



MEZeroE

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

D 6.1 Key Exploitable Results and IPR Management Strategy

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Zero Energy buildings**

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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 are many 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 is accessible via a single-entry point online platform which includes 9 Pilot Measurement & Verification Lines (PM&VL), 3 Open Innovation Services (OIS), a living lab (LL) building-technology match making service to enable real-world validation, and resources for training, business model development, intellectual property (IP) and knowledge management. MEZeroE fast-tracks prototypes to the market as fully characterized products.

This deliverable outlines the Key Exploitable Results (KERs), as well as any reported IP developments by consortium partners.

This deliverable is primarily intended for project officers, reviewers, consortium partners, and exploitation stakeholders, providing a consolidated view of the Key Exploitable Results (KERs), their status, and their exploitation readiness within the MEZeroE ecosystem.

Monitoring the development roadmaps in each of the KERs, understanding their requirements and understanding their constrains for exploitation was observed thoroughly. All KERs are now active, as pilot plants and open innovation services are available to receive clients.

The five main elements through which the KERs have been analyzed are: innovativeness introduced by the KER in comparison to existing solutions; monitoring of the technology and market readiness levels; Carrying out a KER risk assessment and, a SWOT analysis. Intellectual property both in terms of background brought to the project, as well as foreground developed have been recorded in the IP register.

KER status information was collected bi-annually from each KER's exploitation manager, to ensure development was on track, and exploitation risks were controlled. No major disruptions or deviations occurred.

Each of the KERs' exploitation strategy considers its business model. In the case of KERs formed by PM&VLs or OIS, its parent organization's business model is considered, as the KERs are not offered



exclusively through the marketplace. Data related to pricing, availability, and yearly capacity have been recorded to develop a compatible and relevant exploitation approach.

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LIST OF ACRONYMS

Table 1 – List of Acronyms

Acronym	Description
BAPV	Building Applied Photovoltaics
BGIP	Background Intellectual Property
BIM	Building Information Modelling
BIPV	Building Integrated Photovoltaics
BSDF	Bidirectional Scattering Distribution Function
CA	Consortium Agreement
CPR	Construction Product Regulation
DoP	Declaration of Performance
EAD	European Assessment Document
ETA	European Technical Assessment
FEM	Finite Element Analysis
FTIR	Fourier-transform infrared spectroscopy
GA	Grant Agreement
GDPR	General Data Protection Regulation
HRR	Heat Release Rate
IEQ	Indoor Environmental Quality
IGU	Insulating Glazing Units
IOT	Internet of Things
IP	Intellectual Property
IPR	Intellectual Property Rights
IR	Infrared
KER	Key Exploitable Result
LCA	Life Cycle Assessment
LCC	Life Cycle Cost
LETID	Light and Elevated Temperature induced Degradation
LL	Living Lab
MRL	Market Readiness Level
MSM	Monitoring System Manager
M&V	Measurement and Verification
NDA	Non-Disclosure Agreement
nEES	nZEB Enabler Envelope Solution
nZEB	Nearly Zero Energy Building
OIS	Open Innovation Service
OITB	Open Innovation Test Bed
PER	Potential Exploitable Result
PID	Potential Induced Degradation
PM&VL	Pilot Measurement and Verification Line
POPD	Protection Of Private Data
RMS	Root Mean Square



RTO	Research and Technology Organization
SEM	Scanning Electron Microscope
SME	Small Medium Enterprise
STC	Standard Test Conditions
SWOT	Strengths Weaknesses Opportunities Threats
TPIP	Third Party IP
TR	Technical Regulation
TRL	Technology Readiness Level
UVP	Unique Value Proposition
VOC	Volatile Organic Compounds
VDV	Vibration Dose Value
WP	Work Package
WPL	Work Package Leaders



1 Introduction

The MEZeroE KER evaluation approach is developed to ensure maximum commercial uptake of MEZeroE results, and overall financial viability of the of the MEZeroE Marketplace. The strategy for each KER has been developed through four main stages addressing five elements:

- 1) Innovativeness introduced by the KER in comparison to existing solutions.
- 2) Technology/Market Readiness Level and milestones.
- 3) KER Risk Assessment.
- 4) SWOT Analysis.
- 5) IPR Strategy and Protection.

The first step of identifying the initial list of Key Exploitable Results was carried out during the proposal preparation stage, prior to signing the grant agreement. These have been included in this deliverable, and a detailed assessment of their potential innovativeness, benefits and next steps for their implementation have been addressed.

The KERs were also analyzed during the project for any technical and non-technical barriers to identify arising risks and their mitigation strategies. These risks included technical, marketplace development, financial and legal risks. Potential conflicts of interest by competing partners within the consortium were also monitored. No conflicts of interest were identified.

An analysis of Strengths, Weaknesses, Opportunities and Threats (SWOT) was carried out for each KER.

The deliverable includes an IP management plan, which contains an IPR registry, collaboration agreements, and establishes the processes for identifying and communicating new potential IPR. It also clarifies how to resolve any potential disputes between partners. The assessed elements helped for each KER helped shape the overall business model and business plan as part of Deliverable 6.3 (*Business models and business plans for exploitation strategies.*)

This deliverable determines the general exploitation route for the MEZeroE platform as a whole and for the individual services in the form of pilot measurement and verification lines (PM&VLs) and open innovation services (OIS), assisting in establishing a baseline for the requirements of future members wishing to join the MEZeroE network and platform as service providers.



1.1 Project Key Exploitable Results

13 Key Exploitable Results (KERs) were identified from the inception of the project, none of which have been disregarded based on innovation and business potential. No new KERs were detected on the same basis, as summarized in Table 2.

