotonHub Europe Center - an umbrella for all those services required for deep innovation support from TRLs 3 to 8. This is the differentiating character from PhotonHub: it is not photonics for the photonics world. It's about photonics for the industry sectors, in health agro-food, digital, infrastructure, manufacturing, climate, mobility, energy, safety, security, space, defence, etc.
- The ACTPHAST Project is working on a three-step action plan, which comprises: 1) outreach; 2) orienteering, qualification and support; 3) impact. Outreach is probably the most challenging and the most difficult is reaching out to the companies that actually need the support, but that are maybe not aware of it, or that say they don't have time to innovate with photonics. Once those leads are created, the best ones are selected to perform deep technology innovation support. Then, very importantly, impact is measured.
- Outreach activities: 1) work with the Enterprise Europe Network and their industry brokerage events is a great opportunity to reach all industry sectors, have face-to-face meetings, raise awareness about the support they can get and listen to their needs; 2) participate in industry

exhibitions (not photonics exhibitions) to try to work with the companies and explain what photonics could do for them; 3) local hubs spread all over Europe.

- Way of working: supply companies from A to Z, from prototyping, to upscaling or to manufacturing. ACTPHAST brings together a network with the best European experts and the best technology platforms at the disposal of the company, including more than 200 photonics experts out of the 54 partners and 8 prototyping platforms. If it's not about prototyping or feasibility study, but about upscaling, ACTPHAST is the gateway to the European pilot lines. If company does not want to fabricate the components themselves, ACTPHAST is doing brokerage between the company in need for a manufacturer and several European companies that could provide the manufacturing.
- The project total funding is about 19 million euros. Most of that money goes into the real support to companies. Companies don't get money but get access to in-kind support from the research teams and innovation platforms. The closer a company comes to the actual product, the more support we ask from the company. So, for prototyping that's only 25% cash that they need to contribute, for upscaling it´s 50% cash, and for manufacturing, the brokerage service is free, but the manufacturing of course needs to be paid by the company (figure 7).
- Besides deep innovation support, ACTPHAST is also supporting companies to find investment by providing intensive coaching for investor pitching, as well as providing matchmaking support.
- Impact is measured in a quantitative way. The innovation success of ACTPHAST - and its continuation through the PhotonHub - can be put in numbers: 120 deep innovation projects with 120 companies. The companies came from 25 European member states. About 90% of the supported companies were small medium-sized enterprises, and 65% are non-photonics companies, which measures the photonics penetration in non-photonics companies. Customer satisfaction is also measured, and the impact is going very good. ACTPHAST raised 75 million euros with new venture capital with start-ups, generated 700 million euros new company revenues and 750 new European high tech jobs.

Challenges and lessons learnt:

- The technology push doesn't work. It’s important to listen to companies and learn about their challenges.

Question and Answers from the audience for the ACTPHAST Project

How do you deal with companies that don’t speak English?
• About 60% to 70% of the companies can perfectly negotiate, discuss, and work in English, as the kind of common language. In case that's not possible, ACTPHAST can always relay on the research units spread all over Europe and engage with local partners so that they interact directly with the company.

How do you deal with the liability issues?
• Most ACTPHAST partners are extremely advanced research institutes running pilot lines and technology platforms, used to work in close collaboration with companies. Working at the best effort level it’s the only way, so partners can never be held liable for the projects delivered by the hub.

Safe-N-MedTech Project

Anais Le Corvec, Network Manager of the Council of the European Bio-Regions, presented the Safe-N-MedTech open calls and the lessons learnt.

Main features of the Open Call:

- The main goal was to create a process very easy for the companies to apply to the open call. Because the OITB is not providing money and because some companies think they know exactly

what they want and what they need, the proposal templated developed as a very short questionnaire including the following information: summary, definition of the product, potential solution, the state of development, the innovation, the impact, the objectives of the collaboration, the services required, and also their market plan. Besides making it easy for the company to apply, the evaluation process was also simplified.

- Only SMEs were eligible to apply. This was done thinking of the future customers.
- The SAFENMT has received 10 applications, which were evaluated by the project management committee. Each proposal was assessed by three evaluators, and the same combination of evaluators were never repeated. The level of the applications was technically very high. 4 out of 10 proposals were pre-selected and 2 included in a reserve list. A one-hour interview was made with the pre-selected applicants, which included a pitch and time for questions. The management committee has selected 3 out of the 4 proposals pre-selected to go to next phase. An NDA will be signed, and a working plan will be discussed.
- As for the next steps, the partnership will be dealing with the communication of the official results, with the definition of the services and efforts to take with each selected test case. The implementation of the services will be closely monitored to really tell their story, and to do the transition to the SAFENMT self-sustainable model.

Challenges and lessons learnt:

- Dissemination is very challenging. It's very hard to reach companies and attract them to apply to the open call with no real money involved (and only access to in-kind services).
- OITBs operate in a very specific field: nano-enabled medical technologies. If the value proposition is not clearly stated, it's very hard for them to understand what they can get from an OITB.
- Customers often don't know exactly what they need, or they ignore some aspects that are absolutely needed along the way. This is obviously one of the OITBs key values – the expertise in all fields required to take an idea into the market. Taking form the SAFENMT experience, companies are specially focused on their clinical trials and how to get their products into the market. Regulatory is usually a big issue for them that needs to be considered along the way.

