

SPREAD2INNO ONE-STOP SHOP WEB PLATFORM: FRAMEWORK, FUNCTIONALITIES AND USER ENGAGEMENT

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Abstract

This paper describes the development framework and the architecture of the SPREAD2INNO One-stop shop web platform. The implementation took place in the frame of the Horizon Europe funded SPREAD2INNO project, focused on making ‘modest’ and ‘moderate’ innovation ecosystems more attractive and competitive. Therefore, the main objective of the web platform is to facilitate information exchange between different innovation ecosystems, targeting business acceleration and innovation service providers, SMEs and start-ups from all over Europe. To achieve this objective, the platform’s main concept is based on the online community of practice paradigm. To this end, the platform was designed with a modular structure keeping it flexible and extendable for various contexts. This allows the platform to be more easily recognised and found by all interested stakeholders. Based on the analysed user engagement metrics and behavioural information, the platform has achieved, within a relatively short project timeframe, a steady visitor traffic flow along with satisfactory user engagement and networking activities.

Keywords: Web platform; Modules; Online community of practice; Innovation ecosystems; Startups; EU

1. Introduction

In today’s competitive landscape, innovative companies achieve success through the support of a network that provides additional resources, information, capabilities, data, customers and knowledge. In this context, an innovation ecosystem refers to a range of value creating interactions and relationships between sets of interconnected organisations [1] and other entities that coevolve capabilities around a shared set of technologies, knowledge, or skills, and work cooperatively and competitively to develop new products and services [2]. Connectivity within and between innovation ecosystems greatly contributes to sustainable business growth with high societal value. To this end, the European Union aims to create more connected and efficient innovation ecosystems to support the scaling up of companies, encourage innovation and stimulate cooperation among national, regional and local innovation actors [3].

However, European innovation ecosystems are facing increasing global competition while the support mechanism for start-ups and SMEs is lacking capacity and cooperation, which can cause financial challenges, regional disparity and scaling-up risks. As a result, start-ups from better-connected innovation ecosystems benefit from more local accelerators with greater funding opportunities and business support services compared to their counterparts elsewhere [4].

According to the European Union's 2024 European Innovation Scoreboard (EIS), a substantial geographical gap still persists in innovation activities among European countries and regions, especially between southern and eastern Europe, which underperform relative to western and northern Europe [5]. This geographical gap often requires start-ups from less connected ecosystems to move to more established hubs elsewhere in Europe. Consequently, there are fewer scale-ups in less connected innovation ecosystems, creating unbalanced business activity and employment opportunities. Based on a systematic comparison of research and innovation achievements across EU member states and neighbouring regions, the EIS has defined four distinct groups: Innovation Leaders, Strong Innovators, Moderate Innovators, and Emerging Innovators. Therefore, there is a growing need to make 'modest' and 'moderate' innovation ecosystems more attractive to international companies interested in setting up their businesses outside the established centres and tapping into the potential of local ecosystems [6].

As an answer to these challenges, six projects (AccelerAction | 101072073, BEYOND | 101071410, S3E | 101072135, Food-scaleUp | 101072248, ACCELERO | 101072092 and SPREAD2INNO | 101071977) were funded by the European Commission as part of the Horizon Europe framework programme and the call „Expanding Acceleration Ecosystems (HORIZON-EIE-2021-SCALEUP-01-01)“ [6], [7]. The SPREAD2INNO project was carried out within a period of 24 months by a consortium of seven partners from six EU countries (Germany, Italy, Belgium, Greece, Bulgaria, Austria) [7]. The SPREAD2INNO consortium consists of actors from business acceleration, innovation hubs, research institutions and competence centres, science parks, business network and consultancy. The project was coordinated by Fondazione E. Amaldi (Italy) and the partners include Fraunhofer IPK (Germany), European Business Angels Network (Belgium), Teseas (Italy), Cleantech Bulgaria (Bulgaria), MINDS & SPARKS GmbH (Austria) and Patras Science Park (Greece.).

To elevate the scalability potential of European businesses, SPREAD2INNO brought together different innovation stakeholders from crucial European innovation regions. The goal was to implement a scalable, replicable and holistic programme for the provision of high-quality business services, and collaboration between different entities of well-connected and less connected regional innovation ecosystems, with immediate impacts on a local and EU level. In order to create a sustainable and replicable model easily adopted in the rest of EU, the project implemented a set of activities for enhancing capacity and competitiveness of both business acceleration entities and SMEs and startups. The unique and interdisciplinary SPREAD2INNO methodology has helped to enhance business activities in less developed innovation regions, reinforced their acceleration capacity and enabled entrepreneurs to scale their concept to a fully concrete solution with strong market potential, subsequently enhancing the development and competitiveness of these regions.

