MEZeroE

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Measuring Envelope products and systems contributing to next generation of healthy nearly Zero Energy buildings

D3.5 Technology transfer booster through record of innovation and idea tracker

May 2025

The MEZeroE Project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 953157

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Executive summary

Technological innovation in the construction sector is considerably difficult to implement due to several factors such as the fragmentation and complexity of this sector. Many disciplines are involved at various stages, design and production are usually separated, there is a large number of players with a vast majority of small-medium enterprises (SME), and supply chains are long and variegated. As a result, gathering the different specialists together is difficult, and many potentially effective innovative solutions do not even reach the market.

H2020 MEZeroE project aims at tackling this complex issue by creating an EU distributed open innovation ecosystem for (i) developing nearly Zero Energy Building (nZEB) Enabler Envelope technology solutions; (ii) transferring knowledge; (iii) matching testing needs with existing facilities; (iv) providing monitoring in living labs; and (v) standardizing cutting-edge solutions coming from SMEs and larger industries, to foster inclusive change in the building sector, being accessible via a single-entry point to all users.

MEZeroE ecosystem will be accessed via a single-entry point web-based multi-side virtual marketplace which will include 9 Pilot Measurement & Verification Lines (PM&VL), 3 Open Innovation Services (OIS), and resources for training, business model development, systematic intellectual property (IP) and knowledge management. MEZeroE will fast-track prototypes to the market as fully characterized products.

This document describes the development and validation of several specialized services within Open Innovation Service 3 (OIS3) - Guidance for open innovation life cycle management. The deliverable

presents how these services have been designed, tested, and refined through collaboration with industrial partners within the MEZeroE consortium, ensuring they will be reliable and valuable offerings once available on the MEZeroE marketplace.

The report focuses primarily on the Technology Roadmap service, a comprehensive toolkit designed to support firms throughout their innovation journey. This service includes three interconnected tools: the Idea Radar, which matches companies with potential innovation partners based on specific challenges; the Innovation Compass, which guides strategic marketing decisions through structured workshops; and the Technology Tracker, which facilitates project management and collaboration between partners.

The deliverable also details the BIM package configurator service, which standardizes Building Information Modelling datasets across various construction segments and scenarios. This service provides validated matrices of parameters for different building components, supporting better information management throughout installation, monitoring, operation, and maintenance phases.

Additionally, the report outlines the conceptual design of several other OIS3 services: Matchmaking focused on product development, Matchmaking focused on product commercialization, Open Innovation Event Management, and Expert mentorship in accessing other markets. While these services have not yet undergone full validation, their workflows and implementation approaches are described based on guidelines developed within the MEZeroE project.

This deliverable would be particularly valuable for building industry professionals, technology developers, research institutions, and SMEs interested in open innovation methodologies as well as consultant that could use these services to increase their consultancy offer. It offers insights into structured approaches for partner selection, innovation management, and technology commercialization that could be applied across various contexts within the construction and building technology sectors. The collaborative development process documented here also serves as a model for how innovation services can be refined through direct industry engagement.

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1 General introduction

Technological innovation in the construction sector faces significant challenges due to the industry's inherent complexity and fragmentation. With numerous disciplines involved at various stages, separation between design and production processes, and supply chains characterized by diverse stakeholders—predominantly small and medium enterprises (SMEs)—many promising innovations struggle to reach the market despite their potential effectiveness.

The MEZeroE project addresses these challenges by creating a distributed open innovation ecosystem across the European Union. This ecosystem aims to develop nearly Zero Energy Building (nZEB) Enabler Envelope technology solutions, facilitate knowledge transfer between stakeholders, match testing needs with appropriate facilities, provide monitoring in living labs, and standardize cutting-edge solutions from both SMEs and larger industries. The goal is to foster inclusive change in the building sector through a single-entry point accessible to all users.

This deliverable (D3.5) focuses on the Technology Transfer Booster services developed within Open Innovation Service 3 (OIS3), which provides guidance for open innovation lifecycle management throughout the MEZeroE ecosystem. The core purpose of these services is to accelerate the transfer of innovative technologies from research and development stages to practical market applications. This technology transfer acceleration is achieved through a carefully designed suite of interconnected services that collectively address the most common barriers preventing innovations from reaching commercialization in the building envelope sector. These services are sponsored on the MEZeroE platform, and service providers are mentioned as well in the dedicated section for OIS 3.

The Technology Roadmap service addresses perhaps the most fundamental challenge in technology transfer: identifying optimal collaboration partners and establishing strategic pathways from concept to market. Through tools like the Idea Radar, Innovation Compass, and Technology Tracker, this service creates structured processes for matching technological capabilities with market opportunities, developing viable commercialization strategies, and managing collaborative development projects. By transforming what is typically an ad-hoc, network-based process into a systematic methodology, this service significantly reduces the time and uncertainty involved in forming productive innovation partnerships.

Complementing this approach, the BIM Package Configurator service tackles another critical barrier to technology transfer—information standardization. By establishing consistent parameter sets across different construction segments and scenarios, this service enables more efficient communication between stakeholders throughout the building lifecycle. This standardization is particularly crucial during the transfer of technologies from development to implementation phases, where miscommunications and information gaps often delay or derail promising innovations.

The additional services outlined in this deliverable further strengthen the technology transfer framework. Matchmaking services for both product development and commercialization create direct pathways between technology creators and implementers, while Open Innovation Event Management and Expert Mentorship services provide structured support for knowledge exchange and market expansion. Together, these services form a comprehensive ecosystem that guides innovations through

the complete technology transfer journey—from initial concept through partner identification, strategy development, implementation planning, and market entry.

For a more comprehensive understanding, the annexes provide detailed information on two distinct aspects:

1. **Fully Validated Services (Annexes 1-2)**: These sections present in-depth descriptions of services that have undergone formal validation with industrial partners. The validation processes, testing methodologies, feedback received, and subsequent refinements are thoroughly documented for the Technology Roadmap service (Annex 1) and the BIM Package Configurator (Annex 2).

2. **Preliminary Validated Services (Annex 3)**: This section covers services that have been designed at a conceptual level but have not yet undergone full implementation and validation with partners. These include Matchmaking for Product Development, Matchmaking for Product Commercialization, Open Innovation Event Management, and Expert Mentorship in Accessing Other Markets. While these services have not been fully tested, they represent important components of the comprehensive technology transfer framework and have been designed based on established open innovation principles and marketplace needs identified throughout the MEZeroE project.

By structuring the deliverable in this manner, it has been provided both a cohesive overview of the complete technology transfer booster offering while also distinguishing between services at different stages of development and validation. This approach offers stakeholders a clear understanding of which services are immediately applicable and which represent future development opportunities within the MEZeroE ecosystem. The aim is to create a self-reinforcing innovation environment where technological advances can move more swiftly from concept to market implementation, thereby accelerating the adoption of nearly zero energy building solutions across Europe.

2 OIS 3 services: Enabling Open Innovation in Building Envelopes

2.1 Overview and Purpose

The Open Innovation Service 3 (OIS3) portfolio addresses critical challenges in bringing innovative building envelope solutions to market. These services are designed to overcome common barriers faced by companies in the construction sector: identifying suitable innovation partners, developing effective market strategies, standardizing technical information, and navigating complex commercialization pathways.

Through the validation work conducted within the MEZeroE project, these services have demonstrated significant potential to accelerate innovation adoption and create value throughout the building technology ecosystem. This chapter presents the core functionalities and key value propositions of each service, highlighting insights gained from their practical implementation.

The services that are presented are:

- Technology Roadmap (Idea Radar, Innovation Compass and Technology Tracker) [Fully Validated Service]
- BIM package configurator [Fully Validated Service]
- Matchmaking focused on product development [Preliminary Validated Service]
- Matchmaking focused on product commercialization [Preliminary Validated Service]
- Open Innovation Event Management [Preliminary Validated Service]
- Expert mentorship in accessing other markets [Preliminary Validated Service]

2.2 Technology Roadmap service

2.2.1 Service Description and Value Proposition

The Technology Roadmap service represents a comprehensive toolkit designed to guide organizations through the complete innovation journey, from initial partner selection to project implementation. This service directly addresses one of the most significant barriers to technology transfer in the building envelope sector: the difficulty of identifying optimal innovation partners and establishing clear pathways from concept to market implementation.

The service consists of three integrated components that work together to create a structured innovation process (Table 1) (a full description of the service together with the validation process is available in ANNEX 1):

Component	Primary Function	Key Values	Technical description	Input	Output
Idea Radar	Partner identification and evaluation	Discovers optimal innovation partners based on both technological capabilities and business alignment	This tool encompasses weighting algorithms that assess companies according to technical parameters, in order to spot the most compelling company to exploit the open innovation challenge in question.	This tool takes as input the generic requirements of a company with their relative importance and the open innovation challenge.	It returns as output the ranking with the most suitable companies. Specifically, it provides a report and a presentation about the results. Particular attention is put on the technology features.
Innovation Compass	Market strategy development	Develops comprehensive go-to-market strategies	This tool is a strategic consultancy made up of	This tool takes as input the technology features and	It turns as output an overall but still complete

		through structured workshops	oriented workshops that allows partners to get an overall marketing strategy through Business Model canvas and Value Proposition canvas.	the company capabilities to start the workshop sequence.	marketing strategy thanks to two canvas and a scoring system.
Technology Tracker	Project management	Facilitates collaborative innovation project execution with interoperability features	It is a project management tool that allows companies to interoperate simultaneously leveraging on agility, project management principles, timeline and company areas.	This tool takes as input the detailed strategy of the partners along with the timeline and the tasks.	Finally, after the scheduled time span, the project has come to an end and has been realized in the smoothest way, leveraging on efficiency and effectiveness.

Table 1 Technology Roadmap sub-services

2.2.2 The Idea Radar: Partner Identification Engine

The Idea Radar component serves as the entry point to the Technology Roadmap service. It employs a sophisticated algorithm that transforms qualitative expert judgment into quantitative analysis to identify optimal partners for specific innovation challenges.

