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 D6.1 =

Ecosystem management platform

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

The Ecosystem Management Platform (EMP) is intended as one of the key assets of the FlexFunction2Sustain project and aims at driving innovation and growth around the digital and collaborative economy while creating new cross-bordering market opportunities around the next generation of sustainable nano-functionalized products. FlexFunction2Sustain has built a digital platform, with a catalogue showcasing a globally unique and comprehensive list of validated products, prototypes, technical services, and other services. The platform connects the owners of these products and services and give them the opportunity to promote their capabilities inside a community and further invite them to engage in knowledge sharing.

Table of Contents

1. Introduction

Deliverable 6.1 is part of Work Package 6 (OITB Operation, Sales and Client Relations) within Task 6.1: Ecosystem Management Platform and Quality Control Procedures, the objective of which is to operate a one-stop shop platform providing a wide access for industry to digital innovation around sustainable nano-functionalised paper and plastic surfaces and membrane technologies, products, and applications. This platform will promote a collaborative environment by bringing together innovative companies (end-users and suppliers) and other key stakeholders in Europe to maximize the value chain, cross-domain, and cross-regional opportunities.

Deliverable 6.1 reports on activities linked to the development of the technical marketplaces, organisation registry and community module.

2. Results and discussion

2.1.   Ecosystem Management Platform

To unify gathered information on market data, new technologies, competencies, pre-assembled modules, contacts and profiles of suppliers and distributors of the nano-functionalized plastic and paper surfaces and membranes, an online **Ecosystem Management Platform has been built**. The platform serves as a tool for ecosystem/community building to create new cross-border or cross-sectorial opportunities and to stimulate the growth of companies, particularly SMEs and Midcaps, which do not have ready access to this information. The fully functional platform is and will be a starting point and an enabler for pan-European connections within European OITBs/Pilot lines/Digital Innovation Hubs whilst lowering the barrier for adoption of nano-functionalized plastic and paper surfaces and membranes. The platform is integrated in the project website to support the front office and one-stop-shop approach.

The Ecosystem Management Platform (EMP) is a modular IT system using existing cloud-based software blocks (no additional platform development needed, existing proprietary solutions of ABIMI), which are integrated into a final form, adapted to the FlexFunction2Sustain needs and populated with relevant content for the community. The setup of EMP as well as technical maintenance and security measures are included in the activities of WP6 of FlexFunction2Sustain.

The platform, composed of several modules (Organisation registry, Technical Marketplace, Community and Pilot cases) accessible to everybody, **promotes the advanced technologies in terms of products, prototypes, services & training that can be offered to the community (marketplace)**.

The collection of requirements and design of platform for the best customer experience follows up by the design and definition of the platform using UML SW design tool. Development process of this modular cloud-based system employed open-source technologies (PHP, HTML, MySQL, JS) and libraries (HighCharts, OpenLayers, D3.js) making it easy to maintain and further develop forward. Cross-platform and mobile optimization using commonly supported technologies (mentioned above: HTML, PHP, JS, CSS, W3C) making it available on all leading browsers, operating systems, and devices. Google Chrome, Mozilla Firefox, Apple Safari, Opera browser compatibility will be guaranteed. Newly merged one-stop-shop contains sensitive information hence special security measures were implemented:
- Dedicated physical server with protected (physical and remote) access (logged)
- Complete encryption – database and user access
- Intruder detection system in place
- Two-factor authentication