To achieve the specific objectives of SPREAD2INNO, the project also implemented the SPREAD2INNO One-stop shop web platform to facilitate information exchange between different innovation ecosystems, targeting business acceleration and innovation service providers, SMEs and start-ups from all over Europe. On the platform, all relevant stakeholders are able to come together to connect through networking tools and find business growth initiatives and opportunities in their own and other regions across Europe. The matchmaking and partnering functionalities can benefit both businesses and innovation stakeholders, even investors, for commercial reasons and knowledge exchange. Furthermore, as the content is crucial for bringing the platform to life, a structured approach for producing content in the form of news articles, promotion kits, photo and video materials as well as startup event information has been carried out. The platform was designed with a modular structure to keep it flexible and extendable for various contexts. All modules and content-rich awareness channels are optimised for search engines (Google, Bing etc.) to ensure strong visibility and to facilitate long-term cooperation. Here, the platform provides access to various content, resources, information and users. This allows the platform to be more easily recognised and found by all interested stakeholders.

The purpose of this paper is to present the development framework and the architecture of the SPREAD2INNO One-stop shop web platform. Furthermore, the paper highlights the underlying modular approach of the platform which allows the integration of new content, services as well as the extension of capabilities with new functionalities within short iterations. The paper is organized as follows: Section 2 describes the online community of practice model. Section 3 presents the main concept, architecture and technical environment. Section 4 introduces the main modules (Knowledge, Directory, Networking and Administration) as well as their functionalities. Section 5 analyses the user engagement metrics and behavioural information regarding the platforms' users. The paper concludes with the conclusion statement and outlines next steps and future work.

2. Community of Practice concept

The term "*Community of Practice*" was proposed in 1991 by Jean Lave and Étienne Wenger when they debated the aspect of learning in the context of social relations [8]. In doing so, they showed that - in addition to structures or models - participation in a community is crucial for knowledge acquisition. The model of communities of practice is an attempt to show the "anatomy" of the interlocking of individual learning processes with those of the further development of the embedding social community. Therefore, the term describes a practice-oriented community of actors who are informally connected, face similar tasks and want to learn from each other through interaction.

2.1. Structure

In the community of practice, a certain structure is established, where everyone gets a specific role [9]. This role is determined on the basis of their activity and the acceptance or rejection by other members.

As a result, the “*Identity*” is being formed by the distribution of tasks, which are negotiated among the members. Thus, active and less active members as well as moderators and experts develop on the basis of communication processes. These moderators should not be imagined as rigidly assigned positions within the network of communities of practice. They also represent situational-negotiated functions and tasks within the community. Sub-groups can also be formed or external persons can be integrated as guests.

2.2. Criteria

A list of criteria exists, which limit the idea of communities of practice and make them identifiable. The members participate in a joint undertaking (“*Enterprise*”), they build together in a tool pool (“*Shared Repertoire of Tools*”), they negotiate standards and they participate in a common practice. Here, tasks are performed for the further development of the group, but also of each individual who has joined this community for a specific reason. The criteria include but are not limited to [10]:

- Having related enterprises
- Facing similar conditions
- Sharing historical roots or artefacts
- Very quick setup of a problem to be discussed
- Local lore, shared stories and inside jokes

2.3. Benefits

Communities of practice offer a variety of benefits: Relationships within teams or between organizations are strengthened, the flow of communication is improved, implicit knowledge is made visible, and learning is taking place faster and more efficient than in conventional training. Via the connections among the group within their community of practice, participants can acquire social capital in the process of sharing expertise that can provide value to the group and the individual [11].

2.4. Online Community

The online community of practice (also known as virtual community of practice) is a specific variation which uses the World Wide Web. It meets the predefined criteria of Lave and Wenger and therefore includes active members in a specific area of interest. To assist in the creation, sharing and negotiation of knowledge, social structures are created online within the community [12].

3. Technical framework and architecture

This section presents the technical foundations of the SPREAD2INNO One-stop shop web platform. Furthermore, the selected Content Management System (CMS), Plugin Framework Herbert as well as the overall architecture, plugins, services, tools and development approach will be described.