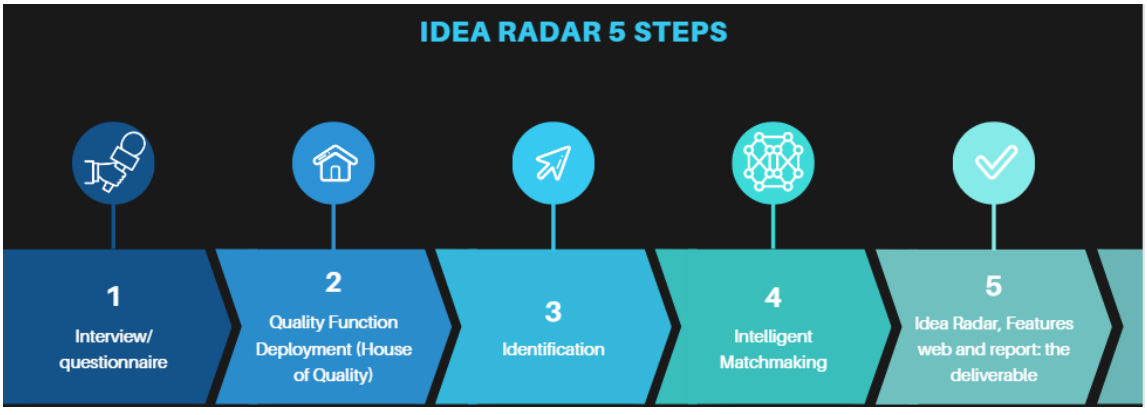

Figure 1 The Idea Radar process

The process (Figure 1) begins with collecting the client's open innovation challenge and general requirements through a structured questionnaire. These requirements are then translated into specific parameters through an expert-guided process. Parameters represent a gap to be bridged because they

identify areas where current capabilities do not fully meet innovation needs. The algorithm searches for the ideal solution by evaluating potential partners according to these parameters, which include two main categories:

1. **Economic parameters**: Including funding history, revenue per employee, ROI (Return of Investment), growth trajectory, and operational efficiency

2. **Technical parameters**: Including technology readiness, certifications, performance metrics, and compliance with standards

These parameters are then weighted according to the client's priorities and used to evaluate potential partners identified through specialized databases such as Dealroom, Crunchbase, ZoomInfo, ReachRocket, and Growjo.

The evaluation process employs a nine-step algorithm that calculates an "Affinity Index" for each potential partner, representing how closely they match the ideal solution for the client's innovation challenge. The algorithm also performs sensitivity analyses to create specialized rankings:

- **Economic Index**: Emphasizes financial stability and growth potential

- **Technological Index**: Prioritizes technical capabilities and innovation potential

The final visualization takes the form of a radar display (as shown in Figure 2) that intuitively presents potential partners according to their Affinity Index, with the most suitable candidates appearing closest to the centre.

Figure 2 Idea Radar representation

2.2.3 Innovation Compass: Strategy Development Workshop

Once suitable partners have been identified, also, in case, within a specific pool defined by the client itself, the Innovation Compass component guides the collaborative development of market strategies through a series of structured workshops. This component transforms technical capabilities into market-ready value propositions through five key steps:

1. **Capability Brainstorming**: Identifying and listing all technological and organizational capabilities of the partnering companies

2. **Combinations Table**: Creating and evaluating multiple strategic options by combining different capabilities

3. **Value Proposition Canvas**: Developing detailed value propositions for the most promising strategic options

4. **Solution Scoring**: Evaluating each strategic option against predefined criteria to identify the optimal approach

5. **Business Model Canvas**: Expanding the selected value proposition into a comprehensive business model

This structured approach ensures that technological innovations are directly connected to market needs and competitive advantages, significantly increasing the likelihood of successful technology transfer.

2.2.4 Technology Tracker: Collaborative Project Management

The final component of the Technology Roadmap service provides specialized project management capabilities designed for collaborative innovation projects. The Technology Tracker uses a matrix-based approach that organizes tasks according to multiple dimensions:

- Project management phases (horizontal axis)
- Time periods (horizontal axis)
- Project management knowledge areas (vertical axis)
- Company areas (vertical axis)

This organization creates a comprehensive overview of the entire project, as shown in Figure 3 :

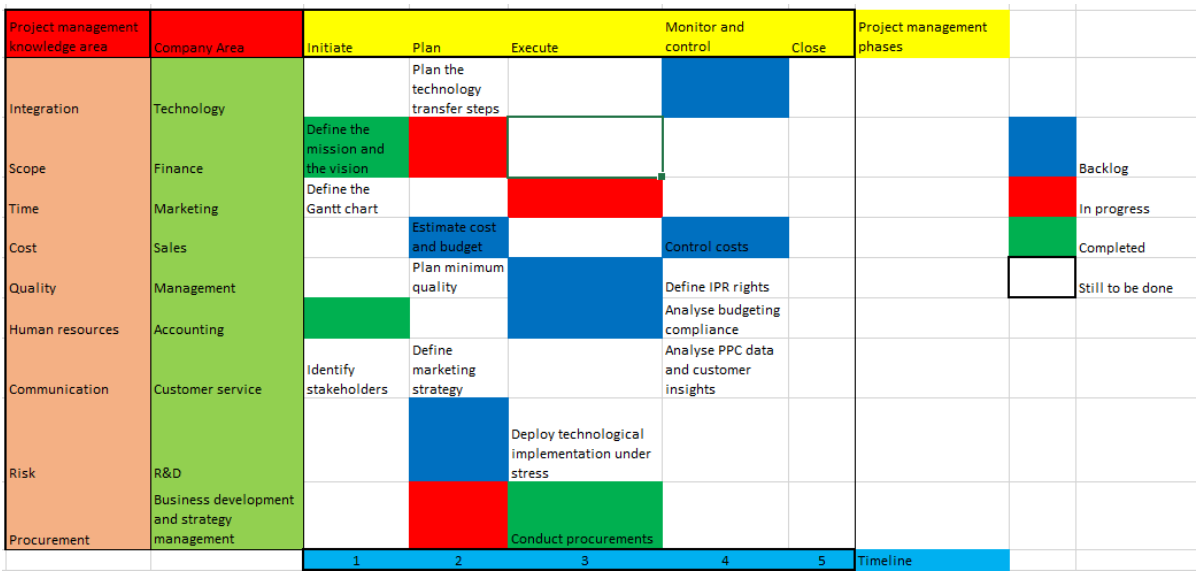

Figure 3 Screenshot of the Technology Tracker prototype showing the matrix-based project management approach

Key features of the Technology Tracker include:

- **Interoperability**: APIs that allow seamless data exchange between partners' existing systems
- **Status Tracking**: Visual indicators of task completion status
- **Multi-dimensional Organization**: Tasks organized by both company area and project management discipline
- **Temporal Alignment**: Clear timeline visualization across all project components

2.2.5 Key Findings from validation and future developments

The Technology Roadmap service has undergone initial validation with industrial partners, focusing primarily on the Idea Radar component. Feedback from Focchi S.p.A, who participated in the validation process, confirmed the potential value of the service while suggesting several improvements. These included more transparent explanation of data sources, enhanced visualization tools, methods to pre-verify partner interest, and deeper integration with the building facades industry ecosystem. Based on this feedback, the service is being refined to create a more consultative approach that establishes ongoing relationships with clients rather than simply delivering results. This transition from a tool-centric to relationship-centric model responds directly to industry needs for sustained innovation support throughout the technology transfer process.

While the Idea Radar component has reached an advanced stage of development, the Innovation Compass and Technology Tracker remain in the concept validation phase. Forthcoming development work includes collecting additional feedback on the Idea Radar from two more industrial partners, developing functional prototypes for the remaining components, conducting comprehensive validation activities, and creating a more integrated digital interface. The ultimate vision positions the Technology

Roadmap service as a central orchestrator within the MEZeroE ecosystem, facilitating partnerships that leverage complementary competencies among building envelope innovators. This orchestration role directly addresses the fragmentation challenges that typically impede technology transfer in the construction sector, creating a more cohesive innovation environment that accelerates market adoption of promising technologies.

2.3 BIM Package Configurator Service

2.3.1 Service Description and Value Proposition

The BIM Package Configurator is a critical component of the MEZeroE technology transfer booster ecosystem, designed to standardize and optimize Building Information Modelling (BIM) datasets across the building envelope innovation lifecycle. This service addresses a fundamental challenge in the construction industry: the inconsistent structuring of digital building information, which often creates barriers to effective knowledge transfer and technological adoption.

By providing validated matrices of standardized parameters for different construction segments and usage scenarios, the BIM Package Configurator enables more efficient information exchange between stakeholders throughout the entire building lifecycle. This standardization is particularly valuable in facilitating technology transfer from research to industry application, as it creates a common language for describing building envelope components and their performance characteristics.

The service aligns with the broader objectives of the Technology Transfer Booster by:

1. Reducing barriers to knowledge sharing between research institutions and industry
2. Creating standardized templates for digital product information that enhance market readiness
3. Supporting the comprehensive documentation of innovative solutions for easier adoption
4. Enabling better continuity of information from design through installation, operation, and maintenance

2.3.2 Validation Context: Scenario ‘D’

The BIM Package Configurator was validated specifically in the context of "Scenario D - Installation, Monitoring, Operation and Maintenance (O&M)" - the final stage in the building lifecycle matrix. This validation complements previous work on Scenarios A through C (covered in MEZeroE Project deliverable D3.2), completing the full lifecycle coverage of the standardized BIM dataset.

Scenario D represents a critical phase where building envelope products move from theoretical or testing environments into real-world implementation and ongoing operation. At this stage, accurate and comprehensive digital information is essential for:

- Proper installation of envelope components according to manufacturer specifications
- Setting up monitoring systems to track performance metrics

- Establishing baselines for operational parameters
- Planning and executing maintenance procedures
- Ensuring long-term performance of envelope systems

The validation for Scenario D was conducted through an applied approach connected to Living Lab (LL) activities within the MEZeroE project. This approach provided real-world context and involved industrial partners who would be actual users of the standardized datasets, ensuring that the validated parameters reflected genuine industry needs.

Each partner received a draft matrix containing the proposed BIM parameters for their respective construction segment, along with clear instructions for the validation task. Partners were asked to evaluate each parameter and classify it as either "Minimum" (essential for the scenario), "Suggested" (useful but not critical), or "Not relevant" (unnecessary for the scenario). Additionally, partners could propose missing parameters they considered important for their specific construction segment.