INNO4COV-19 Project

Mariana Fernandes, Business and Strategic Relations Officer at the International Iberian Nanotechnology Laboratory and project coordinator from INNO4COV-19 - Boosting Innovation for COVID-19 Diagnostic, Prevention and Surveillance. INNO4COV-19 project is not an Open Innovation Test Bed in its nature, but it has a lot of similarities with the OITB model. The mission of INNO4COV-19 is to create a lab-to-fab platform, aiming to make available to potential users - mainly companies, but other relevant stakeholders - a set of tools, infrastructures, and expertise that can be accessed from a unique platform to streamline the market exploitation, the "go to market strategy", the commercialization of innovative technologies, which are focused on four different areas: innovative diagnostic and screening systems, environmental surveillance sensors, devices for telemedicine and telepresence, and protective equipment. The INNO4COV-19 Project intends to support the commercialization of these technologies by supporting them through the platform, but mainly by managing an open call.

Main features of the Open Call:

- The open call provided funding in the format of a lump sum of up to 100k euros. This feature was among the main factors of the success - Apart from having the money available to cover expenses that companies have at an internal level, the money could also be used to hire support services from the INNO4COV-19 network, but also from their usual service providers. Services from the INNO4COV-19 network include access to facilities, expertise- both R&D and business- and clinical and regulatory aspects
- The open call was targeted for companies or consortia of companies.

- The dissemination of the open calls (2 cut-offs) was very intense, and the European Commission also put a lot of efforts on it. The INNO4COV-19 organized workshops and info sessions, which were online live streamed, and later made available on YouTube. The consortium also provided frequently asked questions, which were also made available on their website along with a forum so applicants could, in a lively way, check the main questions from other potential applicants.
- The submission phase has been supported by a guide for applicants, where all the information relevant to the companies was published in a single document. It was easy for them to spot everything.
- By the end of the first cut-off the number of applications exceeded 150. To facilitate the process of evaluation the partnership took the immediate decision of launching a call for expression of interest for external evaluators. This was very useful to combine internal and external experts in the evaluation committees. 18 projects were selected under the first cut-off. A meeting was organised with all the evaluators in order to harmonize the evaluation process. It was also prepared an evaluation toolkit with reporting templates, scoring methodology.
- The same process was repeated for the second cut-off, with slight changes, which were related to the emergency faced, and the change of some of the priorities on the COVID-19 pandemic situation. For instance, the focus of the open call was shifted to innovative diagnostics and screening system and environmental surveillance. This helped to target the application received in the second cut-off, which supported 12 projects.
- In figures, INNO4COV-19 received 425 applications during the two cut-offs. Out of these, 294 were considered eligible. This mean the evaluation committee was very efficient in shortcutting the list of proposals. 56 interviews were made, and 30 applications were selected. Almost all of them requested 100k in financial support, and the project reached the 3 million euros in terms of financial support.

Challenges and lessons learnt:

- The nature of the financial support (lump sum) is one of the main success factors of the open call deal flow. However, considering that funding could be used to access services outside the INNO4COV-19 platform, it was really important to make sure that the money was being well implemented or applied by the companies. To this extension it's important to create a set contingency measures and INNO4COV-19 developed a Project Delivery Manager framework which includes: the nomination of a project manager to follow the project all the way, regular meetings with the company, and a set of tools and templates to be used up to the presentation of the final results. The final payment could only be released once all critical milestones proved to be achieved.
- Strong dissemination activities are also a success factor. The support from the European Commission in contacting the National Contact Points, national and regional clusters, and other associations related to the medtech sector; as well and the media coverage that each partner pushed forward to disseminate, in all media channels TV, radio, news, etc.

NEWSKIN Project

Carlos del Castillo, Sustainability and Advocacy Manager at European Convention for Constructional Steelwork, and coordinator of the NewSkin Project. The NEWSKIN - Innovation Eco-system to Accelerate the Industrial Uptake of Advanced Surface Nano-Technologies - is a project dealing horizontally with nano-enabled surfaces and membranes, with coatings structures and nano surfaces.

Main features of the Open Call:

- The open calls are a great opportunity to engage the innovation ecosystem and validate what an OITB can offer and to achieve the sustainability of the testbed.
- NEWSKIN have three types of applicants: technology requesters, technology testers, and technology developers. Hence, there are three different types of guidelines to evaluate proposals.

- The NEWSKIN "wish lists": it could happen that the OITB don't have the technology requested, or a technology compatible with the request. In such cases, before submitting a proposal, applicants are invited to reach NEWSKIN first to discuss their needs and match their capabilities.