The FlexFunction2Sustain Ecosystem Management Platform is active and available at https://ecosystem.flexfunction2sustain.eu/ . Currently, there are four modules fully operational:
- Technical marketplace
- Organisation registry
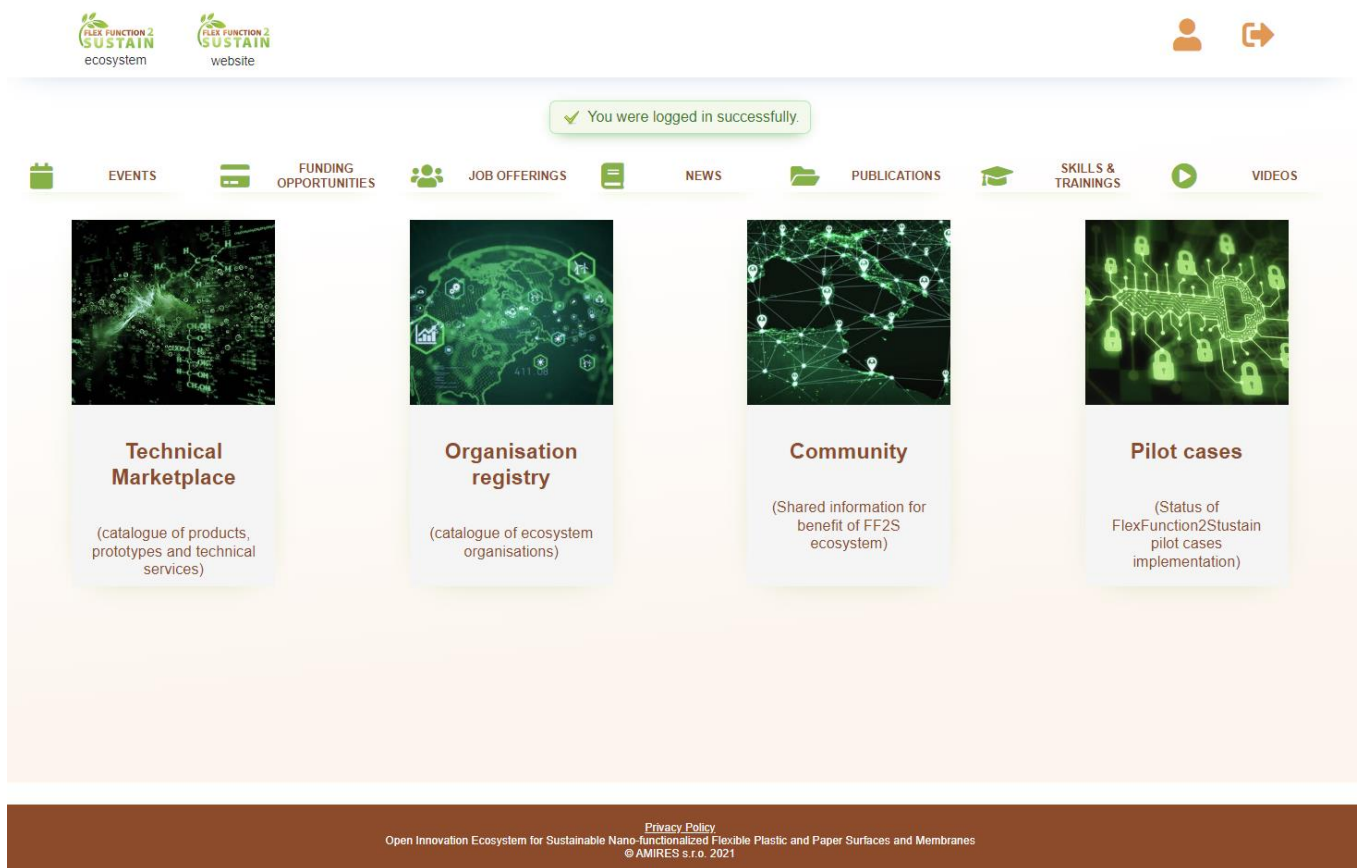- Community
- Pilot cases (internal module)