To ensure comprehensive coverage across all construction segments, external contributors with specialized expertise were engaged to validate segments not represented by the primary industrial partners. This approach ensured that all nine construction segments received appropriate validation from domain experts.

2.3.3 Validation Results

The validation process yielded clearly defined parameter sets for each construction segment, with notable variations reflecting the different information requirements across building envelope technologies. More complex systems (CS) generally required more extensive parameter sets than simpler components. For example:

- For multilayer façade systems (CS1), the validation identified 84 minimum parameters and 42 suggested parameters, highlighting the complex information needs of these sophisticated building components.
- Cladding systems (CS2) and coating systems (CS3) showed similar complexity, with 89/43 and 93/54 minimum/suggested parameters respectively, reflecting their technical specifications and performance requirements.
- Insulation materials (CS7) required fewer parameters (52 minimum, 51 suggested), aligning with their relatively straightforward technical characteristics.
- Green building elements (CS8) showed the lowest parameter requirements (8 minimum, 18 suggested), possibly indicating less standardization in this emerging field.

A complete overview of the parameters provided within the validation process is available in ANNEX 2.

These variations demonstrate how the BIM Package Configurator accommodates the diverse information needs across different construction segments while maintaining a standardized approach to parameter organization and classification.

The completed validation established the final standardized MEZeroE BIM dataset for Scenario D, providing a robust foundation for consistent information exchange throughout the installation, monitoring, operation, and maintenance phases of building envelope products. This standardization directly supports the technology transfer process by ensuring that innovative solutions can be properly documented and integrated into building lifecycle management systems.

2.4 Additional OIS3 Services: Conceptual Design

The following services have been conceptually designed as part of the OIS3 portfolio but have not undergone the same level of extensive validation as the Technology Roadmap service and BIM Package Configurator. These services represent established methodologies and practices that have been adapted to the specific context of building envelope innovation within the MEZeroE ecosystem.

Unlike the previously described services that required significant algorithmic development or parameter standardization, these additional services build upon well-established business support frameworks already proven effective in industry contexts. Their conceptual design draws on existing best practices, making full-scale validation less critical at this stage of development. Instead, they have been carefully structured to complement the validated services, creating a comprehensive support ecosystem for technology transfer.

These services play a crucial role in the Technology Transfer Booster by addressing specific phases of the innovation lifecycle that extend beyond initial partner identification and information standardization. They focus particularly on implementation aspects such as market entry, collaborative development processes, and commercialization strategies—all essential components for successfully transferring innovative building envelope technologies from concept to market.

By incorporating these services into the MEZeroE platform, the ecosystem will provide end-to-end support for innovation processes, ensuring that promising technologies not only find appropriate development partners but also successfully navigate the complex journey to market implementation.

Service providers of these services are already available in the MEZeroE platform. Hence, possible clients can send requests for these services in a dedicated section of OIS3 area in the website.

The following sections outline the core functionality and implementation approaches for each of these complementary services.

Full description of the services is available in ANNEX 3.

2.4.1 Matchmaking for Product Development

The Matchmaking for Product Development service represents a cornerstone of the Technology Transfer Booster ecosystem, specifically designed to address one of the most persistent barriers in innovation adoption: finding the right development partners. In the building envelope sector, where technical expertise is often highly specialized and fragmented across different organizations, the ability

to quickly identify and engage with suitable partners can dramatically accelerate the journey from concept to market-ready product.

This service transforms what is typically an ad-hoc, network-dependent process into a systematic methodology that reduces uncertainty, lowers transaction costs, and increases the likelihood of successful collaborations. By providing a structured framework for partner identification and evaluation, the service helps innovators overcome the "valley of death" that often prevents promising technologies from reaching commercialization. Service is described schematically in Table 2.

Key Features	Implementation Approach	Value Proposition
- Partner selection based on technical compatibility - IP framework guidance - TRL compatibility assessment - Strategic alignment verification	- Structured data collection template - Multi-criteria partner evaluation - Facilitated introduction process - Documentation and follow-up support	- Reduces partner search time and costs - Minimizes collaboration risks - Ensures technical and strategic compatibility - Establishes clear IP arrangements

Table 2 Matchmaking for Product Development structure

2.4.2 Matchmaking for Product Commercialization

The Matchmaking for Product Commercialization service addresses a critical juncture in the innovation lifecycle: the transition from developed technology to market-ready product with appropriate distribution channels. This service specifically targets building envelope technologies that have demonstrated technical viability but require specialized partners to navigate commercialization pathways and market entry challenges.

Unlike the product development matchmaking service, which focuses on collaborative technology creation, this service emphasizes finding partners with established market presence, distribution infrastructure, and regulatory expertise. This service directly enhances the Technology Transfer Booster mission by establishing efficient commercialization channels.

Service is described in Table 3.

Key Features	Implementation Approach	Value Proposition
- Distribution strategy optimization - Regional market knowledge - Regulatory compliance guidance - Channel development support	- Commercialization requirements assessment - Market-specific partner identification - Structured introduction protocol - Implementation guidance	- Accelerates market entry - Reduces regulatory compliance barriers - Optimizes distribution approach - Provides regional market insights

Table 3 Matchmaking for Product Commercialization structure

2.4.3 Open Innovation Event Management

Open innovation events serve as powerful catalysts for technology transfer by creating structured environments where diverse stakeholders can collaborate on specific challenges in the building envelope sector. This service helps organizations design, plan, and execute targeted innovation events that generate actionable solutions while fostering lasting connections between technology developers and potential adopters.

The building construction industry has historically struggled with innovation adoption due to its fragmented nature and risk-averse practices. Open Innovation Event Management directly addresses this challenge by creating controlled environments where new ideas can emerge, be refined, and transition toward market readiness.

Service is described in Table 4.

Key Features	Implementation Approach	Value Proposition
- Multiple event format options - Challenge-based innovation frameworks - Participant engagement strategies - Performance measurement	- Innovation objectives assessment - Custom event design - Comprehensive management support - Post-event analysis	- Accelerates solution development - Accesses diverse innovation inputs - Builds innovation community - Creates measurable innovation outcomes

Table 4 Open Innovation Event Management structure

2.4.4 Expert Mentorship for Market Access

Providing specialized guidance for entering new geographic markets, this service offers support with regulatory compliance, local business practices, and partnership development in specific regional contexts. The service is particularly valuable for innovative building envelope technology providers seeking to expand their market presence across different European countries.

This service enhances technology transfer by creating structured pathways for geographic market expansion. By providing expert guidance on navigating regulatory frameworks, adapting business models to local contexts, and establishing effective partnerships, the service reduces the typical time lag between a solution's success in one market and its adoption in another.

Service is described in Table 5.

Key Features	Implementation Approach	Value Proposition
- Regulatory navigation support - Business model adaptation guidance	- Market readiness assessment - Customized entry strategy	- Reduces market entry time and costs

- Local partnership development - Administrative representation	- Partner identification and introduction - Implementation mentorship	- Minimizes regulatory compliance risks - Provides local market insights - Facilitates cultural and business adaptation

Table 5 Expert Mentorship for Market Access structure

3 General Results & Discussion

The validation activities conducted for OIS3 services have yielded valuable insights into their practical application and effectiveness within the building envelope innovation ecosystem. The Technology Roadmap service and BIM Package Configurator have demonstrated significant potential to address critical pain points in the innovation process.

The Technology Roadmap service, particularly its Idea Radar component, received strong positive feedback from industrial partners, confirming its utility in identifying optimal innovation partners. Partners valued its ability to transform complex qualitative judgments into algorithmic recommendations while maintaining transparency in the assessment process. The balanced evaluation of both technological capabilities and business viability was highlighted as a key strength, enabling more comprehensive partnership decisions.

The BIM Package Configurator validation revealed important variations in information requirements across different construction segments and usage scenarios. The clear delineation between minimum and suggested parameters provides valuable guidance for standardizing building information exchange. Particularly noteworthy was the observation that complex systems like multilayer façades require substantially more extensive parameter sets than simpler components, reflecting the varying complexity across building envelope technologies.

The conceptually designed additional services—focused on matchmaking, event management, and market access—represent logical extensions of the validated tools. While these have not undergone formal validation, their conceptual frameworks address identified gaps in the innovation support ecosystem. Their potential integration with the validated services could create a comprehensive end-to-end support system for building envelope innovation.

Industrial partner feedback has highlighted several potential areas for enhancement across the services:

1. Improved data sourcing and explanation methodologies to increase transparency
2. More interactive visualization tools to enhance user understanding
3. Integration mechanisms between different services to create seamless innovation journeys
4. Pre-verification mechanisms for partner interest to strengthen matchmaking outcomes

These validation results indicate that the OIS3 services are well-positioned to fulfil their intended role within the MEZeroE ecosystem. By addressing specific friction points in the innovation process—from partner identification through standardization to market implementation—these services can significantly accelerate the journey of building envelope innovations from concept to market.

The varying levels of validation across different services reflect their development stage and complexity. While some services required extensive algorithmic development and testing, others build upon established methodologies adapted to the specific context of building envelope innovation. This pragmatic approach to validation ensures efficient resource allocation while maintaining focus on delivering value to ecosystem participants.

4 Conclusions

The validation activities conducted for the OIS3 services demonstrate significant potential for enhancing open innovation processes in the building envelope sector. The Technology Roadmap service, particularly the Idea Radar component, has successfully transformed expert knowledge into algorithmic partner recommendations, creating tangible value for industrial partners seeking innovation collaborations. Similarly, the BIM Package Configurator has established important standardization benchmarks across different construction segments, facilitating more efficient information exchange throughout building lifecycles.

The conceptually designed additional services complement these validated tools by addressing critical phases of the innovation journey. Together, they form a comprehensive framework that can support organizations from initial partner identification through product development, market entry, and commercialization. This holistic approach distinguishes the MEZeroE ecosystem as a unique innovation support platform specifically tailored to the building envelope sector.