3.1. Concept

WordPress was used as the content management system as it provides a large number of important modules and functions, such as user and content administration. Since the standard version of the CMS system was insufficient for the use cases, the CMS was expanded with the Herbert plug-in framework as well as with an open-source framework called BuddyPress, which allows the implementation of community-like features if needed. For the front-end, depending on the needs of the project, the SPREAD2INNO platform can have public or restricted modules:

- **Public:** All visitors of the platform can access and view the provided content without the need to register
- **Restricted:** If users want to browse or filter through the provided content, they must first become a registered member of the platform

3.2. Architecture overview

Fig. 1. summarizes the architecture of the platform. Despite being separated into different sub-systems, the platform uses a single database where all content and user data are stored safely and securely using state-of-the-art database technologies and encryption. All modules and sub-systems can be accessed by the end user via a single-entry point, providing usability and simplicity. Technically, the web platform is built on established PHP Framework and CMS System WordPress including open-source libraries such as Bootstrap. It is a CSS, HTML and JS framework, which reduces the development effort of modern web application. MySQL is the preferred database system to be used to store and manage information. The Backend consist of a user and role management system including administration panels to handle the system efficiently.

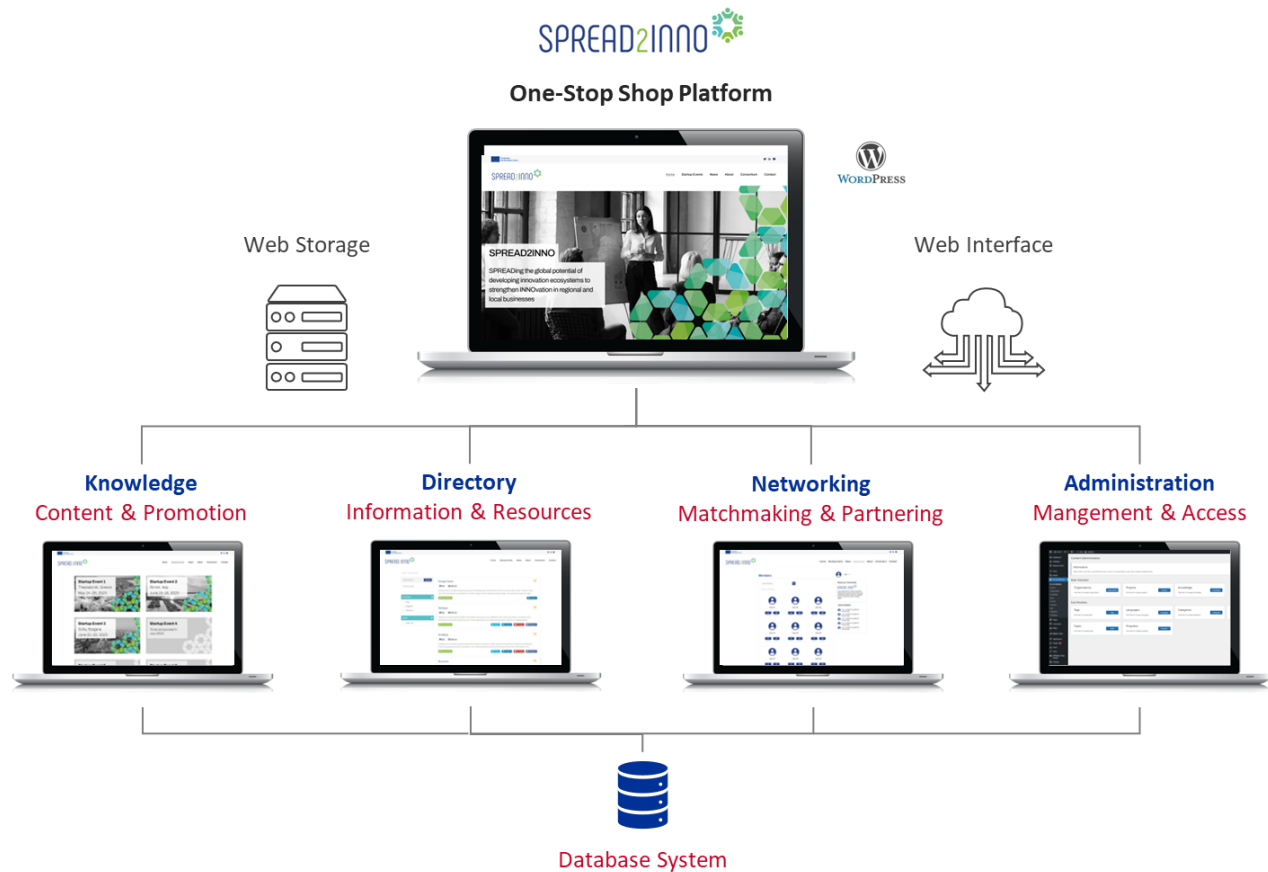


Fig. 1. SPREAD2INNO One-stop shop web platform architecture

3.3. Technical environment

In order to be most efficient, the One-stop shop is implemented with a flexible and scalable architecture and built on the basis of use cases, which ensures high intuitiveness and usability of the provided interfaces and functionalities. For the technical implementation, several programming platforms are used – including the WordPress Plugin Framework Herbert, Bootstrap, MySQL and WordPress. Table 1. provides an overview of the development environment based on software components and libraries used for the back-end and the front-end of the platform. The following sub-sections describe the key components of the development framework: the WordPress Plugin Framework, the JavaScript Library, the Google ReCAPTCHA framework and the WordPress Plugin that allow the implementation of a multilingual platform.