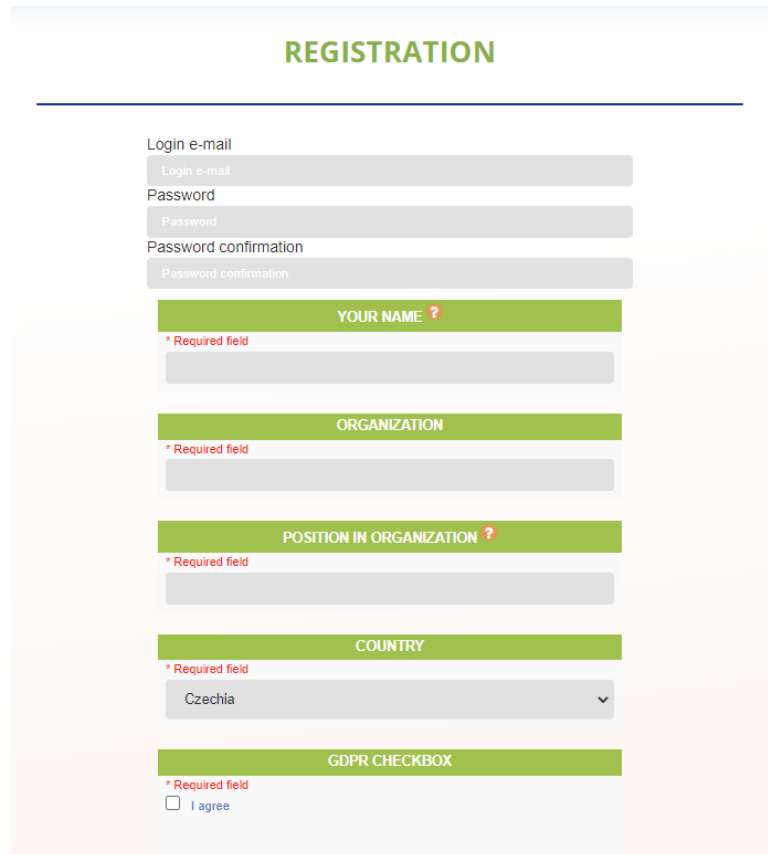Figure 1: Home page of the FlexFunction2Sustain EMP

FlexFunction2Sustain Ecosystem Management Platform consists of:
- A Marketplace of products, prototypes, and technical services - capabilities to develop products utilizing nano-functionalized plastic and paper surfaces and membranes (those offered by FlexFunction2Sustain partners but also by relevant third parties;
- Possibilities to present organisations;
- Value chain mapping in Europe (and eventually worldwide), with contacts to component and system suppliers, manufacturers, integrators, and distributors in main geographical areas;
- Showcase of product/portfolio in existing Marketplace or search for a suitable solution/value chain partner;
- Possibility to share ideas and news;
- Access to different educational materials (videos, documents, webinars, etc.) to support SME and Mid-Caps on manufacturing and use of plastic and paper surfaces, as well as for equipment use.

The **Technical marketplace** together with the **Organisation registry** were the first modules developed. Their aim is to connect customers and suppliers and are equipped with a contact form to contact companies directly. The Technical marketplace was developed using the existing modules (Marketplaces and Catalogues) developed within other European projects (e.g., SmartEEs). Catalogue (database) structure as well as the registration fields for individual offerings were defined by ABIMI in close cooperation with FhG FEP who supported AMIRES in the preparation of contents for the Ecosystem Management Platform and in improving the structure for collecting data for the different parts of the Platform. The **Community** acts more as an information portal to relevant information and can link directly to web pages of suppliers and users to the relevant information (i.e. job offering, press release, etc.). The **Pilot Cases** module serves as a project management tool for the monitoring of the pilot cases selected through the open calls.
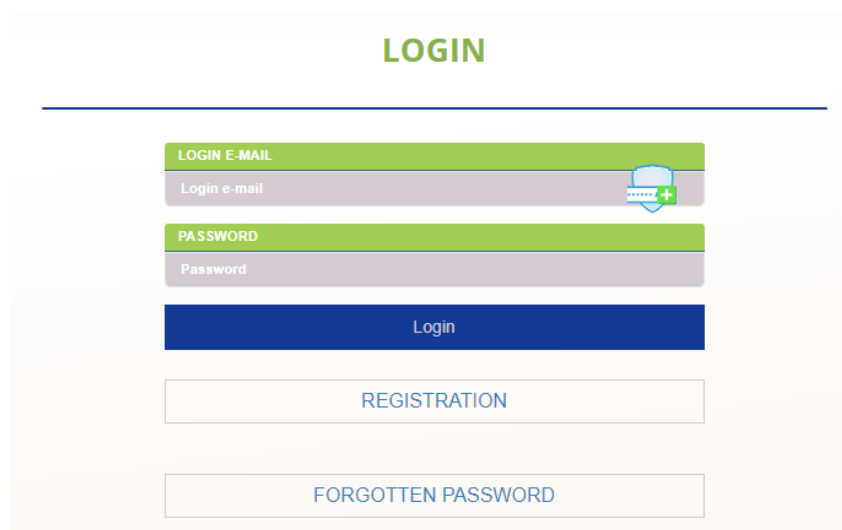
2.1.1.   Registration

Registration is needed in order to publish on the FlexFunction2Sustain ecosystem (to add organisation profile into organisation registry, contribute to Marketplace), but any user can register to add to the Community and for easy use when contacting companies in the ecosystem. To register an account, users must fill in the registration form for the first time (Figure 2) accessible through user icon on the top right corner. After the registration procedure is completed, user can log in (Figure 3) and contribute to individual modules – Organisation registry, Technical marketplace and Community.