These services are fundamental to the Technology Transfer Booster's mission by systematically addressing the key barriers that typically impede innovation adoption. The Idea Radar accelerates partner identification, reducing the time and resources required to establish productive collaborations. The BIM Package Configurator overcomes information standardization challenges that often create friction during technology implementation. The matchmaking services facilitate critical connections between technology developers and both development and commercialization partners, while the Open Innovation Event Management and Expert Mentorship services provide structured approaches to knowledge exchange and market expansion.

By integrating these services within a coherent ecosystem, the Technology Transfer Booster creates an innovation acceleration environment that guides building envelope technologies through the complete "valley of death" between concept development and market adoption. This systematic support reduces innovation risks, shortens development timelines, and increases market penetration potential for promising technologies.

Future development should focus on enhancing integration between services, refining user interfaces, and expanding validation to additional industry contexts. Incorporating user feedback regarding data transparency, visualization enhancements, and partnership verification mechanisms will further

strengthen the services' practical utility. Additionally, exploring digital implementation approaches that balance expert guidance with scalable automation represents an important next step.

The OIS3 services validation has confirmed their potential to accelerate innovation adoption by reducing partnership barriers, standardizing information exchange, and facilitating market access. As these services mature and become fully operational within the MEZeroE ecosystem, they promise to create significant value for building envelope innovators while contributing to the broader goal of advancing nearly zero energy building technologies across Europe.

5 ANNEX 1 – Creation and validation of Technology Roadmap

The Technology Roadmap is a toolkit that aims at accompanying firms throughout the innovation path: it supports companies from the choice of partners, through the “go-to-market” strategy, to the concreate realization of the final output. Respectively, these three steps are addressed by three specific tools, namely:

- The Idea Radar takes as input the open innovation challenge of a company and suggests the best firms that it can interact with to exploit the full potential of its project.
- The Innovation Compass consists in a series of workshops which aim at defining the market strategy step by step.
- Lastly, the Technology Tracker is a project management tool that takes advantage of interoperability and agility to allow partners to develop the best projects as they were a joint venture.

The aim of this toolkit is to work as a dynamic ecosystem orchestrator. Indeed, companies work better if in partnership because they are empowered to exploit complementary and interdisciplinary competences, unleashing synergies’ potential.

Idea Radar has reached a quite advanced phase, while the other two services are drafted. In the process of designing and validating the Idea Radar, a deep state of the art analysis has been run and, in the end, a logical process took shape comprehending algorithms and qualitative judgements has been crafted to handle the problem.

The Technology Roadmap is a comprehensive toolkit that aims at being all that is needed for a company to bring innovative projects to life. It covers the scouting of the most suitable partners, the definition of the business model and the value proposition, along with a broader strategy, and a tool that allows the real concretization of the project.

The final form of this toolkit is still unclear: it could be delivered both as a service and as an open innovation platform that acts as a consultant. To deal with this problem, dedicated market research must be conducted.

5.1 Idea Radar

The Idea Radar is the service that arouse the highest interest among stakeholders and the most developed tool among the three. This is because the idea radar tool presented a higher innovation potential from an initial state of art of such methodologies. Hence, more focus was dedicated to its development.

Many organizations face potentially valuable innovation challenges that remain unaddressed due to prohibitive resource requirements and uncertain outcomes. The investment of time, capital, and personnel often appears disproportionate to the probability of success. Additionally, individual

companies frequently lack the complete set of capabilities necessary to effectively pursue ambitious projects.

A strategic solution to this innovation dilemma is the formation of collaborative partnerships that distribute risk while combining complementary expertise, resources, technical knowledge, and operational capabilities from multiple organizations. This approach allows companies to tackle more complex challenges than would be feasible independently.

The MEZeroE ecosystem will nurture the Idea Radar and will represent the very first triggering point of open innovation challenges, as this environment represents also a marketplace for innovative ideas in the facades industry. The tool takes as input an open innovation challenge of a firm, along with the importance of some generic requirements, such a financial solidity, TRL, environmental impact, ethical aspect of the supplier, growth expectations. All these requirements are gathered with a questionnaire that can be delivered on demand to those companies that are willing to undertake this process. These are all characteristics of companies that can be partners of the input one, therefore it may be useful to understand which the most interesting aspects are to consider. The input is then computed based on a process that returns specific parameters (both economic and technical), such as ROI, revenue/ number of employees, employees' growth, GWP, geometrical stability, UV resistance and many others according to the specific case. The pro of these parameters is that they are chosen based on each specific case; hence this tool allows not only for replicability, but also for customization. These parameters are needed to assess the spotted firms according to the so-called 'Affinity Index': it is the final score that parameters lead to, and it represents how a company is close to be the perfect solution to the original open innovation challenge. For instance, if a company scores 0.8 of Affinity Index, this means that it is very close to be the ideal solution and, probably, the more likely among the identified companies. This index is computed thanks to a nine-steps algorithm that takes as input the parameters, their weights and the likely companies.

In between the previous step, the identification phase is present as well. Once the generic requirements are turned into specific parameters, the most suitable companies are identified according to their capability to answer to the open innovation challenge. The databases that have been interrogated are Dealroom, Crunchbase, ZoomInfo, ReachRocket and Growjo.

The whole Idea Radar process can be grasped in Figure 4 and Figure 5:

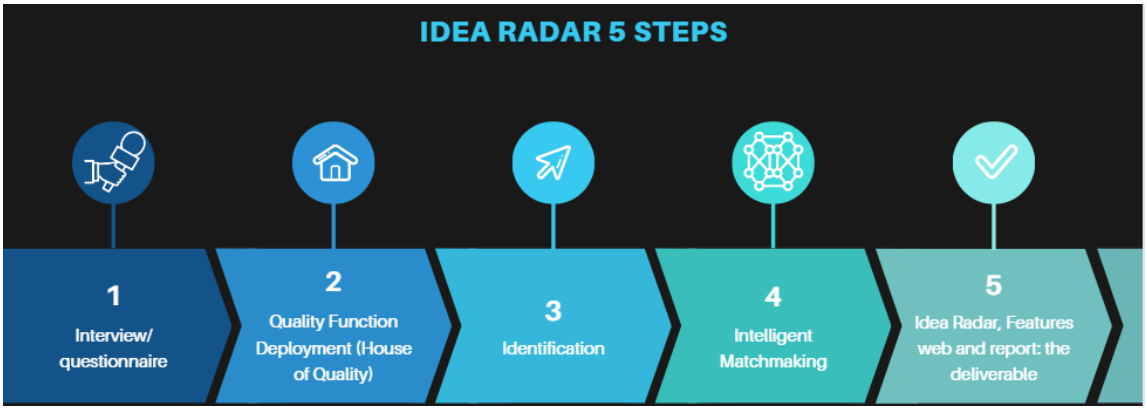

Figure 4 The Idea Radar process

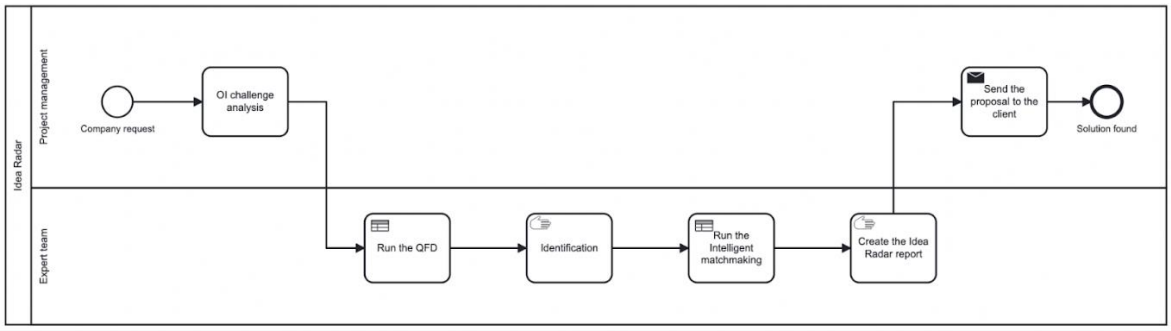

Figure 5 The Idea Radar process with the BPMN language

A sensitive analysis is also performed: the economic index is computed by annulling the technical parameters and vice versa. This way, an Affinity index that deeply relies on economic parameters is created (the Economic index will resonate those companies that score the highest values in the economic parameters), along with an Affinity index that only focuses on technological and engineering characteristics (the Technological index emphasises companies with the most interesting technologies.

The client is provided with a full set of indexes: a generical one explaining which are the overall best companies and two specific ones that focuses on the economic and technological aspects of companies. The user is so allowed both to dive into deep analyses and to have a quick overview.

The result is visualized thanks to the Radar itself: the graph divides startups from companies. On the y-axis, the Affinity index is present and the closer a company is to the origin, the highest the Affinity Index and therefore the best the solution is. On the x-axis instead, the user will be allowed to choose whether to look at the Economic or Technological index. The closer the points are to the origin, the better they are. The visualization let the customer analyse the Economic and the Technological index by always keeping track of the Affinity index.

5.1.1 Testing process

Once the prototype has been designed, to understand how well it could fit the customer needs, it has been tested with a consortium member as to validate the Idea Radar.

Focchi S.p.A has been the first tester. The method by which the open innovation challenge and the generic requirements have been collected, was the interview. The open innovation challenge that Focchi S.p.A shared dealt with the need for innovative startups in the building facades market. Besides, they furnished the following requirements on a scale that ranges from 1 to 5, shown in Table 6.