Challenges and lessons learnt:

- The entities applying for the open call are not always clear about what the OITB can provide. A discussion phase is required. Before engaging someone, the partnership devoted about five to ten hours to conversations with each company. The applicants need to have an idea of what the OITB can offer and if there is a market for what they want to achieve. Especially in the last two years, with the introduction of new taxonomies, the European Green Deal, and other legislations that are coming into force.
- The open calls are providing services, but not only technical services, also services to create value proposition. In this sense, collaboration with external entities is often requested. Also, the OITB needs to have an active role in opportunities findings.
- Open calls are planned to test the OITBs, so it's normal to make mistakes.
- General presentations are not the best mechanism to disseminate the OITB offer because in the end they are defining very specific targets and it's not easy to explain the OITBs value proposition to a heterogeneous audience. It's probably more fruitful to work on focused audiences and define exactly what the OITB is bringing to each specific audience.
- The lack of awareness and visibility on what the OITBs are doing is also very challenging. To close up the presentation.

INN-PRESSME Project

Stefano Carosio, Executive Director of STAM, representing the INN-PRESSME - Open innovation ecosystem for sustainable plant-based nano-enabled biomaterials deployment for packaging, energy/transport, and consumer goods. The is dealing with bio-nano and bio-based materials applied to three main domains: consumer goods in a broader sense, packaging, and energy and transport. The OITB gathers top pilot lines across Europe, from RTOs and small organizations covering all value chain, from feedstock management, processing, pre-treatment, to the to the final product. Hence, it is fully in line with the circular bio-economy concept.

Main features of the Open Call:

- INN-PRESSME is attracting SMEs interested in nano and bio-based materials for applying to the open calls for providing services, through the SEP access (Figure 11). The target for the open call is to validate the operational model, the contractual aspects, and all matters thoroughly discussed with each OITB project. It is about creating success stories before going into the market.
- The services provided are certainly very relevant, but the non-technical services are very important as well. Because there are plenty of other aspects which are key to implement solutions as, for example, nanosafety, end-of-life aspects and eco-design services. It is about providing access to the whole value chain.
- The INN-PRESSME project have set aside 1.6 million euros to engage SMEs and large enterprises within the open call. The rules and the procedures for the open call are currently under discussion within the consortium and the plan is to have the evaluation running in the end of the autumn this year. Evaluation criteria will comprehend the innovativeness of the proposal, the IPR of the technology, the concept fitting with the OITB assets (pilot lines and services), and the TRL level, which the initial target should be between 4 to 5.
- The value proposition from INN-PRESSME and the access it can provide, not only to pilot lines, but also to the network that it can mobilize, can be illustrated with a couple of examples: 1) new bio-based material for the packaging sector; 2) companies may be having new bio-based materials for packaging and looking for other type of services which can go from the material fine-tuning to coatings recyclability, and IP protection; 3) companies working and supplying

second tiers to replace parts made of plastic that today are forced to become more bio-based and sustainable.

Challenges and lessons learnt:

- The key difference between OITBs and DIH is that there is no money on the OITBs (cascade funding or Funding Support to Third Parties). And this is a strong differentiation point. If OITB managers are not able to convince SMEs without money, then sustainability will be hardly achieved.
- OITBs gather a diverse community that can talk "business to business" and "science to scientists". This is a great value, but trust among the community is fundamental to take the best advantage of it.
- OITBs managers are used to work in collaborative research projects to address research practitioners and to discuss projects with them. Nowadays it may apply to SMEs as well, as they are more and more involved in European projects. As an OITB is not only about developing new products or new solutions, but also interfacing with the commercial, IP, marketing, and other functions, it critical to mobilize all the different functions within organizations which can recognize the added value in engaging with an OITB.

FlexFunction2Sustain Project

Robert Harrison, Technology Licensing and Intellectual Property Attorney at Sonnenberg Harrison, on behalf of the FlexFunction2Sustain Project.

Consideration about IP:

- The focus is much on patents, but it's not just patents. It's also about protecting brands and names because that is what customers, the outside people, recognize at the end of the day. Data rights is also to be considered. We also need to think about data rights, know-how protection- which sometimes is more challenging in RTOs compared to industrial companies. These are certainly aspects to think about within the SEPs, within the associations, on however OITBs need to go.
- If OITBs are going to have a long-term sustainability operation it is key to make certain that know-how will not spread freely around the place. A conflict with open science and open data exists and finding a balance is going to be a great challenge within the OITBs. Another important aspect is about sharing knowledge within the OITBs. It is important to create an umbrella of confidentiality and people shouldn't try and put undue burdens on it. In principle it should be sufficient to have a Consortium Agreement for an open exchange of information within the OITB, and people shouldn't try to have individual agreements within other members. Use cases outside the consortium are probably the exception to this.
- Concerning the background IP topic, it is needed to really define the background IP before entering a project and to be clear about the access rights that other members of the consortium get. Because OITBs are not trying to be a purely research oriented organization and long-term sustainable is desired, the access rights must extend beyond purely research and development within the corporate congregation. It doesn't have to be right at the beginning in the Grant Agreement or in the Consortium Agreement, but access rights might be required at a certain point.
- For all the reasons above, it's very important to bring on-board central legal departments and IP teams from each partner early in the OITB to make sure the same view is shared.
- Also, very important to define the foreground knowledge and the access to it. Particularly those coming participants from RTOs need to be really understanding what they're going to give up, how they're going to do it, and these challenges to differing policies throughout every one of OITBs institutions is something that can actually be resolved. Again, any conflicts with open science must be resolved.