Figure 2: Registration form

Figure 3: Login interface

2.1.2.   Organisation registry

The organisation registry is an overview of companies that belong to the value chain for nano-functionalized plastic and paper surfaces and membranes, including component suppliers, technology providers, associations, investors, users, etc.

After registration, users can log in and add their company to the organisation registry by filling the information form accessible through 'Add new organisation' in the Organisation Registry module.
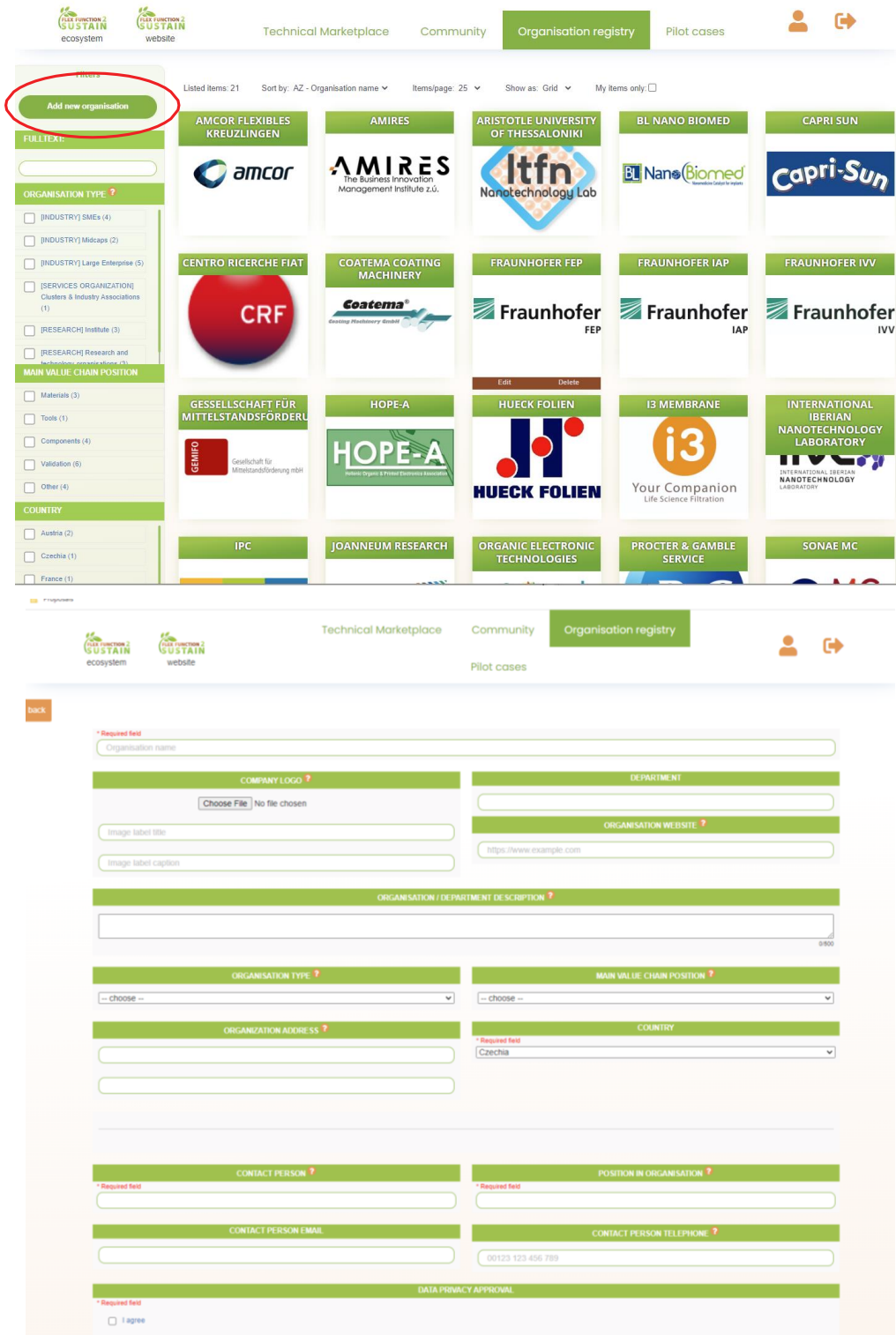