Requirements	Rating
Financial solidity	3
References/ experience	4
Dimension	3.5
Success rate of a startup	4.5
Language	3
Easiness of connection/ Logistic	2
Quality of the technology	5
Flexibility	3.5

Table 6 The generic requirements and their weights of Focchi S.p.A

These requirements were subsequently transformed into specific parameters by a team of experts from Eurac, including specialists in economics and facades. This process followed the first algorithm of the Idea Radar tool, hence turning the generic requirements into specific parameters. Indeed, among all that were identified, the parameters that resulted as the most important ones are highlighted in the following list:

1. Technical performance (according to quality and compliance) is the most important one (16.77%). It is consistent with the willing of Focchi Spa to acquire integrally a business, rather than for speculative reasons.
2. Employee growth rate (15.942%) serves as a significant indicator of business expansion trajectory. This metric effectively correlates with market demand dynamics, as expanding client bases and increasing service requests necessitate proportional workforce enlargement to maintain operational capacity. The rate of personnel acquisition thus provides a quantifiable measure of an organization's growth velocity and market penetration effectiveness. This parameter is particularly valuable when evaluating potential innovation partners, as it objectively demonstrates the commercial viability and market acceptance of their offerings.
3. Funding Total funding amount (15.942%) serves as a significant indicator for assessing both a company's financial stability and market perception of its projects. Higher funding levels generally correlate with increased investor confidence and enhanced business solidity. However, it is important to note that this metric represents a static assessment rather than a dynamic indicator and therefore does not reflect anticipated growth trajectories.
4. The ratio of age to number of institutional investors (14.907%) serves as a significant indicator of market validation. This metric quantifies the rate at which established financial entities have recognized the enterprise as investment-worthy. A lower temporal period relative to investor acquisition indicates heightened market perception regarding the innovation's potential value and commercial viability.
5. “Certifications and references” (14.7%) are a parameter that helps understand how the technology of a company is recognised objectively.

6. Revenue/ number of employees (11.594%) is a good parameter to compare companies of the same industry: it is broadly used in benchmarking analysis and tells what companies are exploiting their resources in the best way. Since it is a relative index, it can also inform on the expected growth.
7. The Return on Investment (ROI) metric (10.145% weighting in the assessment) quantifies the financial performance of a business by measuring the percentage return generated relative to the initial capital invested. This standardized financial indicator, widely utilized across investment analysis, provides valuable insight into a company's capital efficiency and overall financial viability independent of other operational factors.

At this point, the parameters and their weights have been set up in place searching in databases of startups and companies, such as DealRoom, Crunchbase and Pitchbook. Other softwares instead, such as ZoomInfo, ReachRoket, Growjio and others, were useful to scout data about such companies in order to assign values.

Once that startups and companies have been scouted, the input table for the final algorithm looks like in Figure 6.

Startups	website	total funding amount	certifications and references	age/ # of institutional investors	employees growth	Technical quality and compliance	revenue/ # employee	ROI	Features
Physee	https://www.physee.eu/								
Airlite	https://airlite.com/								
Echogen Power Systems	https://echogen.com/								
Green City Solutions	https://greencitysolutions.de/								
Insolight	https://www.insolight.ch/								
Sunpartner Technologies	https://www.sunpartnertechnologies.com/								
Prism Solar Technologies	https://prismsolar.com/								
Sensorfact	https://www.sensorfact.eu								
Nexii	https://nexii.com/								
Sonnedix	https://www.sonnedix.com/it/home								
Natron energy	https://natron.energy/								
Elcogen	https://elcogen.com/								
LuxWall	https://www.luxwall.com/								
EnergyX	https://energyx.com/								
PlantPrefab	https://www.plantprefab.com/								
Gauzy	https://www.gauzy.com								
Svea Solar	https://sveasolar.com/en/about-us								
Apex Clean energy	https://www.apexcleanenergy.com/?utm_s								
SGPR.TECH	https://widmo.tech/								
WIZZCAD	https://wizzcad.com/en/								
View inc	https://view.com								
Kinestral technologies	https://halioinc.com								
Next energy technologies	https://www.nextenergytech.com								
Tynt	https://www.tynt.io								
Letsbuild	https://www.letsbuild.com/								
		15.942%	14.700%	14.907%	15.942%	16.770%	11.594%	10.145%	Weights

Figure 6 The intelligent matchmaking set up

This set up corresponds to what has been called the “Intelligent Matchmaking”, that is the algorithm that takes as input what can be seen in Figure 6 and returns the final ranking. It consists in nine arithmetic steps that are always meant to compute relative closeness according to weights.

In the initial phase of the algorithm, the most resource-intensive step involves a team of experts conducting comprehensive evaluations of companies. This process requires searching specialized databases (DealRoom, Crunchbase, ZoomInfo, etc.) to gather relevant data and assign standardized values on a 0-5 scale for each parameter.

For quantitative metrics such as employee growth percentages, the team implements a normalization procedure. This involves determining the range of values across all companies, dividing this range into

five equal intervals, and then mapping each company's raw data to the appropriate position on the standardized scale. For example, when processing employee growth figures, the difference between maximum and minimum values is calculated and divided by five to establish consistent interval sizes, allowing for systematic conversion of raw percentages into standardized scores.

Once this data collection and normalization is completed for all companies across all parameters, the system proceeds through eight additional algorithmic steps that are primarily mathematical in nature. During this calculation sequence, the algorithm generates visualization tools called "Features Webs" in two formats:

1. Individual company webs that display how a single entity scores across all parameters

2. Comparative Features graphs that overlay multiple companies' scores, enabling direct performance comparison

These intermediate visualizations provide valuable analytical insights by revealing the relative strengths of each company. The comparative Features graph is particularly useful for identifying competitive advantages between candidates.

The algorithm culminates in a final computational step that synthesizes these multidimensional comparisons into clear, actionable results.

5.1.2 Results

The result is the Affinity Index ranking, that shows the solutions ranging from the companies that are closer to the ideal solution to the input firm to the most unlikely ones. In this case, the companies which the Idea Radar ended up with for Focchi S.p.A are shown in Figure 7:

Companies	Affinity index	Ranking
EnergyX	0.75	1
Gauzy	0.63	2
Natron energy	0.62	3
Kinestral technologies	0.58	4
PlantPrefab	0.57	5
Nexii	0.56	6
View inc	0.56	7
LuxWall	0.51	8
Sonnedix	0.50	9
Sensorfact	0.47	10
Tynt	0.46	11
Apex Clean energy	0.44	12
Insolight	0.43	13

Next energy technologies	0.40	14
Physee	0.39	15
Sunpartner Technologies	0.37	16
Svea Solar	0.37	17
Prism Solar Technologies	0.37	18
SGPR.TECH	0.34	19
Green City Solutions	0.34	20
Airlite	0.34	21
Elcogen	0.33	22
Letsbuild	0.31	23
WIZZCAD	0.27	24
Echogen Power Systems	0.21	25

Figure 7 Affinity Index ranking

This ranking shows the best companies that Focchi S.p.A can interact and maybe partner with to exploit the potential of its open innovation project. It shows that EnergyX is undoubtedly the best solution, followed by Gauzy, Natron energy and Kinestral technologies.

The research deliberately included companies from adjacent sectors beyond the facades industry. This strategic inclusion reflects the established principle that cross-sectoral innovation often catalyzes more profound and transformative advances compared to innovations occurring within siloed industries. Such cross-domain collaboration has demonstrated significant potential for generating novel solutions through the application of diverse perspectives and technologies to traditional building envelope challenges.

Furthermore, two sensitivity analyses have been carried out:

- The first one gives higher value to the economical parameters, that are “total funding amount”, “employees’ growth”, “company’s age/ institutional investors”, “revenue/ number of employees” and “ROI”. This way, the companies with the highest ranking in the economical parameters will be favoured, so that the tester can understand which are the companies that are more likely to have success. In this case, weights were reassigned as follows (Figure 8):

Total funding amount	Number and quality of certifications	Age/ number of institutional investors	Employees growth	Technical quality and compliance	Revenue/ # employee	ROI
20%	5 %	10%	20%	5%	20%	20%

Figure 8 Weights changed in favour of economic parameters

- the second one emphasizes the technological parameters: “technical quality and compliance” and “number and quality of certifications”. This way, the companies with the most interesting technologies are emphasized and this can be the favourite way to look at the ranking for a company that, besides a well-managed business, is looking for technological breakthroughs. In this case, weights were reassigned as follows (Figure 9):

Total funding amount	Number and quality of certifications	Age/ number of institutional investors	Employees growth	Technical quality and compliance	Revenue/ # employee	ROI
5%	25%	5%	5%	50%	5%	5%

Figure 9 Weights changed in favour of the technological parameters

In these two cases weights are assigned in a different way to provide a more complete information. In the former case, the 90% of the importance is given to economic parameters and in the latter case the 75% of relevance is given to the technical parameters. This distinction is because the economic parameters are five as compared to the two technical ones. This implies that if a minimum of 5% is applied to the non-important parameters, the economic parameters will be given a lower importance each than the ones given to the technical parameters. To sum up, weights in these sensitivity analyses are assigned by subtracting 5% times the non-important parameters to the whole, and what is left is assigned to the important parameters in a reasonable way.

The results are shown in Figure 10 and Figure 11:

Company	Affinity Index	Ranking
EnergyX	0.74	1
Sonnedix	0.72	2
Nexii	0.62	3
Apex Clean energy	0.61	4
Natron energy	0.58	5
Gauzy	0.57	6
Kinestral technologies	0.56	7
PlantPrefab	0.51	8
Sensorfact	0.47	9
View inc	0.46	10
Airlite	0.44	11

Letsbuild	0.42	12
Svea Solar	0.41	13
LuxWall	0.40	14
WIZZCAD	0.39	15
Tynt	0.37	16
Next energy technologies	0.36	17
Prism Solar Technologies	0.35	18
Insolight	0.33	19
Elcogen	0.33	20
Physee	0.33	21
Sunpartner Technologies	0.33	22
SGPR.TECH	0.31	23
Green City Solutions	0.29	24
Echogen Power Systems	0.20	25

Figure 10 Economic Index ranking

Company	Affinity Index	Ranking
Gauzy	0.68	1
Next energy technologies	0.68	2
View inc	0.67	3
LuxWall	0.66	4
EnergyX	0.65	5
Kinestral technologies	0.63	6
Tynt	0.61	7
Prism Solar Technologies	0.60	8
Natron energy	0.56	9
Green City Solutions	0.54	10
Physee	0.43	11
Airlite	0.37	12
Echogen Power Systems	0.34	13

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PlantPrefab	0.34	14
Insolight	0.31	15
Sunpartner Technologies	0.31	16
Sonnedix	0.31	17
Apex Clean energy	0.30	18
Elcogen	0.30	19
Letsbuild	0.30	20
Svea Solar	0.30	21
SGPR.TECH	0.30	22
Nexii	0.24	23
Sensorfact	0.21	24
WIZZCAD	0.13	25

Figure 11 Technological index ranking

This sensitivity analysis provides several additional information. The main highlight is that EnergyX still remains at the top of the ranking when dealing with economic parameters but leaves space to Gauzy and Next Energy Technologies when it comes to technical parameters. EnergyX is undoubtedly the company with the highest growth expectations and financial solidity but is preceded by several companies when technology matters the most.