Resource Type	Name	Version
HTTP server	Apache	2.4.6
Programming Language	PHP	7.2.34
Database	MYSQL	15.1
PHP CMS	WordPress	6.2.2
Theme	QI	1.1
HTML, CSS & JS Framework	Bootstrap	4.7.0
JavaScript Library	jQuery	3.5.1
JavaScript Library	Google ReCAPTCHA	2.0
Operating System	Linux CentOS	7.4
WordPress Plugin Framework	Herbert	0.9
WordPress Plugin	WPML (WordPress Multilingual Plugin)	3.0
PHP Template engine	Twig	1.3
JavaScript Library	Leaflet.js	1.7.1

Table 1. Back-end and front-end technologies

Herbert: WordPress plugin framework which strongly relies on state-of-the-art stack technologies like symphony, Illuminate, twig and a modern, object-oriented programming approach [13]. Herbert makes the plugin development process faster and more organised and uses aspects and patterns of the Laravel programming framework. It was used mainly for the “Directory” module.

Google ReCAPTCHA: Free service that protects websites from spam and abuse. reCAPTCHA uses an advanced risk analysis engine and adaptive CAPTCHAs to keep automated software from engaging in abusive activities [14]. It does this while letting valid users pass through in a simplified manner. Every time CAPTCHAs are solved, that human effort helps digitize text, annotate images, and build machine learning datasets.

Twig: Template engine for the PHP programming language [15]. Its syntax originates from Jinja and Django templates. It's an open-source product licensed under a BSD License. Symfony2 PHP framework comes with a bundled support for Twig as its default template engine. It allows the creation of frontend pages and elements in a more elegant and efficient way without the need to mix several Web Development elements.

WPML (WordPress Multilingual Plugin): WPML is a plugin for WordPress [16]. WPML lets authors write content in different languages and translate content. It also includes advanced features for translation management and an interface for professional content translation. Although it is at this point not foreseen that this functionality will be used, it is implemented and ready if needed.

User and content management: As for the user and content management, an architecture was set up to ensure that all parameters of the users are taken into account. This architecture is based on the standard WordPress User Management System but was extensively extended by the “Networking” Modules which are provided by the free and open source BuddyPress plugin for WordPress.

WordPress: Free and open-source blogging tool, which can also be used as a fully functional content management system [17]. WordPress features a very intuitive and user-friendly administration interface. The simplicity in the usage of the CMS has a huge impact on the popularity of the software. In addition, the CMS features search engine optimized (SEO) URLs without the need to install any third-party extensions.

BuddyPress: Free and open-source plugin for WordPress which offers a networking and social media themed extension to WordPress [18]. It allows the creation of a user profile, user groups, forums and discussions among registered users of the platform as well as an activity stream, where user's recent activities such as the creation of new groups, new registered members and new discussions will be shown.

MVC Patterns: Model–View–Controller (usually known as MVC) is an architectural pattern used for developing user interfaces that divides an application into three interconnected parts, the Model, the View and Controller [19]. The MVC design pattern decouples these major components allowing for code reuse and parallel development. The Model consists of several model classes. Each represents a basic unit within the data structure used. They also provide basic data operations that are not part of the basic program logic.

4. Modules and functionalities

The SPREAD2INNO One-stop shop platform homepage, is accessible via the following link: <https://www.spread2inno.eu/>. It serves as a project website and web platform hybrid, meaning that it features awareness raising information about the SPREAD2INNO project (about, background, project facts, structure, deliverables, objectives, impacts, consortium, contact form), as well as promotional sections dedicated to the startup events, innovation academies and any other project-organised event or activity.

Generally, the platform development concept is differentiating between “*Information*” modules, which provide content in the form of articles, images, videos or similar content (such as short snippets), and “*Services*” modules, which are more interactive and allow users to engage with the platform, use various filters, search, visualisation or registration functions. The web platform is structured into three main areas, with an additional area for administration purposes, as shown in Fig. 2.

On a technical framework level, the comparison is based on:

- **Information:** Information modules are managed via a backend panel of the CMS (WordPress). The information-based content can be provided on the web platform with visual elements.
- **Services:** Services modules are managed via a backend panel (Admin Centre) and can be provided by the web platform host or by third parties. The services content is based on programmed lists and detailed views of entities connected to a database.