Figure 4: New organisation form

Once the new organisation profile is saved, the entry is reviewed by the community manager. The community manager checks to make sure that all required information is completed and in high quality in order to publish it in the organisation registry module. If all information is approved and the company is considered to be a part of the value chain for nano-functionalized plastic and paper surfaces and membranes, a supply chain item is created, and entry is automatically added to the organisation registry. User receives a notification by email with a link to listing once the entry is published.

Figure 5: Organisation profile added to Org. registry

As soon as the organisation profile is published, users of the system are able to send requests to be contacted through the contact button at the bottom.
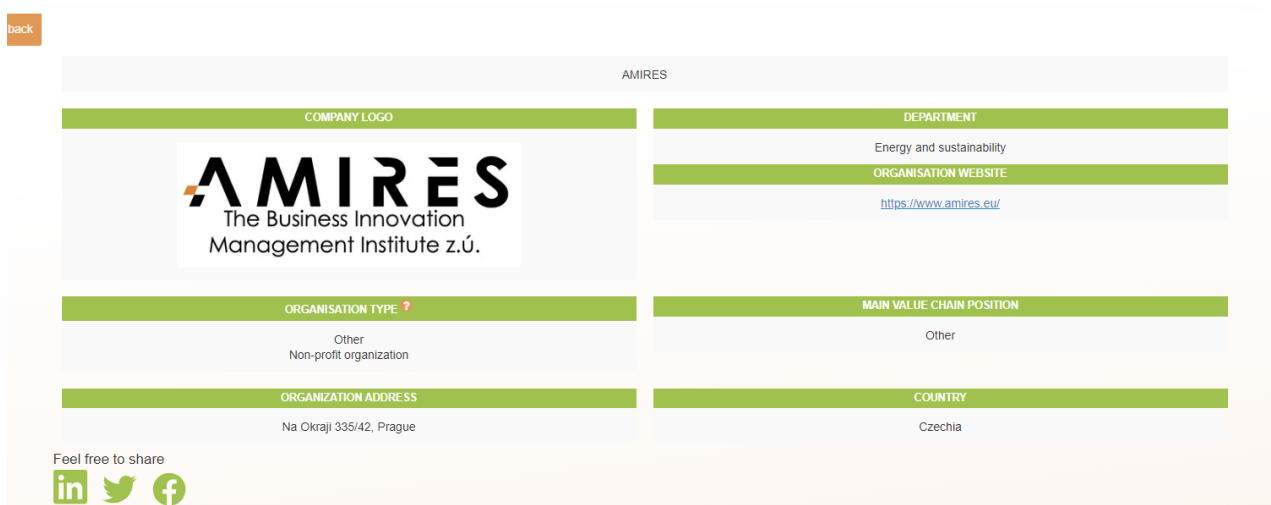

Figure 6: Organisation profile added to Org. registry

2.1.3.   Technical marketplace

FlexFunction2Sustain Technical Marketplace is a virtual catalogue for the nano-functionalized plastic and paper surfaces and membranes based products, prototypes and technologies and it represents one part / module of the Ecosystem Management Platform. Through the catalogue, visitors can discover available technologies and their use in various application fields. The aim of the catalogue is to enable business innovation partnerships for developing novel products or services based on nano-functionalized plastic and paper surfaces and membranes.

Currently, the Technical Marketplace offers innovating companies the possibility to explore innovative offerings based on nano-functionalized plastic and paper surfaces and membranes which can be classified into:

- Products - Components or systems commercialised.
- Prototypes - Components or systems, which have been successfully tested under real or real-like conditions.
- Technical services - Tools and processes and their combination, which are necessary to prepare and test prototypes or products.
- Other services – tools and processes not directly related to the preparation of the prototypes or products (non-technical) – these include specialised legal services and intellectual property services.