The very final Affinity Index ranking, taking into account the sensitivity analyses as well, is shown in Figure 12: EnergyX and Echogen Power Systems are still respectively at the top and at the, as it is in Figure 7. In the same way, Gauzy remains at the second place. Remaining part of the ranking changes evidently.

Overall, it is interesting to note how the difference between the top and the bottom of the ranking is smaller as compared to Figure 7, meaning that differences have been reduced because of the additional consideration of multiple balancing factors.

Affinity Index	Company	Ranking
0.71	**EnergyX**	1
0.63	**Gauzy**	2
0.59	**Kinestral technologies**	3
0.59	**Natron energy**	4
0.56	**View Inc**	5
0.52	**LuxWall**	6

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0.51	**Sonnedix**	7
0.48	**Next energy technologies**	8
0.47	**Nexii**	9
0.47	**PlantPrefab**	10
0.46	**Tynt**	11
0.45	**Apex clear energy**	12
0.44	**Prism solar technologies**	13
0.39	**Green City Solutions**	14
0.39	**Sensorfact**	15
0.39	**Physee**	16
0.38	**Airlite**	17
0.36	**Svea Solar**	18
0.36	**Insolight**	19
0.34	**Letsbuild**	20
0.34	**Sunpartner technologies**	21
0.32	**Elcogen**	22
0.32	**SGPR.TECH**	23
0.26	**WIZZCAD**	24
0.25	**Echogen power systems**	25

Figure 12 Affinity Index result

The Idea Radar can be seen in Figure 13:

Figure 13 Idea Radar representation

In this final visualization, the only axis is the Affinity index and thus, the closer a company is to the centre, the closer it is to the ideal solution. Moreover, a presentation explaining each company, as shown in Figure 14, is delivered.

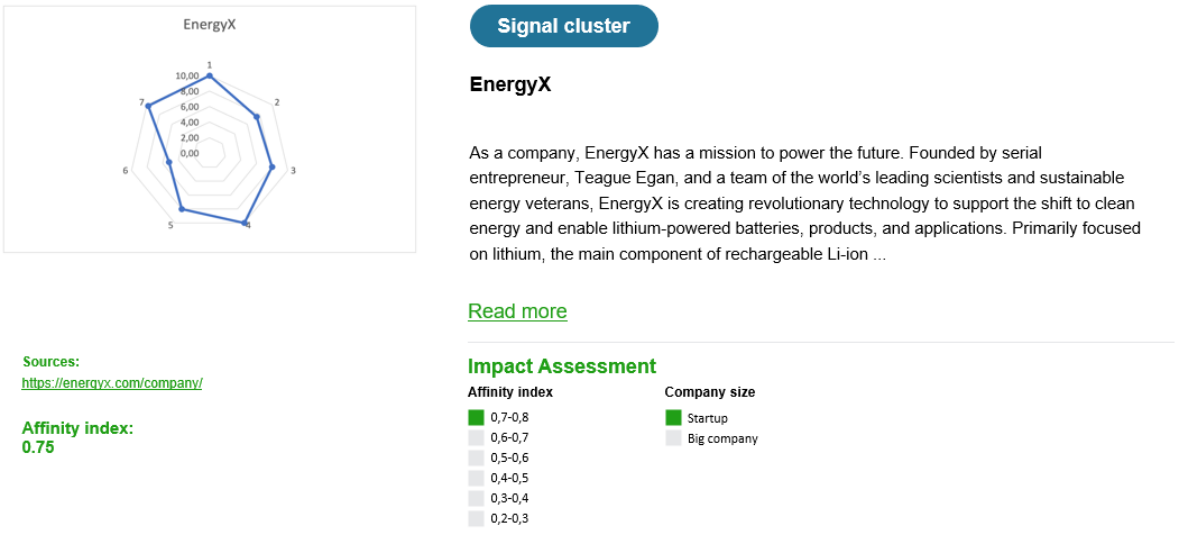

Figure 14 Example of the final presentation of a company result

5.2 Innovation Compass

After identifying suitable investment opportunities based on their specific requirements, companies must develop an effective go-to-market strategy to successfully commercialize their technological innovations. This critical phase requires a comprehensive marketing approach that leverages both the company's organizational capabilities and the technological advantages of the innovation.

Unlike the initial partner identification process, which relies on computational algorithms, this strategic marketing development phase is facilitated through a structured workshop methodology. The process consists of several interconnected steps designed to systematically guide companies toward an optimal market strategy that maximizes the commercial potential of their innovation.

This workshop-based approach enables companies to transform their combined organizational and technological capabilities into actionable marketing strategies tailored to their specific innovation and target market conditions.

The “Innovation Compass” encompasses the following five steps:

1. This first step is a “brainstorming”. Taking advantage of their industry knowledge and expertise, companies have to list all the companies’ capabilities along with the technology’s ones and to compare them. Expert marketers (either from one or another company) will look at the two lists of capabilities -the companies’ and the technology’s ones- and start the brainstorming phase with colleagues about which could be the matching point that can be exploited. They must find the best combination of capabilities leading to the best marketable solution.
2. The “Combinations Table” is the outcome of the previous step and deals with combining the capabilities so that the best idea could be performed. Lots of combinations of this ideas are crafted and deeply discussed so that they can be stressed and only the best ones are emphasized. The objective here is to create as many different strategies as possible but to select only the three or five most promising ones so that the next steps can be run focusing only on them.
3. A “Value proposition Canva” is used to design more comprehensive results. Thanks to this canvas it is possible to create a single strategy for each single combination identified previously. At this stage, it is crucial to design concrete marketing strategy that can be effective through workshops. Moreover, a broad and deep knowledge of the market is required here to understand which strategy can be compliant to gains and pains of the customers, starting from the jobs. On the other hand, once having analysed the current situation of the customers thanks to the right part of the canvas, it is possible to start bridging the gap with the solution identified by the strategy.
4. This step deals with interrogating each “marketing strategy solution” with a default set of questions that already have multiple choices as answer. Each of these answers is given an

intrinsic score that ranges from the best choice to the worst one. According to the overall score that each solution has gathered, the best one can easily be identified. Possible questions may be about how a certain marketing strategy would perform, about its market share or its target segments, its market potential, its time-to-market, the current interest for this innovation, the target audience, the technology readiness level or the market-product fit. The closer an answer is to the best expected solution, the higher would be the score and therefore, the strategy that will score on average the highest scores are the one that would be ideally carried on.

5. The last step is about enriching the strategy by taking into account not only the Value Proposition but developing the idea through a different canvas that helps gain a complete overview of the business. The item in question is the “Business Model Canva” that is surely more complicated than the Value Proposition one, but allows to deal with partners, activities, revenue model and costs structure, resources, customer relationships and segments and channels. Not only, the Value Proposition that has won in step four will be used in the central segment of the Business Model canvas and this will be the first step triggering the compilation of the model.

The Innovation Compass service will take as an input the capabilities of the partner companies and the technology features and end up with an output that is a complete Business model canvas that represent quite a clear go-to-market strategy.

The Innovation Compass is a marketing tool that fosters the decision of the strategy to be pursued. It allows partner companies to choose the best strategies and to understand which is the best one according to a scoring system they perceive as valuable. This way, this series of workshops leads to the identification of the most compelling marketing strategy, along with a rich overview of the whole business to-be, starting from companies’ and technology’s capabilities.

Once that the strategy has been chosen, what is left is only about making it real. The company has started with a broad and generic idea of its open innovation challenge and its needs to solve it and has been provided with the best solutions to invest in or partner with (Idea Radar) and the marketing strategy to pursue the project (Innovation Compass). At this stage, partners only need to set up putting in place the complementary effort needed to start this project and then, start it.

5.3 Technology Tracker

The Technology Tracker is the last tool of the three that constitute the Technology Roadmap toolkit, to be used once the company has identified the solutions and decided a marketing strategy with them to exploit the technology within the open innovation challenge.

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Technology Tracker is mainly a project management tool that relies on several principles, and this is likely to let partners cooperate both in a more efficient and effective way. As it can be seen in Figure 15, it is a matrix that hosts two variables for each axis and represents an example of what would be a Technology tracker of an easy project in the first months of execution. The axes are so split:

- on the x-axis:
  - project management phases are highlighted in yellow and are crucial to understand at what phase each task has been being developed. It may be thought of like a label thanks to which who reads is immediately able to grasp the state of the task.
  - the other variable here is time (coloured in light blue), that identifies the exact moment in time compared to the entire duration of the project. Through this variable, events can be saved to remind users when a certain task has been performed.
- the y-axis hosts other two variables:
  - in orange, the “Project management knowledge areas” that are fixed as listed in the figure. They are important to organize tasks and to quickly refer to problems.