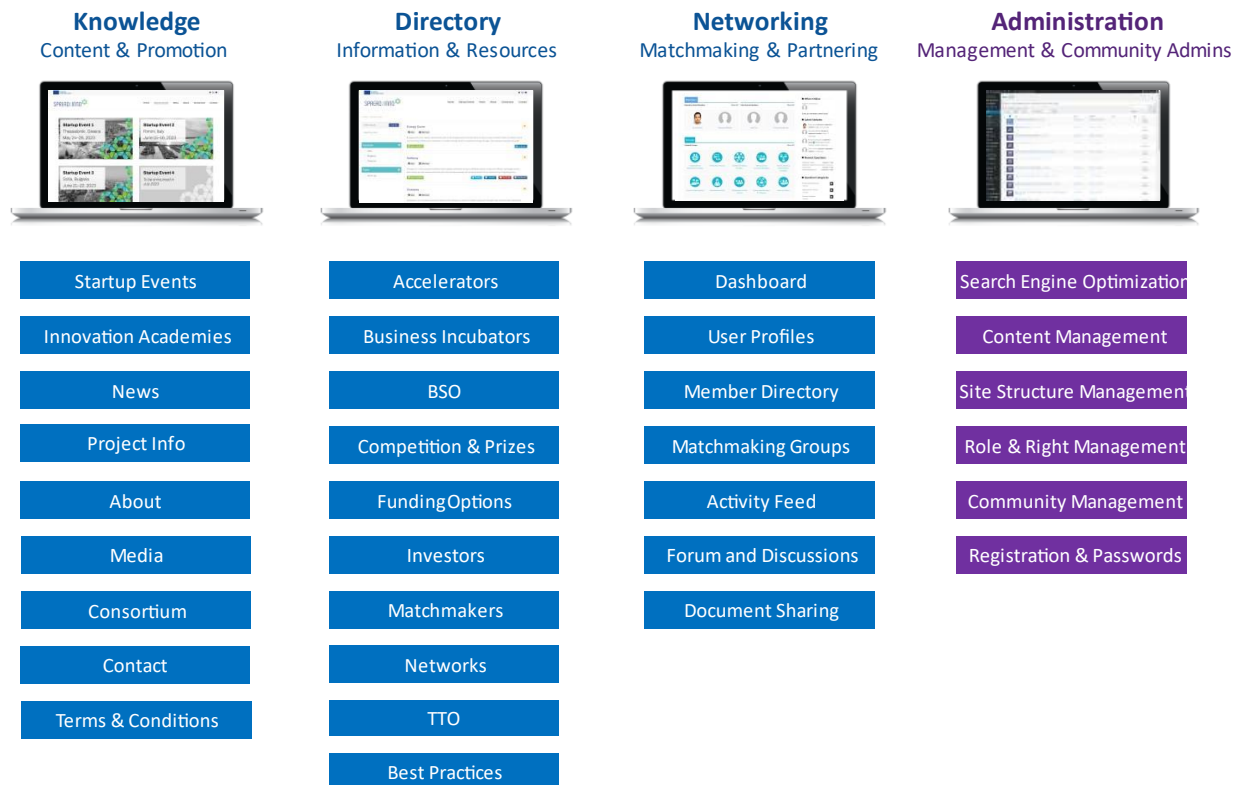


Fig. 2. SPREAD2INNO One-stop shop web platform modules

4.1. Knowledge

A steady creation of interesting content is crucial in order to be found online, to draw attention and to keep the targeted stakeholder groups coming back to the SPREAD2INNO web platform. As experience from other (EU) projects shows, online platforms need to show continuous activity and provide not only a set of tools but also content – especially if they are intended to be more than just a repository of tools.

Homepage: The top header displays the “Funded by the European Union” disclaimer logo as well as links to the project’s social media channels (Twitter/X, LinkedIn and YouTube). Below, users can find the menu, followed by a dynamic header image. If the user has not been logged in, the “Register Here” banner is displayed. Otherwise, if the user has already completed the registration procedure and is logged in, “View my Profile” banner is displayed. The rest of the homepage consists of dashboard widgets which provide a dynamic overview of project related information.

Startup Events: The startup event page functions as a promotional site of the web platform. All six startup events were announced and published on the web platform, along with pre-event and post-event information, as well as interlinking to external services and platforms. Each event has its own dedicated page and follows a pre-established template, which present the header image, event information, photos, promotional videos and information about the winning startups.