The Marketplace offers companies the possibility to consult different products by application domain. Available domains comprise applications for,

- Sustainable Smart Packaging
- Plastic and Paper Electronics
- Surfaces and Membranes in Bio-application
- Optical Films for Security and Design

After registration, a user can log in and contribute to the Technical Marketplace with a product, prototype, technical or other services by clicking 'Add new offering' in the Technical Marketplace module:
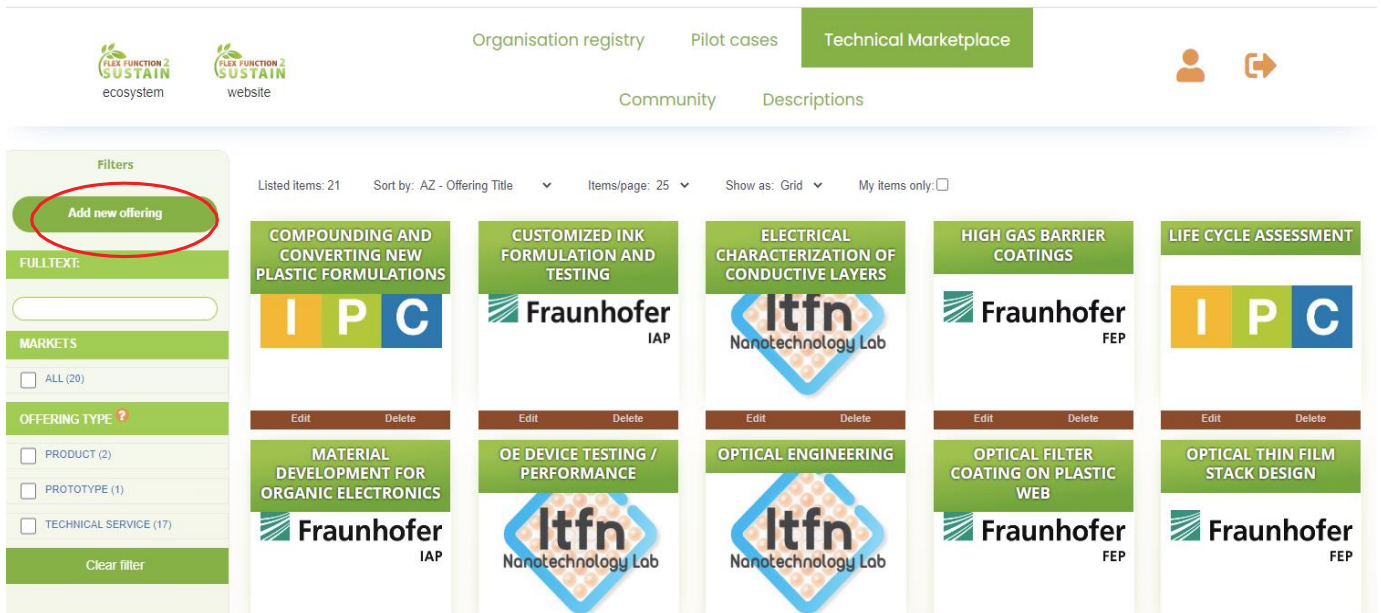

Figure 7: Add new offering button

This will bring user to an online offering form with detailed specifications and description of offered product/prototype or technical service, including a photo or drawing. Every new item is visible on the Marketplace as soon as it goes through the quality content check by community manager. It usually takes 48 hours. If the content of the item does not fulfil the required criteria to be published or part of information is

missing, the user is contacted individually by the community manager. It is encouraged to maintain the content of the items to make sure all listings are always up to date.

Figure 8: New offering button

In order to use the benefits of the Technical Marketplace, it is important that all listings are complete. In order to be able to receive request from potential customers, it is also very important to fill out the 'offering contact person' and 'offering contact person email', so any enquiries of potential customers are processed in the right way and delivered for follow-up.

Figure 9: Contact person form

Once the marketplace item is approved, the user receives an email notification. After approval, the user´s offering is published on the marketplace and any users visiting the offering will be able to request more information directly from the marketplace. The requests are sent to the corresponding contact person and FlexFunction2Sustain will be notified of this request. FlexFunction2Sustain may contact users to inform about the follow-up status.