Recommendations on IP:

- Clarity on access to rights though IP, including the preparation of a valorisation plan.

- Have some form of dedicated intellectual property manager or appointee within the consortium, preferably someone who's got both the legal background and technical qualifications, meaning by that somebody with a science degree, but also with a good understanding about intellectual property rights, not from the purely technical side, but also the legal opportunities. The creation of an IP board is certainly a good option.
- Deciding on a common filing strategy it's also important. The minimum should be filing a European patent application, and then moving on worldwide, probably to US and some geographies in Asia. That I would say is something that we really need to be thinking about.
- Common understanding of access rights among the consortium and within the partners is also a must.
- One-stop contracts made through the SEP.
- Resolve conflicts with open science and data early in the process.

2.3.2. Detailed Q&As

Channels and tools that worked out very well to disseminate the open calls.
• Make use of all partners' channels as much as possible. • Having regional entry points, with good knowledge about the companies around them, also helps spreading the message and disseminate the open call to companies.

How to deal with applications that need extra support on the language (language barriers in communication)?
• Many OITB representatives managing the open call haven't been made aware of any difficulties regarding the language. Specially in the medical sector, companies master the English.

Does any of the OITBs has already a strategy on how to deal with IP that an OITB member or the SEP has together with a customer?
• IP strategy is indeed complicated and there's still many things to be defined within OITBs. Important to remember that if there is background, it exists a rule. Then, if it's totally invented in a contract work, a dedicated IP manager should be dealing with it. • Some OITB representatives agree on the need continuing the IP discussion in a forum open toa all OITBs, probably starting in the fall. • Another topic emphasized is the need to be careful on who to use as lawyers. There are many lawyers out there who have absolutely no knowledge of EU framework programmes. So, using somebody who's got some knowledge and some in-depth knowledge about how funding schemes is advised.

Gender and diversity issues.
• The open calls should identify mechanisms to promote the gender and diversity aspect so that we can promote companies led by woman and escape from gender bias.

What can we learn from the successful number of applications received in the INNO4COV-19 open call?
• The direct funding taking the form of lump sun is seen as fundamental to attract companies to apply. • The fact of having a platform strictly focusing in the COVID 19 related applications and very strict technology domains, has forced companies to be very much aligned with the call scope. • Detailed and refined rules and evaluation criteria are also recognised as a major factor of success.

2.4. Recommendation toward EC for future OITB support and strategy

This session was moderated by Dominique Planchon, Senior Program Officer at European Commission DG RTD. The discussion took the form of a forum where all OITB representatives were invited to share their views on specific topics launched by the commission and elaborate recommendations that can be considered for future policy advice. The section is organised according to each topic launched into the discussion forum.

2.4.1. Feedback and expectations from SME customers towards OITBs

Is the OITB structure adopted well by SMEs?

- The OITB model is fully adapted to SMEs: the user can go through a single-entry point, have one person to talk with, and get connect with several service providers without the need to interact with several people.
- Even with a tailored model, many SMEs don't care about what an OITB is. Companies need a service or someone who can solve their problem. They don't care if it´s an OITB, a Digital Innovation Hub or a single company providing them with a service. The priority is to get their problem solved. So, dissemination should be more about the services available and not so much about the OITB structure. With other words, the OITB model is something that's good for the partnerships involved to structure the operation model, but for the SME the model has no relevance at all.
- SMEs really don't care about the OITB setup, and they probably get confused when we try to explain how it works. Most importantly, SMEs need to have a single contact, a person that walks them through the whole process.
- Even if SMEs are the most likely customer of OITBs, opportunities towards large companies should not be overlooked. There are some OITBs already working with large enterprises in demo cases and the experience brough by these cases show that the capabilities of the test beds in terms of being able to offer solutions "out of the box" is seen as a competitive advantage for them. Big companies do not have everything solved in house. Future collaboration models with large enterprises could also work as attractors for other clients - if the big companies are trusting on the OITB schemes, also SMEs will.

What challenges did the SME face?

- Although the OITB is perfectly suited for SMEs and large entities, some argue that as soon as the project finishes and the Single-Entry Points is up and running, the model will be much more attractive to large companies. OITB services may turn too expensive and large companies, with more money, will have a big advantage in contracting compound services from multiple service providers.
- Future financing and funding for SMEs so that they come to OITBs would be needed to a certain extent. Big companies will not have to deal with the funding problem, they have enough money, but SMEs may lack the required resources.
- It is very important to fit OITBs to support SMEs in addressing the challenges of remaining sustainable and competitive. Maybe this won't be a problem for innovative SMEs, but for those SMEs lacking that capacity innovation can be truly a challenge. For those, the access to single entry point from where they can get services from any country in Europe can be a real "game-changer", key to overcome the so-called "valley of death".
- SMEs are looking for solutions and they need to find an active interface which is talking business and talking science. In this space OITBs need to be the translator. Once we do that we gain the trust of the entrepreneur.