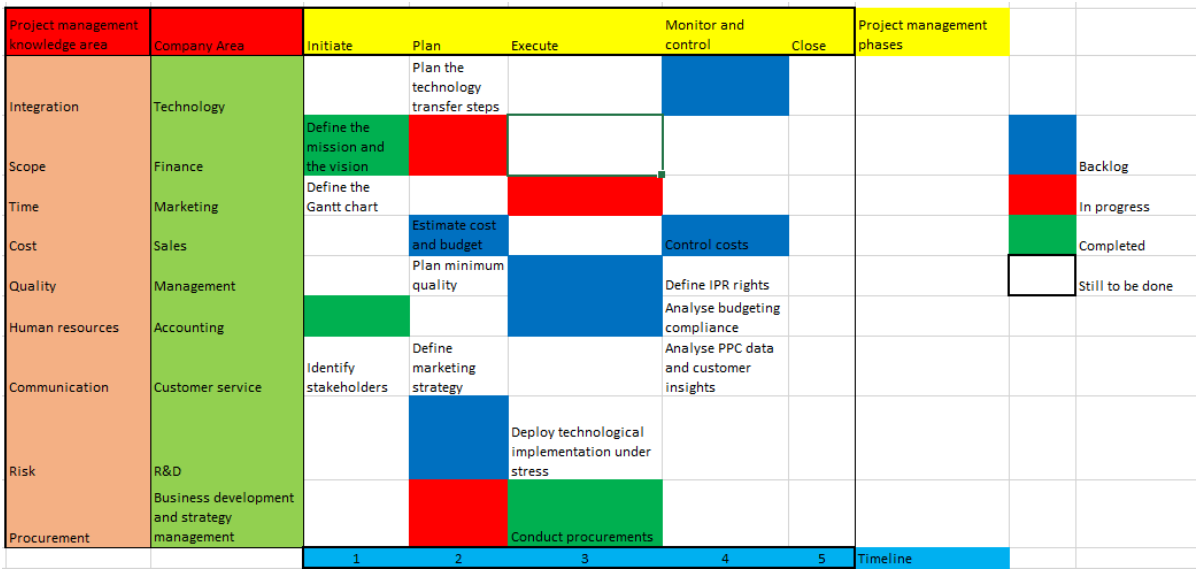

Figure 15 Screenshot of the first prototype of the Technology Tracker

Furthermore, it is also important to keep track of the company area, highlighted in light green. This section is variable, as every project management knowledge area can regard any company area. Other than this, the cells inside the matrix are filled in with everyday tasks that are organize according to the axes. To better keep track of what is already done and what instead is still left to do, the legend on the right in Figure 15 is present: this way anyone will be able to understand and mostly, upload the current

To summarize, this tool takes as input the whole project of the partnership and accompanies firms through all the process of making it real, simplifying the workflow and empowering communication and

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agility. Thus, companies do not need to get used to new tools or to transfer their knowledge, since it will be automatically done by the APIs.

5.4 General Results & Discussion

The tool demonstrated significant potential for companies engaged in open innovation processes. However, several areas for improvement were identified during the validation process:

1. Weight optimization: Refinement of the weighting methodology in the second step to produce more meaningful and actionable final values.

2. Source transparency: Enhanced documentation and explanation of data sources to increase credibility and user confidence.

3. Consultative approach: Transition from a results-only delivery model to a more comprehensive consultancy relationship with clients, providing ongoing support throughout the innovation process.

4. Partnership verification: Development of mechanisms to pre-verify potential partner interest, possibly through formalized expressions of interest, to ensure mutual willingness before pursuing collaboration opportunities.

5. Industry specialization: Further vertical integration within the building facades industry to position the tool as the definitive resource for sector-specific partnership identification and information.

These recommendations have been incorporated into subsequent prototype iterations currently undergoing validation with additional users. The development team aims to enhance the tool's alignment with customer needs by creating a more seamless ecosystem. This evolution may require integration of advanced technologies such as blockchain and artificial intelligence, along with Proof-of-Concept features that have been consistently requested by potential users.

The whole toolkit workflow can be visualized in Table 7:

Technology Roadmap	Technical description	Input	Output
Idea Radar	This tool encompasses weighting algorithms that assess companies according to technical parameters, in order to spot the most compelling company to exploit the open	This tool takes as input the generic requirements of a company with their relative importance and the open innovation challenge.	It returns as output the ranking with the most suitable companies. Specifically, it provides a report and a presentation about the results. Particular attention is put on the technology features.

	innovation challenge in question.		
Innovation Compass	This tool is a strategic consultancy made up of oriented workshops that allows partners to get an overall marketing strategy through Business Model canvas and Value Proposition canvas.	This tool takes as input the technology features and the company capabilities to start the workshop sequence.	It turns as output an overall but still complete marketing strategy thanks to two canvas and a scoring system.
Technology Tracker	It is a project management tool that allows companies to interoperate simultaneously leveraging on agility, project management principles, timeline and company areas.	This tool takes as input the detailed strategy of the partners along with the timeline and the tasks.	Finally, after the scheduled time span, the project has come to an end and has been realized in the smoothest way, leveraging on efficiency and effectiveness.

Table 7 Technology Roadmap workflow

5.5 Conclusions

The Technology Roadmap initiative has generated significant interest among stakeholders. The initial development focused on the Idea Radar component, which has received positive validation feedback and is approaching the Minimum Viable Product (MVP) stage of development.

The Idea Radar functions as an algorithmic partner identification system that processes a company's open innovation challenges and requirements to identify optimal collaboration partners. This partner identification engine presents results in a radar visualization format that highlights the most suitable potential collaborators for the client organization. Despite the complexity of the development process, which extended over several weeks, the implementation proceeded efficiently without significant obstacles or mid-course adjustments.

The complementary Innovation Compass and Technology Tracker components remain at the conceptual design phase. These tools will require substantial additional development, validation, and refinement before market readiness can be achieved.

The complete Technology Roadmap toolkit shows promise as an ecosystem orchestration mechanism within the MEZeroE platform. However, comprehensive market analysis is still required to fully determine its optimal value proposition and final implementation approach.

6 ANNEX 2 – BIM Package Configurator Validation

As anticipated in D3.2, the present section is meant to address the conclusion of the activities towards the validation of the MEZeroE standardized BIM dataset (BDM).

It is worth recalling that such task was based on the four scenarios in which the matrix is structured (A – Marketing and Communication, B – Test and Monitoring, C – Certification Process, D – Installation, Monitoring, Operation and Maintenance (O&M)), and set to be conducted according to a dual approach: applied and virtual. For the validation of Scenarios A to C, please refer to Deliverable 3.2.

The validation of Scenario D, instead, was planned to be conducted within T3.5 through an applied approach in reference to the Living Lab (LL) activities, in order to cover the boundary conditions of the last building archetype mentioned in D3.2 and in the MEZeroE Grant Agreement.

The chosen combinations between scenarios, archetypes, and ongoing activities within the project, are summarized in Table 8**.**

VALIDATION	**No Archetype** IND - Virtual	**Archetype 1** PM&VL - Applied	**Archetype 2** PM&VL - Virtual	**Archetype 3** LL - Applied
Scenario A Marketing and Communication	Validation activity (D3.2)			
Scenario B Test and Monitoring		Validation activity (D3.2)		
Scenario C Certification Process			Validation activity (D3.2)	
Scenario D Installation, Monitoring, Operation and Maintenance				Validation activity (D3.5)

Table 8 Summary of the variables considered for the BDM validation through scenarios and archetypes

The validation of the BDM – Scenario D has been conducted by, first of all, identifying the most suitable industrial (IND) partner involved in the LL activities, according to their products of interest within the project as defined in the MEZeroE Grant Agreement.

The matrix draft (Figure 16) shared with the partner included the specific scenario identified for validation, the relevant construction segment, as well as clear instructions on how to conduct the activity. The partner was asked to check each indicator listed in the dedicated spreadsheet, marking those they believed to be either “Minimum”, “Suggested”, or “Not relevant” for the specific scenario and construction segment. The IND partner was also asked to suggest eventual missing indicators within the different categories defined during the standardization phase of the BDM.

SC	D	Scenario D	Installation, Monitoring, Operation and Maintenance (O&M)		M	Minimum
CS	1	Construction Segment 1	Multifunctional, multilayer façade systems		S	Suggested
					N	Not relevant

FEEDBACK

Nr.	ID	Identity	Data Type	Feedback	Note
1	ID1	Category	Alphanumeric		
2	ID2	Manufacturer	Alphanumeric		
3	ID3	Model Number	Alphanumeric		
4	ID4	Model Name	Alphanumeric		
5	ID5	Brand URL	link		
6	ID6	Product URL	link		
7	ID7	Image	JPG file		
8	ID8	3D file	CAD file		
9	ID9	Manufacturing site	Alphanumeric		
10	ID10	Manufacturing code	Alphanumeric		
11	ID11	Assembly site	Alphanumeric		
13	ID13	Product certification	Alphanumeric		
14	ID14	Cost per unit	Cost		
15	ID15	Cost of installation	Cost		
16	ID16	Define 1 unit	Alphanumeric		

Figure 16 Sample of the working matrix offered for Scenario D

The same process was similarly applied with the support of external contributors, in order to validate the remaining construction segments.

In the final validated matrix, the indicators were then divided into two main groups, according to the result obtained from the validation activity:

- “Minimum”, for indicators defined as correct and suitable. These were targeted as the minimum indicators needed to perform the activities described by the scenario;
- “Suggested”, for indicators defined as not essential. These were considered as useful but not essential to perform the activities described by the scenario.

Once the contributions were analyzed, an Excel file was created to optimize and successfully standardize the validated MEZeroE BDM. Separate worksheets for each construction segment were then created, listing the respective indicators and defining the following characteristics, as presented in Figure 17:

- overall number of parameters, out of the 326 selected during the standardization phase of the BDM;
- category code, reflecting the 14 categories defined during the standardization phase of the BDM;
- name of the parameter, defined by the consultation of BIM online platforms and professionals in the building envelope products field;
- detail on the data type of the parameter (alphanumeric, cost, numeric with units, etc.);
- type of target dataset (either minimum or suggested).

Overall no.	Category's code numbere	Parameter's name	Data Type	Dataset type
1	ID1	Category	Alphanumeric	Minimum
2	ID2	Manufacturer	Alphanumeric	Minimum
3	ID3	Model Number	Alphanumeric	Minimum
4	ID4	Model Name	Alphanumeric	Minimum
5	ID5	Brand URL	link	Suggested
6	ID6	Product URL	link	Suggested
7	ID7	Image	JPG file	Suggested
8	ID8	3D file	CAD file	Minimum
9	ID9	Manufacturing site	Alphanumeric	Suggested
10	ID10	Manufacturing code	Alphanumeric	Minimum
11	ID11	Assembly site	Alphanumeric	Suggested
13	ID13	Product certification	Alphanumeric	Suggested

Figure 17 Sample of the validated matrix for Scenario D.

To better understand the validation activity, the following table summarizes the main results (Table 9).