Each offering item contains the key parameters of offering or at least a range. To know more about capabilities of organisation, users can browse organisation profile directly from this item by clinking on *Link to Organisation registry* (Figure 10).

Figure 10: FlexFunction2Sustain Technical Marketplace catalogue

2.1.4. Community

Community is the latest feature that was added in the FlexFunction2Sustain ecosystem which strengthens the creation of new cross-bordering market opportunities around the next generation of nano-functionalized plastic and paper surfaces and membranes. The idea of community building is directed toward the enhancement of collective intention – to enhance users' specific domain of knowledge and to sustain learning about it.

Currently, the Community acts like a repository of all relevant and important news that is worthy sharing within registered users or any interested visitors. As this is the recent extension to the platform, ESNA – European Sustainable Nanotechnology solutions Association (the OITB association established by FlexFunction2Sustain partners) is taking lead in posting relevant information and supporting FlexFunction2Sustain partners, registered users, and other contacts to involve in taking collective action and organizing information flow. Typical activities include promotion of the collective intention- invitations to the webinar/training/seminar; report sharing etc.

Any logged in members can share on following topics:

- <u>Events</u> - possibility to share and search relevant events (e.g., webinars, conferences, exhibitions, trade shows, product launch).
- <u>Funding opportunities</u>- possibility to share information about private and public funding (incl. regional, national, European).
- <u>Jobs offerings</u> - possibility to advertise job opening, free positions and HR relevant information.
- <u>News</u> – relevant news from the related fields
- <u>Publications</u> - possibility to share relevant publications (incl. market reports, scientific publications, IP mapping, market data, sector analysis).
- <u>Skills and trainings</u> – possibility to share information on training events or educational material (lectures, hands on trainings, books, videos).
- <u>Videos</u> - possibility to share and play videos relevant to the community (success stories, applications, functionalities).
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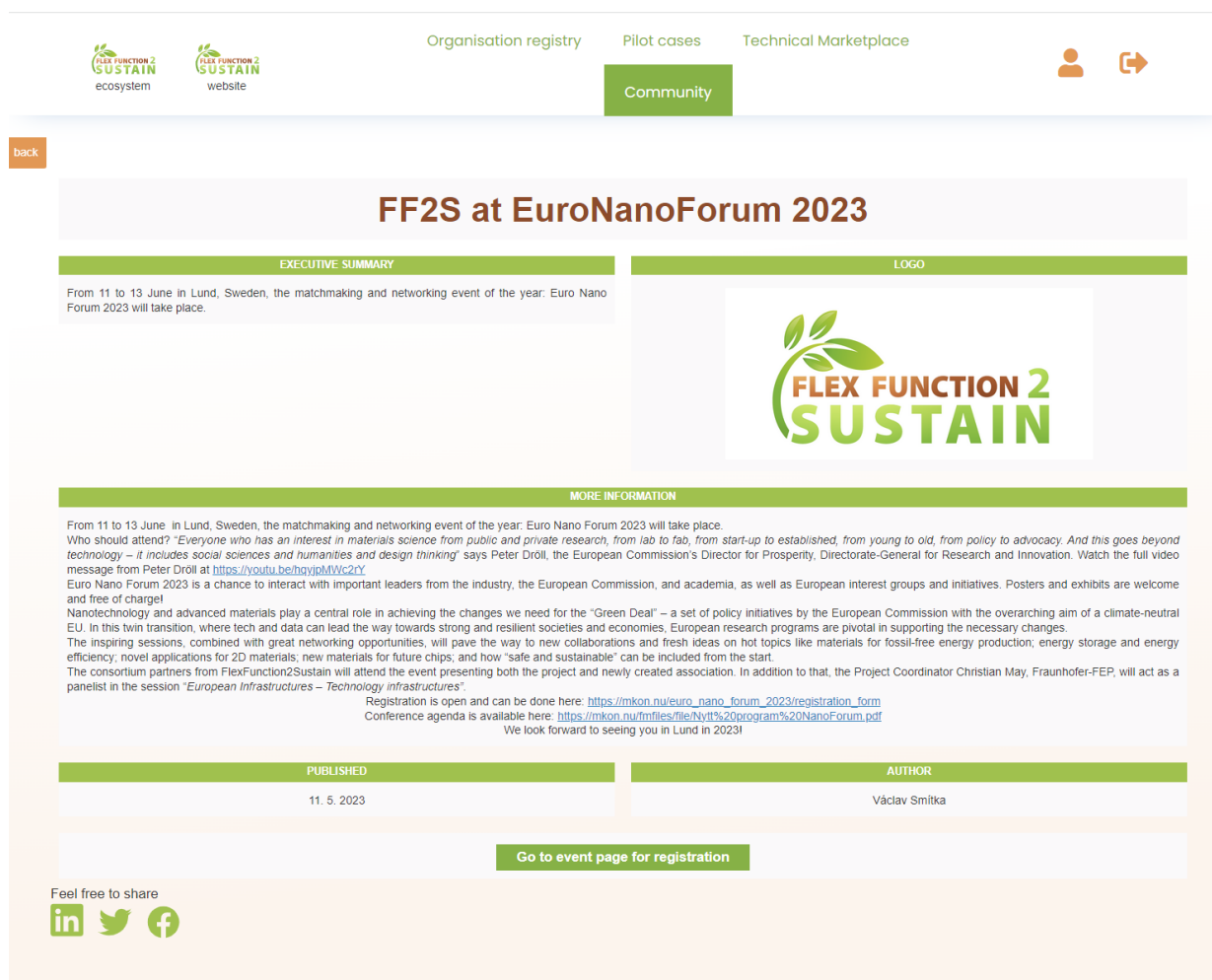Figure 11: FlexFunction2Sustain Community Wall