Main recommendations

Recommendation #1 – on the OITB outreach to SMEs

Develop specific actions to raise awareness about the real value proposition offered by the OITB ecosystem and identify mechanisms to build the shortest path of OITBs to the market.

2.4.2. Integration of all OITB offerings and structure of the SEP

How can OITBs share information and services and create a network?

- Normally each OITB topic gathers up to three projects and in some cases those projects will be tapping into the customers. Projects addressing common topics could try to identify synergies and ways of working together so to become stronger in their offer.
- The registration of OITBs in a common database of technology infrastructures integrating other stakeholders such as RTOs may be an option to gather knowledge, but we cannot expect SMEs or any company visiting such platform to get in contact with OITBs. Companies will be hardly looking for solutions to their problems in a marketplace-kind platform. Also, when thinking about a common database to gather information on OITBs we must take into account that information gets outdated very easily- new services entering into the OITB portfolio, facilities are upgraded. Besides thinking about gathering information we must also think about maintaining such information up to date.
- The idea of a common platform has some challenges with a common platform. Probably one could think about a common ontology, in an .xml format, or something like that, which would enable a much better exchange of information. In the services of the OITBs that's certainly something that we should be working towards.
- To help each other by cross-promoting open calls from other OITBs could be a good starting point to share information and densify the ecosystem around OITBs.

Should future topics suggest the legal form for the SEP?

- To talk business to business organisation, to operate as a translator in between business and science, be able to understand the problem and put together the right combination of services. SMEs are asking not only to access technology, but also to access finance. So it's important also to give access to financial engineering, from regional funds, to venture capital funds, and to European funding. The key recipe is really about integration of services.
- When deciding for the legal form for the SEP there's a key point to consider which is liability. Taking the universities as an example, those that have set up their for-profit companies are in fact those that can then engage with insurance for liability. When within FlexFunctio2Sustain we thought about having an association as SEP, we went into an enormous detail and decided that it was impossible for the association to actually act as SEP due to its non-profit statute, meaning that it shouldn't do commercial activities and would have enormous sort of problems with getting liability insurance.
- Another example, we can go to a company anywhere in Europe and ask them to do some services and they will guarantee those services, they will give some liability if it goes wrong. If you go to an University, they'll often reject that opportunity as they can't guarantee it. They´ll say they´ll do the best of their scientific knowledge. That's one of the most important things to think about when designing the structure of a SEP.

Main recommendations

Recommendation #2 – on the integration of OITBs' offer

Assess the clustering of OITBs and pilot lines according to their topics as means to unifying and integrating the service offer to customers.

Recommendation #3 – on the integration of OITBs' offer

OITB to help each other by cross-promoting open calls from other OITBs on their own communication platforms.

2.4.3. Language barriers

Who can translate the service portfolio in the languages - regional Single-Entry *Points?*

- OITBs could probably take advantage of the SEPs already established in different European countries. Even if they are focusing in a different topic, those existing SEP could help with matter related to their local ecosystems. If there is a request from a country where the OITB is not in, Then the OITB shouldn't hesitate to contact a SEP of another OITB established in that country. Complementary, the OITB would provide technical knowledge, the local SEP would provide local access. We could simply have a commercial model in which the local SEP get a certain share of the earnings.

Main recommendations

Recommendation #4 – to overcome language and geographic barriers

Single-Entry Points could include in their business model the possibility of operating as local help desks in support of other OITBs operating in those locations.

2.4.4. Sectors and market to be targeted by OITBs

Which market sectors are needed to be addressed by the OITBs?

- The future is about sustainability and circularity. Fibre-based packages are doing already great, plastics are putting a lot of effort there, and that should be the direction of car industry as well. Where we are lacking quite a lot is in the textile industry.
- In the health sector there's a big demand, from both the patient side and the supplier side, on the nutraceuticals, functional foods, and how it can improve the quality of life through non-therapeutics.
- Space is another sector to be tackled. A number of sectors, like the automotive, are trying to differentiate and go to the space economy. They are moving into space because of their capabilities to work with specific materials (e.g., lightweight). This could be an interesting area which could also give a lot of return in terms of uh dual use.
- Linking OITBs with hubs for circularity is also a recommended path.
- Some OITB players defend that with a good definition of the existing value propositions, the OITB ecosystem should be able to address as many markets as possible. Developing significant value propositions require first to identify the needs of each sector. For this purpose, good connections towards sectorial initiatives (e.g., clusters) and networking with industry could really help building sound value propositions to specific industries.
- A member of an OITB replied to the previous comment, regarding the simulations: "I just want to say that SMEs unfortunately don't have the measures to really afford this simulations on one hand, but yes I agree to the sustainable testimony."

Main recommendations

Recommendation #5 – on sectors and market to be targeted by OITBs

With the support of the European Commission, implement a set of activities to get in contact with initiatives and players from specific market sectors with the aim of developing concrete OITB value propositions targeting specific sectors.

2.4.5. Policy Support

How can EU and National Governments support OITBs in the future?