Scenario	Construction Segment	Main comments
Scenario D	CS1 – Multifunctional, multilayer façade systems	84 parameters were marked as minimum for the standardized datasets. 42 parameters were marked as suggested.
Scenario D	CS2 – Cladding systems	89 parameters were marked as minimum for the standardized datasets. 43 parameters were marked as suggested.
Scenario D	CS3 – Coating and finishes	93 parameters were marked as minimum for the standardized datasets. 54 parameters were marked as suggested.
Scenario D	CS4 – Glazing and frames	84 parameters were marked as minimum for the standardized datasets. 49 parameters were marked as suggested.
Scenario D	CS5 – Membranes	56 parameters were marked as minimum for the standardized datasets. 56 parameters were marked as suggested.
Scenario D	CS6 – Joints and connectors	52 parameters were marked as minimum for the standardized datasets. 50 parameters were marked as suggested.
Scenario D	CS7 – Insulation	52 parameters were marked as minimum for the standardized datasets. 51 parameters were marked as suggested.
Scenario D	CS8 – Green roofs and green façades	8 parameters were marked as minimum for the standardized datasets. 18 parameters were marked as suggested.

Scenario D	CS9 – Active solar energy systems	**77** parameters were marked as minimum for the standardized datasets. **39** parameters were marked as suggested.

Table 9 Summary of the main comments and changes resulting from the partner's feedback on Scenario D.

7 ANNEX 3 ADDITIONAL OIS3 SERVICES (conceptual design)

The following sections describe additional OIS3 services that have been designed conceptually but have not yet undergone validation with industrial partners. These service descriptions outline potential workflows and implementation approaches based on the guidelines developed within the MEZeroE project.

7.1 Matchmaking focused on product development

This service helps organizations interested in open-innovation-based collaboration find suitable partners for developing new products. Unlike general networking platforms, this specialized matchmaking service provides carefully vetted partners selected according to specific technical and business criteria relevant to building envelope innovations.

The matchmaking service addresses a critical challenge in product development: finding partners with complementary technical capabilities and aligned business goals. By providing a structured approach to partner identification and evaluation, this service reduces the time, cost, and risk associated with establishing innovation partnerships. Key value elements include:

- Reduction of search time and costs for finding qualified development partners
- Minimization of collaboration risks through thorough vetting processes
- Assurance of technical and strategic compatibility between partners
- Clear establishment of intellectual property arrangements from the outset

The service follows an integrated workflow that combines thorough requirement analysis with targeted partner selection:

1. **Initial Engagement**: The client selects the service and preferred provider through the MEZeroE platform. The provider initiates contact, sharing a tailored data collection template and NDA to protect client information.

2. **Requirements Definition**: Following NDA completion, the client and service provider engage in detailed discussions to refine the partnership requirements, covering partner type (design/engineering, research, manufacturing), technical specifications, and intellectual property frameworks.

3. **Partner Identification and Evaluation**: The service provider conducts a multi-criteria assessment to identify potential partners based on technical compatibility, business alignment, and collaboration history. This evaluation focuses on finding partners whose capabilities complement the client's needs while ensuring strategic alignment.

4. **Introduction and Facilitation**: The service provider presents up to three qualified partner profiles and facilitates introduction meetings. These structured introductions establish clear expectations about potential collaboration and outline concrete next steps.

5. **Documentation and Completion**: The process concludes with comprehensive documentation including partner profiles, meeting summaries, and recommendations for partnership structure. This provides clients with actionable information for establishing productive innovation partnerships.

The implementation leverages the MEZeroE platform infrastructure, utilizing specialized templates that capture detailed partner requirements while enabling efficient matching through a database of pre-qualified organizations. The service emphasizes quality over quantity, focusing on creating meaningful connections with high success potential rather than providing extensive but superficial partner lists.

This matchmaking service directly supports the Technology Transfer Booster mission by creating efficient pathways between technology developers and implementation partners, addressing one of the key barriers to innovation adoption in the building envelope sector.

7.2 Matchmaking focused on product commercialization

This service helps organizations find suitable partners specifically for bringing new building envelope products to market. While product development matchmaking focuses on creating innovations, this complementary service addresses the critical next step: identifying partners with the right capabilities, market access, and regulatory knowledge to successfully commercialize these innovations.

Commercialization represents a distinct challenge requiring specialized expertise in distribution, market positioning, regulatory compliance, and sales. This service bridges the gap between innovative products and market success by connecting technology creators with partners who can navigate specific market territories and regulatory landscapes.

The service creates significant value by accelerating market entry, reducing regulatory compliance barriers, optimizing distribution approaches, and providing critical regional market insights that might otherwise take considerable time and resources to develop independently.

The matchmaking for commercialization follows a structured approach designed to address the specific challenges of market entry:

1. **Initial Assessment**: After service selection and NDA exchange through the MEZeroE platform, the process begins with a comprehensive assessment of the product's commercialization readiness, certification status, and target market requirements. The client completes a specialized template detailing their product specifications and commercialization objectives.

2. **Market Strategy Refinement**: Through detailed discussions, the service provider and client define the optimal commercialization approach, including distribution model preferences

(master distribution rights, regional distribution, or online/retail channels), expected revenue projections, and specific country or regional targets.

3. **Regulatory and Certification Planning**: The service provider evaluates the product's current certification status against target market requirements, identifying compliance gaps and necessary approvals. This critical step ensures realistic timelines and resource allocation for market entry.

4. **Partner Identification**: Using specialized market knowledge, the service provider identifies potential commercialization partners with appropriate distribution capabilities, regulatory expertise, and market presence in the targeted regions. Partners are evaluated based on their track record with similar products and alignment with the client's market approach.

5. **Facilitated Introductions and Evaluation**: The service provider arranges structured meetings between the client and up to three potential commercialization partners. These introductions include guided discussions on distribution capabilities, market coverage, and implementation approaches to ensure mutual understanding and alignment.

The implementation incorporates market-specific knowledge databases that enable precise matching of products to appropriate commercialization partners based on regional requirements, distribution channel capabilities, and regulatory expertise. The service emphasizes finding partners with demonstrated success in similar market segments and with comparable product types, rather than generic distribution capabilities.

By facilitating these specialized connections, the service helps bridge a critical gap in the innovation lifecycle—moving from successful product development to effective market implementation—and directly supports the Technology Transfer Booster's mission of accelerating adoption of innovative building envelope solutions.

7.3 Open Innovation Event Management

This service helps organizations plan and execute structured innovation events designed to catalyse collaborative problem-solving and idea generation. The service supports various formats including workshops, competitions, hackathons, and conferences, each tailored to specific innovation objectives.

Open Innovation Event Management addresses the challenge of harnessing collective intelligence to solve complex problems or generate breakthrough ideas. By providing end-to-end support for innovation events, this service enables organizations to accelerate solution development, access diverse innovation inputs, build innovation communities, and create measurable innovation outcomes without requiring extensive event management expertise.

The service follows an integrated approach that transforms innovation objectives into well-executed events:

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1. **Strategic Planning**: The process begins with the client selecting the service and preferred provider through the MEZeroE platform. Following NDA exchange, a detailed assessment identifies the client's innovation goals, industry focus, target audience, and success criteria. This initial phase establishes a clear understanding of what the event should achieve.

2. **Event Design and Preparation**: Based on the assessment, the service provider develops customized event proposals (typically 1-3 options) that align with the client's objectives. These proposals outline event format, participant engagement strategies, technology platforms, promotion approaches, and measurement frameworks. After the client selects the preferred option, the provider creates a detailed implementation plan.

3. **Participant Engagement and Management**: The service provider executes comprehensive promotion strategies to attract the right participants, manages the registration process, and prepares materials and platforms. For challenges or competitions, this includes developing appropriate problem statements, judging criteria, and reward structures.

4. **Event Execution**: The provider manages all aspects of the event, ensuring smooth operation of activities, facilitating participant interactions, and capturing key outcomes. Throughout the event, the provider monitors engagement metrics and adjusts approaches as needed to maintain momentum and focus.

5. **Outcome Documentation and Analysis**: Following the event, the provider delivers comprehensive documentation including participation statistics, solution submissions, engagement metrics, and outcome evaluations against the predefined KPIs. This reporting provides actionable insights for follow-up activities and future innovation initiatives.

This service enhances the Technology Transfer Booster ecosystem by creating structured opportunities for knowledge exchange and idea generation, particularly valuable for organizations seeking to expand their innovation horizons beyond internal capabilities or established partner networks.

7.4 Expert mentorship in accessing other markets (Spain)

This service helps EU-based organizations outside of Spain enter the Spanish market by providing comprehensive support with regulatory compliance, business development, and local presence establishment. The service bridges cultural and administrative gaps that typically challenge foreign companies, offering expert guidance tailored to the building envelope sector.

Market entry into Spain presents unique challenges including regulatory requirements, business customs, and partnership development needs. This mentorship service reduces market entry time and costs, minimizes regulatory compliance risks, provides valuable local insights, and facilitates cultural and business adaptation. Rather than navigating these complexities independently, clients benefit from established expertise and networks.

The service follows an integrated approach that combines strategic guidance with practical implementation support:

1. **Initial Engagement and Assessment**: The client selects the service through the MEZeroE platform and provides basic information about their organization and market entry goals. The service provider shares a specialized template and NDA to protect confidential information. After NDA execution, a detailed assessment of the client's specific needs is conducted to understand their local presence requirements, business objectives, and collaboration partner preferences.

2. **Market Entry Strategy Development**: Based on the assessment, the service provider develops a customized market entry strategy. This includes analysis of regulatory requirements, business structure recommendations, and prioritization of initial activities. The strategy addresses specific needs related to company formation, tax registration, business licensing, human resources, and other essential components identified in the client's requirements template.

3. **Local Partner Identification**: The service provider identifies and presents profiles of suitable local collaboration partners based on the client's specific needs. These may include design and engineering partners, research facilities, industrial partners, or distribution partners depending on the client's requirements.

4. **Introduction and Relationship Building**: The service facilitates introduction meetings between the client and potential local partners, providing cultural context and business protocol guidance to ensure productive initial interactions. These meetings establish foundations for ongoing business relationships essential for successful market entry.

5. **Administrative Support and Implementation**: Throughout the process, the service provider assists with administrative requirements including representation at official offices, document preparation, and coordination with local authorities. This practical support ensures compliance with Spanish regulatory frameworks while minimizing bureaucratic obstacles.

By providing a structured pathway into the Spanish market, this mentorship service addresses a critical aspect of technology transfer: geographic market expansion. It enables building envelope innovations to reach new markets through expert guidance that reduces entry barriers and accelerates adoption in the Spanish context.