Figure 12: Example of a post on community

2.1.5.   Benefits of EMP

FlexFunction2Sustain Marketplace is becoming a new channel to promote nano-functionalized plastic and paper surfaces and membranes-based services. Through the catalogue, each visitor can discover available technologies and their use in various application fields. The aim of the catalogue is to enable business innovation partnerships for developing novel products or services based on nano-functionalized plastic and paper surfaces and membranes. Finally, the registered offering may be involved in the *pilot cases* selected and co-financed by FlexFunction2Sustain.

There are 2 target groups that can benefit from EMP:

1. Registered Organisations (potential suppliers of nano-functionalised plastic and paper surfaces and membranes technologies)
2. Visitors of EMP (potential adapters of nano-functionalised plastic and paper surfaces and membranes technologies)

BENEFITS FOR REGISTRED ORGANISATION	BENEFITS FOR VISITORS OF EMP
Knowledge - Discover all available technologies relating to nano-functionalized plastic and paper surfaces and membranes in one place	
Deal - Get to promote their technical capabilities - nano-functionalized plastic and paper surfaces and membranes products/prototype and services	**Transparency –** direct contact and technical details are accessible in an open environment

(company profile will be linked with technical offerings therefore potential clients can directly contact them)	
Partnership- Become third party supplier or subcontractor of Application experiments selected in FlexFunction2Sustain project	**Convenience** - Convenient way to filter what they need to know from a single source
Idea- Establish new partnerships with traders and suppliers, either within existing supply chain or across supply chains	**Level of trust-** choosing from the best-established online marketplace provides
Visibility- Get visibility via our social media channels	
Free- Get free listing	

2.1.6. How to use the EMP?

- Visit: ecosystem.FlexFunction2Sustain.eu
    - Click on Log in
- If you here for the first time proceed registration (Wait for confirmation email)
- Go to Organisation registry to "Add New Organisation".
- Go to Technical Marketplace to "Add New" offering item.
- Or got to FlexFunction2Sustain Community and "Add New" post (it can be an event, report or video that you wish to share…)

3. Conclusions

FlexFunction2Sustain has built a digital platform, with catalogue showcasing a globally unique and comprehensive list of validated nano-functionalized plastic and paper surfaces and membranes products, prototypes, technical services and business services.

By creating an account, a user gains access to a vast number of features like:

- Filtering partners and technology based on user preferences and interests.
- Finding a suitable solution/value chain partner.
- Learning from success stories or following topics/products/companies/ interested in.
- Showcasing of product/portfolio on the existing Marketplace.
- Send request for personalized support

The EMP was further upgraded with new features and will be regularly updated with the relevant content.

4. Degree of progress

Deliverable 6.1 is fulfilled by 100%.

5. Dissemination level

The deliverable is completely public. It does not contain confidential material.