Innovation Academies: Similar to the startup events, the innovation academies page functions as a promotional site of the web platform. Both innovation academies were announced and published on the SPREAD2INNO web platform, along with pre-event and post-event information, photos, promotional video and winning startups.

News: News articles contain both text and images to showcase quick and digestible information on specific upcoming events, noteworthy project milestones, new publications or recent developments. Furthermore, keywords are added for search engine optimization. The articles are tagged and can be searched as well as filtered for ensuring a broader usage. For writing the articles, a structured template was used, allowing for a quick implementation on the platform.

Project Info: The Project Info section introduces the SPREAD2INNO project, its main aims, an overview of activities and the main project objectives.

About: The About section presents the SPREAD2INNO project concept, the expected project journey, three main phases, impacts, background, project facts and structure, as well as a list of public project deliverables and publications, which are available for download.

Media: The Media section enables visitors to download SPREAD2INNO logo package, business cards, leaflets and stickers to be used for dissemination and awareness raising purposes.

Consortium: The consortium page lists each consortium member along with a description and their corresponding organisation website and social media channel links.

Contact: Details and the visualised location of the project coordinator as well as a web form for getting in touch with the project team connected to the office@spread2inno.eu email address. The contact form requires a name, email, subject and main body to be filled out.

Terms and conditions: In accordance with the General Data Protection Regulation (GDPR), the website also contains a detailed privacy policy including information about the (tracking) cookies enabled on the website. The “Terms & Conditions” page is linked from the footer section of the webpage, providing contact details to the role of data processing and controller entity.

4.2. Directory

The “Directory” module represents dynamic, interactive content that allows users to engage with the platform and to use various filter, search and visualisation functions. The database for the “Directory” module has been created as a result of mapping out the best practices and stakeholders in the regional innovation ecosystems of Bulgaria, Greece, and Italy as well as on EU-level. As a result, the “Directory” module offers networking and growth opportunities to business acceleration and innovation service providers, SMEs, and start-ups throughout the project’s targeted low and medium innovation countries in Europe. All relevant stakeholders are able to connect through networking and find business growth initiatives and opportunities in their own and other regions across Europe. Furthermore, the “Directory” module also features an interactive map view, facilitating a fast, aggregated overview of all collected entities. Finally, an important functionality has been implemented which enables external stakeholders to add new entries in the directory and as such help the project to expand the database continuously beyond the end of the SPREAD2INNO project.

Currently, the directory includes the following entities:

- **Accelerators:** A total of 24 accelerators were identified, seven of which operate at EU level, six in Bulgaria, four in Greece, six in Italy and one which is accessible to companies from Bulgaria, Greece and Italy likewise.
- **Business incubators:** In the stakeholder analysis, 16 business incubators have been identified - three of them on EU level, eight active in Greece, two that operate in Italy and Bulgaria respectively, and one business incubator that operates in all three of the countries
- **Business Support Organisations (BSO):** In the stakeholder analysis 67, Business Support Organisations have been identified, with 16 of them on EU level, eleven that operate in Greece, 34 in Italy and four in Bulgaria.
- **Competition and prizes:** In the frame of the stakeholder analysis, two prizes and seven competitions on the EU level as well as one Greek competition have been identified.
- **Funding options:** In the frame of the stakeholder analysis, six funding options have been identified, with five on the EU level and one active in Greece, Italy and Bulgaria
- **Investors for venture capital:** In the stakeholder analysis, 21 investors, one of which operates at the EU level, seven in Greece, one in Bulgaria, nine in Italy, two in Bulgaria and Greece and one that operates in all three regions were identified.
- **Matchmakers:** In the frame of the stakeholder analysis, six matchmakers have been identified, five of which are active on the EU level and one operating in Italy, Greece and Bulgaria
- **Networks:** In the stakeholder analysis, 30 networks in total with eight of them on the EU level, four that operate in Greece, 17 in Italy and one in Bulgaria were identified.
- **Technology Transfer Offices (TTO):** In the stakeholder analysis, eight Technology Transfer Offices in total, with three of them being operated in Greece, four active in Italy and one operating in Bulgaria, were identified.
- **Best practices:** In the analysis, 18 best practices with six from Greece, five from Italy and seven from Bulgaria were identified.

4.3. Networking

The “Networking” module is based on the Community of Practice approach. It represents a virtual space and a meeting point for all innovation ecosystem stakeholders, business acceleration and innovation service providers, as well as SMEs and start-ups from all over Europe, as they represent one of the most important aspects for sustainability of the project. Here, the SPREAD2INNO One-stop shop networking module represents a single point of reference for information exchange between different innovation ecosystems in regards to opportunities, events and funding accessible in specific regions.