- There are three models to apply for funding with an OITB: 1) the OITB legal entity can apply to an European programs; 2) it can apply to a national program in the country where the legal entity is established; 3) the SME can apply to an SME dedicated funding program and subcontract services to the OITB. But for the business model of the OITB it should definitely work without direct funding to the OITB, even if it takes 5 to 8 years for the OITB to become profitable. Focus should be put in supporting SMEs.
- The OITB ecosystem is like a super research centre in which different institutions bring very specific facilities, resources, and competences to transfer knowledge. There are national and regional mechanisms out there supporting SMEs in getting services from research centres. Similar instruments could develop to support SMEs in working together with OITBs. The transnational nature of an OITB may create some barriers to implement such national and regional mechanisms.

Main recommendations

Recommendation #6 – on the support to SMEs in accessing services from the OITB ecosystem

Create funding mechanisms to aid SMEs in fostering innovation through support provided by an integrated OITB ecosystem.

2.5. Future actions

The workshop ended participants' suggestions on topics to be discussed in specialised workshops, namely:

- IP management
- SEP legal structure and liability issues
- OITB and SEP business model
- Integration of OITB services and sustainability after the funding from the EC

3. Conclusions

The FlexFunction2Sustain team will continue to promote the regular exchanges with an increased number of OITBs and cluster initiatives. Our aim is to promote the organization of a regular annual events so to foster cohesion among testbeds, service integrations, exchange of good practices, jointly dissemination to stakeholders (industry, investors, policy makers, social innovators) and networking. Following this aim, we are already working in organizing the third OITB workshop jointly with the Convert2Green and Safe-N-Medtech OITBs. The workshop will take place as a satellite event of the EuroNanoForum 2023, Lund, Sweden, on June 14. The third OITB workshop seeks to engage OITB participants in a discussion of key issues that have emerged during the projects' implementation and discuss future actions that can help the community turning stronger together.

4. Degree of progress

The deliverable is 100% fulfilled.

5. Dissemination level

The Deliverable D8.6 is public and therefore it will be available to download on the project's website.

ANNEX I: List of OITBs per funded topic and technology domain

Project Topic Code	Topic Descr	Project Acronym	Project Name
DT-NMBP-01-2018	Open Innovation Test Beds for Lightweight, nano-enabled multifunctional composite materials and components (IA)	LEE-BED	Innovation test bed for development and production of nanomaterials for lightweight embedded electronics
		LightCoce	Building an Ecosystem for the up-scaling of lightweight multi-functional concrete and ceramic materials and structures
		LightMe	An Open Innovation Ecosystem for upscaling production processes of lightweight metal alloys composites
		OASIS	Open Access Single entry point for scale-up of Innovative Smart lightweight composite materials and components
DT-NMBP-02-2018	Open Innovation Test Beds for Safety Testing of Medical Technologies for Health (IA)	MDOT	Medical Device Obligations Taskforce
		Safe-N-Medtech	Safety testing in the life cycle of nanotechnology- enabled medichal technologies for health
		TBMED	A testing bed for the development of high-risk medical devices
DT-NMBP-03-2019	Open Innovation Test Beds for nano-enabled surfaces and membranes (IA)	FlexFunction2Sustain	Innovation for nano-functionalised flexible plastic surfaces
		INNOMEM	Open Innovation Test Bed for nano-enabled Membranes
		NewSkin	Innovation Eco-system to Accelerate the Industrial Uptake of Advanced Surface Nano-Technologies
		NextGenMicrofluidics	Next generation test bed for upscaling of microfluidic devices based on nano-enabled surfaces and membranes
DT-NMBP-04-2020	Open Innovation Test Beds for nano-enabled bio-based materials (IA)	BIOMAC	European Sustainable BIObased nanoMAterials Community
		BIOMAT	An Open Innovation Test Bed for Nano-Enabled Bio-Based PUR Foams and Composites
		BIONANOPOLYS	OPEN INNOVATION TEST BED FOR DEVELOPING SAFE NANO-ENABLED BIO-BASED MATERIALS AND POLYMER BIONANOCOMPOSITES FOR MULTIFUNCTIONAL AND NEW ADVANCED APPLICATIONS

		INN-PRESSME	open INNovation ecosystem for sustainable Plant-based nano-enabled biomateRials deploymEnt for packaging, tranSport and conSuMEr goods
DT-NMBP-05-2020	Open Innovation Test Beds for materials for building envelopes (IA)	iclimabuilt	Functional and advanced insulating and energy harvesting/storage materials across climate adaptive building envelopes
		METABUILDING LABS	METAclustered, SME oriented European Open Innovation Test Bed for the BUILDING envelope materials industrial sector using a harmonised and upgraded technical framework and living LABS
		MEZeroE	Measuring Envelope products and systems contributing to next generation of healthy nearly Zero Energy Buildings
DT-NMBP-06-2020	Open Innovation Test Beds for nano-pharmaceuticals production (IA)	Phoenix	Pharmaceutical Open Innovation Test Bed for Enabling Nano-pharmaceutical Innovative Products
DT-NMBP-07-2018	Open Innovation Test Beds for Characterisation (IA)	FormPlanet	Sheet metal forming testing hub
		i-TRIBOMAT	Intelligent Open Test Bed for Materials Tribological Characterisation Services
		TEESMAT	OPEN INNOVATION TEST BED FOR ELECTROCHEMICAL ENERGY STORAGE MATERIALS
DT-NMBP-11-2020	Open Innovation Platform for Materials Modelling (RIA)	MUSICODE	An experimentally-validated multi-scale materials, process and device modeling & design platform enabling non-expert access to open innovation in the organic and large area electronics industry
		OpenModel	Integrated Open Access Materials Modelling Innovation Platform for Europe
		VIPCOAT	Virtual Open Innovation Platform for Active Protective Coatings Guided by Modelling and Optimization
HORIZON-CL4-2022-RESILIENCE-01-20	Climate Neutral and Circular Innovative Materials Technologies Open Innovation Test Beds (IA)	Convert2Green	Converting Facilities Network for accelerating uptake of climate neutral materials in innovative products
		Exploit4InnoMat	An Open Innovation Ecosystem for exploitation of materials for building envelopes towards zero energy buildings

ANNEX II: Workshop Agenda

SECOND WORKSHOP

"Open Innovation Test Beds as a Service to the Industry"

30 June | Grenoble, France
Satellite event of IndTech 2022 (on-site)

Room Chrome 1, Minatec Conference Center (first floor)
Parvis Louis Néel
38054 Grenoble

SETTING THE SCENE | In May 2021 the FlexFunction2Sustain Open Innovation Test Bed, supported by the Safe-N-Medtech OITB, have organised a public workshop with the core aim of promoting the OITB ecosystem to relevant stakeholders and Industry. The event gathered representatives of the most relevant participants in this ecosystem: industry, academia, research and technology organisations and business support actors. The workshop took place as a satellite event of the EuroNanoForum 2021, organised under the auspices of the Portuguese Presidency of the Council of the European Union.

Regular exchanges between OITBs are aimed at strengthening the ecosystem, identifying the best solutions for common challenges and jointly work towards a fully integrated open innovation network as a service to industry. One year after the first workshop, the Safe-N-Medtech project takes the lead and, in collaboration with the FlexFunction2Sustain, is organising the second workshop as a satellite event of the Conference on Industrial Technologies IndTech 2022.

TARGET AUDIENCE | through invitation directed to all OITB (OITB coordinator, SEP representative and business manager) and EC

8:30 – 8:45	**Welcome and practical aspects** ***Angel del Pozo*** *| Biokeralty, Deputy Manager of Programs Strategy* ***John Fahlteich*** *| Fraunhofer FEP, Research Group Leader* ***Peter Droell*** *| Director DG R&D at European Commission*
8:45 – 10:30	**Session 1: Sustainability, Business Model and legal challenges** ***Moderator: Susana Xara*** *| Project Adviser - H2020 Raw Materials HaDEA - Health and Digital Executive Agency (European Commission)* ***Speakers:*** ***Eduard Piqueras*** *| EURECAT, Project Leader & Program Manager, FormPlanet Project Coordinator* ***Maria Taxiarchou*** *| Assoc. Professor, School of Mining and Metallurgical Engineering – National Technical University of Athens, LIGHTCOCE Project Coordinator* ***Sonia Florez*** *| TECNALIA multifunctional materials group, OASIS Project Coordinator &* ***Ana Cristina Martin*** *| TECNALIA, OASIS Project* ***Ronald Tingl*** *| General Manager Microfluidic Innovation Hub, NextGenMicrofluidics Project* ***John Fahlteich*** *| Fraunhofer FEP, Research Group Leader, FlexFunction2Sustain Project*

	Coordinator ***Lars Pithan**	Consultant at BKM Consultants, Safe-N-MedTech Project* *60' of talks* *45' panel discussion*
10:30 – 10:45	**Coffee break**
10:45 – 12:30	**Session 2: Services and Open Calls, IP** ***Moderator: Susana Xara**	*Project Adviser - H2020 Raw Materials HaDEA - Health and Digital Executive Agency (European Commission)* ***Speakers:*** ***Hugo Thienpont**	*Full professor at the Faculty of Engineering of the Vrije Universiteit Brussel (VUB), ACTPHAST Project Coordinator (DIH)* ***Angel del Pozo**	*Biokeralty, Deputy Manager of Programs Strategy, SAFENMT Project Coordinator* ***Mariana Fernandes**	*Business and Strategic Relations Officer at the International Iberian Nanotechnology Laboratory (INL), INNO4COV-19 Project Coordinator* ***Carlos del Castillo**	*Project, Sustainability and Advocacy Manager at European Convention for Constructional Steelwork, NewSkin Project Coordinator* ***Stefano Carosio**	*Executive Director of STAM, INN-PRESSME Project* ***Robert Harrison**	*Technology Licensing and Intellectual Property Attorney at Sonnenberg Harrison, FlexFunction2Sustain Project* *60' of talks* *45' panel discussion*
12:30 – 13:15	***Lunch Break***
13:15 – 15:00	***Recommendation toward EC for future OITB support and strategy*** ***Moderator: Moderator: Dominique Planchon**| *Senior Program Officer at European Commission DG RTD*
15:00	***Wrap up and end of the meeting***

ANNEX III: OITB Village at IndTech 2022 – Press Release

OITB Village: a world of Open Innovation Test Beds at IndTech 2022

Next June 27-29, Grenoble will be home to a unique Open Innovation Ecosystem ready to support to innovators at different stages of technological development.