User profiles: Once registered, each user has a unique username and password, enabling them to personalise their profile. As such, under the “Profile” section of the side menu, users are able to:

- View existing data: first name, surname, user, organisation
- Edit and change aforementioned data, as well as defining organisation and role fields as public or private
- Upload or take a photo in addition to deleting the existing one
- Add a cover photo or delete the existing one

Member directory: All registered members on the SPREAD2INNO web platform can connect and create various public as well private groups and initiate discussions on related topics or issues. Furthermore, they can invite members to the group, share material and also actively connect with other users. Each group owner has the option to set privacy standards for the group, so that only group members can see the posts within a group.

Matchmaking groups: Groups can represent a virtual gathering space for beneficiaries, helping them to find a funding/investment opportunity as well as potential investor located at any level (local, regional, national and EU); accessing innovation agencies, business incubators, mentors and programs; interacting with business providers, SMEs and start-ups matched according to needs and available opportunities and initiatives. Furthermore, registered users can create a group on a specific topic to which they can invite other registered or non-registered users, and/or join existing groups. Within a group, users can share documents and start discussions in the form of public chats or as private conversations. The groups can also be open or closed, in order to let each team individually decide which information they want to make public and what they want to keep confidential.

Activity feed: To allow a quick overview of what has recently happened, the networking module includes a dedicated “Activities” feed, where the latest activities are shown (new members, profile updates, new question, likes, shared files etc.).

Forum and discussions: The cooperation capacity can be extended through the implemented forum, where project participants as well as other actors are able to debate, discuss and share both challenges and best practices, but also have an overview of accelerator programs, financial resources, mentors, events in partner ecosystems and share feedback. To use the forum, it is necessary for users to register on the platform and be logged into their account. The forum can be structured into general topics of relevance and allow users to add new threads to start discussions.

4.4. Administration

The Administration provides the backend system that consists of a user and role management system, Search Engine Optimisation including administration panels to handle the system efficiently. Here, the user and content management are based on the standard WordPress User Management System which enables creation of user profiles, user groups, forums and discussions among registered users of the platform.

5. User engagement

This section outlines analytical and behavioural information regarding the platform’s users (registered members and visitors). Trends and insights are pointed out and displayed along with corresponding screenshots. Throughout the duration of the project, (starting from the web platform launch in July, 2023 up to early December, 2024), the web platform was visited numerous times by users from all over Europe as well as internationally (most notably from the US, India, China), as shown in Table 2. Fig. 3. below displays an excerpt from the Google Analytics services, which were used to analyse web platform activity over time. The graph indicates that the platform has had a steady traffic of visitors. Furthermore, there are numerous spikes overlapping with the six organised local events (2 per Italy, Bulgaria and Greece), two innovation academies as well as the training week. The last spike in November/December 2024 period overlaps with the final event as well as with the additional bonus contest round for startups registered on the platform.

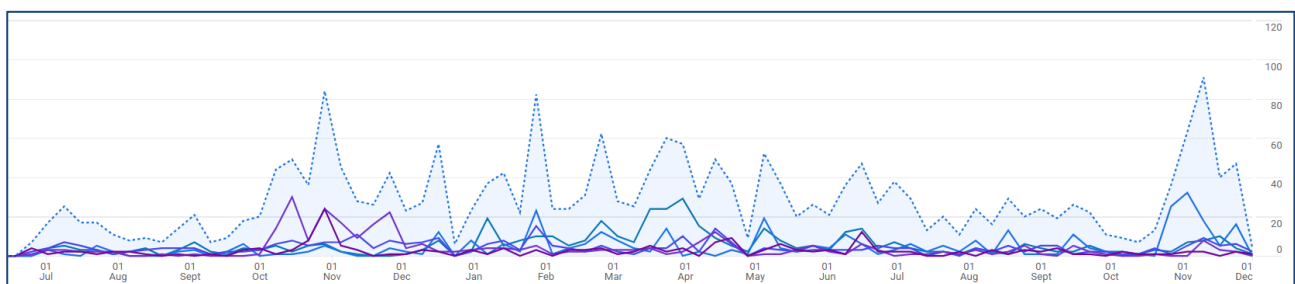


Fig. 3. SPREAD2INNO One-stop shop web platform activity over time

As shown in Table 2., total number of distinct active users who visited the web platform is 1700+, while the number of new users who interacted with or launched the platform for the first time is almost identical (98.7%). The number of engaged sessions that lasted 10 seconds or longer, or had 1 or more key events or 2 or more page or screen views is 2000+. The percentage of sessions that were engaged sessions equates to an engagement rate of over 54% while the average number of engaged sessions per active user is 1.18. The average engagement time that the web platform was in focus in an active user's browser equates to 1 minute and 25 seconds. The total number of times users triggered an event is 23000+. Overall, the highest engagement statistics were achieved in Italy, Greece, Bulgaria and Austria, coinciding with the innovation ecosystems targeted by the SPREAD2INNO project as well as locations of consortium partners.

Country	Active users	New users	Engaged sessions	Engagement rate	Engaged sessions per active user	Average engagement time per active user	Event count
US	360	359	64	17.78%	0.18	00:00:04	1236
Italy	299	293	464	59.49%	1.55	00:01:37	4616
Greece	228	223	382	67.73%	1.68	00:01:51	3845
Austria	152	152	515	65.11%	3.39	00:04:07	6604
Bulgaria	127	124	187	56.16%	1.47	00:02:01	2143
Netherlands	78	73	23	29.49%	0.29	00:00:13	292
Germany	73	68	90	56.96%	1.23	00:01:09	960
Finland	51	51	9	17.65%	0.18	00:00:03	164
France	50	46	17	31.48%	0.34	00:00:17	241
India	29	29	21	56.76%	0.72	00:00:58	282
...	...	...	...	...	...	...	...
TOTAL	1718	1695	2027	54.11%	1.18	1m 25s	23173

Table 2. SPREAD2INNO One-stop shop web platform engagement per country (Top 10 + all other)

A prominent feature of the SPREAD2INNO web platform is the activity feed. It not only shows the past activities that have taken place on the platform, but also allows members to search through them, create posts, see favourites, mention other members as well as to engage in public discussions. Table 3 summarises the most important activities to provide a quick overview of registered users' activities on the SPREAD2INNO web platform. Although the interface design was focused on providing a modern layout that is based on a responsive web design approach suitable for both desktop and mobile, the majority of users (83.30%) have interacted with the platform using their desktop web browsers, as shown in Table. 3. and the corresponding pie chart.

Description	Amount
Member registrations	70
Members joined a group	28
Member changed profile image	23
Member connections established	23
Profile updates	11
New posts published	10
Status update post	7
Discussions started (Q&A)	7
Groups created	4
Total	183

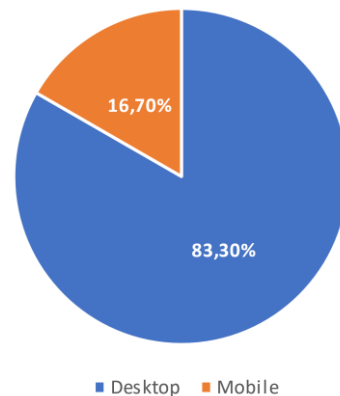


Table 3. Types of networking activities (Left); Active users by device category (Right) | Jul, 2023 – Dec, 2024

5. Conclusion

This paper presented the main development steps of the SPREAD2INNO One-stop shop web platform, showcasing the main concept, technical framework and architecture, individual modules and their functionalities. In this context, the main objective of the developed web platform was to facilitate the information exchange between different innovation ecosystems, targeted to business acceleration and innovation service providers, SMEs and start-ups from all over Europe, enabling them to connect and find business growth initiatives and opportunities.

To achieve this objective, the platform's main concept was based on the practice-oriented community of actors who are informally connected, face similar tasks and want to learn from each other through interaction. To this end, the platform was designed in a modular structure to keep it flexible and extendable for various contexts. All modules and content-rich awareness channels are optimised for search engines (Google, Bing, etc.) to ensure strong visibility and to facilitate long-term cooperation. Here, the platform provides access to various content, resources, information and users. This makes it possible to be more easily recognised and found by all interested stakeholders.

Based on the analysed user engagement metrics and behavioural information, the platform has achieved a steady visitor traffic flow as well as satisfactory user engagement and networking activities within a relatively short project timeframe. In this context, the Directory module provides a filterable database (also visualised as a map) of best practices and stakeholders in the regional innovation ecosystems. Since the directory content is public, all visitors can access and view the provided content without the need to register. This has resulted in the highest number of sessions and active users. Therefore, such repositories of relevant innovation ecosystem knowledge in combination with local events, programs and matchmaking opportunities can help to ensure the longevity and sustainability.

Future work will focus on iterative updates and refinements of the web platform, based on continuous testing, project requirements, consortium decisions and end-user engagement and feedback. Furthermore, ensured community engagement and maintenance of the web platform will play an essential role in scaling up the innovation ecosystems, sustainability and exploitation. As a result, the SPREAD2INNO web platform will be hosted for at least two more years after the end of the project in January 2025.

6. Acknowledgments

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