Open Innovation Test Beds (OITB) joined forces to improve the visibility of this ecosystem towards the European industry. The OITB village at IndTech 2022is a special arena built to reinforce the OITB ecosystem and interconnect established projects.
The ultimate goal of this joint participation is to enable and strengthen the relationship between OITBs and innovators, to highlight and promote the integrated support to European industry at different stages of technological development.

ABOUT THE OITB VILLAGE
The joint participation holds two solid components and aims to bring great attention from industry, SMEs and research to the OITBs and the Open Innovation Ecosystem.
The OITB Village presents a thouroughly curated agenda that includes:

- **A 300m² exhibition area** on the 28th and 29th of June: dedicated to the OITBS where participants can learn more about their services, emerging results, and prototypes. The arena will also be **a stage to host pitch sessions**. At the **OITBeer bar** participants can enjoy artisanal beer from different European countries while networking with OITB Villagers.
- **An OITB "Best Practices" Workshop** on 30th June, 8:30 - 15:30: a close session to OITB representatives and the European Commission (EC) to discuss legal challenges, best practices for the open calls, alignment of service portfolios, and finally, the need for future support and feedback to EC on the whole OITB programme.

ABOUT THE VILLAGERS
Participants visiting the OITB Village will have the opportunity to network at the exhibition area, where several OITBs will be ready to present their work in different fields, such as:
Lightweight, nano-enabled multifunctional composite materials and components
OITBs present: **LEE-BED, OASIS, LightCoce**
Safety testing of medical technologies for health
OITB present: **SAFE-N-MEDTECH**
Nano-enabled surfaces and membranes
OITBs present: **FlexFunction2Sustain, NextGeneMicrofluidics, INNOMEN, NewSkin**
Nano-enabled bio-based materials
OITBs present: **INN-PRESSME, BIONANOPOLYS**
Materials for building envelopes
OITB present: **iclimabuilt**
Medical technologies, Digital tools and AI analytics to improve surveillance and care at high TRL
OITB-like project: INNO4COV-19

In adition to those 12 OITBs mentioned above, the “Best Practices” workshop will also gather the projects **PHOENIX, TBMED, METABUILDING LABS, BIOMAT, FormPlanet, LighMe**

Organisers

FlexFunction2Sustain: The project FlexFunction2Sustain has started on 1st April 2020 and will run 48 months. The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862156 to create a network for innovative solutions for sustainable and smart products powered by nano-functionalized paper and plastic in order to support SMEs in the development and market launch of pioneering products. FlexFunction2Sustain consortium consists of 19 European partners, including research organizations, universities and private companies.

SAFE-N-MEDTECH: The SAFE-N-MEDTECH project has started on 1st April 2019 and will run for 48 months. The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 814607 TO build an innovative open access platform for companies and reference laboratories in the nano-enabled medical technology space. SAFE-N-MEDTECH consortium consists of 34 partners, including research organizations, universities and private companies.

OITB Village at Conference on Industrial Technologies IndTech 2022

Grenoble, France

June 27-30, 2022

More info: https://indtech2022.eu/

ANNEX IV: OITB workshop souvenirs

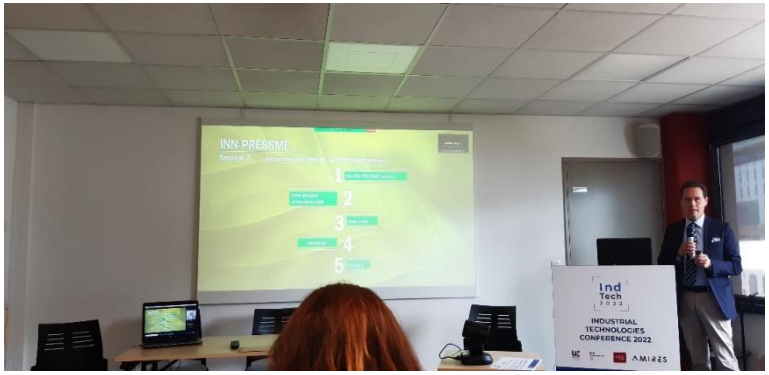
Videos

- Short version: https://www.youtube.com/watch?v=5nx6NlyutlA
- Long version: https://www.youtube.com/watch?v=ts40K-cbFJ8

Gallery:


Ind Tech 2022
INDUSTRIAL TECHNOLOGIES CONFERENCE 2022
AMIRES
JUNE 27-29 2022 I MINATEC GRENOBLE, FRANCE


Ind Tech 2022
INDUSTRIAL TECHNOLOGIES CONFERENCE 2022
AMIRES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FORM PLANET
FormPlanet
The Sheet Metal Forming OITB
eurecat
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