Table 2 – Key Exploitable Results (KERs)

KER #	Identifier	Name	Exploitation manager
13	VMKP-KER	Web-based multi-side virtual marketplace	R2M
1	PM&VL-KER-1	Advanced BIPV and hybrid PV/T systems characterization facing Efficiency and Safety requirements	TECNALIA
2	PM&VL-KER-2	Energy demand and indoor occupants' comfort performance characterization	EURAC
3	PM&VL-KER-3	Active energy component characterization facing Efficiency requirement	LEITAT
4	PM&VL-KER-4	Dynamic glass systems facing Efficiency requirement	LEITAT
5	PM&VL-KER-5	Mutual behavioral control and interaction through IoT and AI solutions based on building envelope and users' needs and corrections	DTU
6	PM&VL-KER-6	Thermal, air, acoustic, structural and fire resistance characterization of the multi-layers dry nEES	POLIMI
7	PM&VL-KER-7	Durability characterization of block-walls	CUT
8	PM&VL-KER-8	Thermal-optical characterization of advanced façade system	UIBK
9	PM&VL-KER-9	Fire safety, hygro-thermal, and acoustic characterization of wooden-based prefab façade systems	ZAG
10	OIS-KER-1	Legislative and standard framework services for CE mark	ZAG
11	OIS-KER-2	Data collection in living labs	EURAC
12	OIS-KER-3	Innovation Management; (Business plan services, Investor capital services and IPR and licensing services)	INCURVO

1.2 Potential Exploitable Results (PERs)

The MEZeroE project has been especially focused on the development and exploitation of the marketplace, its pilot lines and open innovation services. The industrial products brought by the consortium manufacturers serve as beta testers of the marketplace and are therefore not considered key results of the project.

As can be seen in Table 3, 12 Industrial products were thus categorized as “Potential Exploitable Results (PERs).” They were tracked and monitored during the project execution for extensive and impactful progress that could change their status to Key Exploitable Result.

The marketplace’s business model does not intend the commercialization of any physical products, thus none of the PERs have evolved into KERs.

Table 3 – Potential Exploitable Results (PERs)

Identifier	Name	Exploitation Manager
P-KER-1	Multifunctional Facade system	FOCCHI
P-KER-2	Shading devices comprising a retro-reflective coating	PELLINI
P-KER-3	Off-grid and PVD-coated-film based shading device with user centered automation control.	WINDOWMASTER
P-KER-4	Super-insulation materials	INDRESMAT
P-KER-5	Integration of PV in an interwoven steel wire mesh, enclosed in a mosaic of brick to control sunlight for energy production and lighting	FLEXBRICK
P-KER-6	Lightweight, easy-to-install Organic BAPV film for existing roofs functionalization	HELIA TEK
P-KER-7	Glass integrated Organic BIPV elements for façade integration	HELIA TEK
P-KER-8	Durable Advanced Functional Coatings	TECNAN
P-KER-9	Advanced Nanomaterials for Energy Efficient Glazing Systems	TECNAN
P-KER-10	Flexible structural connectors	FLEX&ROBUST
P-KER-11	Tailored roof/facade membranes	ROTHOBLAAS
P-KER-12	Sustainable prefab wooden envelope components	RIKO HISE

2 Structure of Exploitation Plan

The following sections form the basis of the KER data collected, developed, and communicated during the execution of the project. The data was mostly collected by means of bilateral meetings with the KER exploitation managers as well as by specific data collection forms named “*KER Data Collection Form*” that were created for each KER at the start of WP6 in M6. The KER Data Collection forms were updated every six months to ensure any delays, changes in development roadmaps or any other unforeseen event was reported in time to mitigate any arising exploitation risks.

2.1 KER Description

This section describes the KER and its core features.

2.2 Exploitation manager

This section specifies the KER’s exploitation manager.

2.3 Innovativeness Introduced

This section describes the innovativeness introduced by the KER in comparison to existing solutions.

2.4 Technology/Market readiness level and milestones

This section defines the current technology readiness level (in the case of the marketplace) and market readiness level (in the case of the pilot lines, open innovation services and the marketplace) of each KER as well as the expected TRL/MRL at the KER’s commercialization stage. It also defines the milestones required to take the KER from its current form to the expected commercial version of the KER. Time-to-market is also estimated.

For pilot lines and services (where TRL is not applicable), Market readiness levels (MRL) have been used, as per the guidelines of the EU funded CloudWATCH2 project.

The MRL Levels are as follows:

- MRL 0 – Hunch: Initial concept.
- MRL 1 – Basic Research: Can describe needs but have no evidence.
- MRL 2 – Needs Formulation: User story.
- MRL 3 – Needs Validation: Initial offering available.
- MRL 4 – Small Scale Stakeholder Campaign: 50 beta stakeholders.
- MRL 5 – Large Scale Early Adopter Campaign: 100 intended stakeholders.
- MRL 6 – proof of traction: 100 paying clients.
- MRL 7 – Proof of satisfaction: Satisfied clients and team.
- MRL 8 – Proof of scalability: Stable sales pipelines, realistic projections.
- MRL 9 – Proof of Stability: KPI’s surpassed.

2.5 Associated risks and mitigation strategies.

This section identifies the risks associated to the successful exploitation of the KERs. The risks are identified by use of a risk matrix together with ongoing project monitoring, and internal communication with each KER's exploitation manager. Risk mitigation strategies are also identified to minimize possible negative impacts.

2.6 SWOT Analysis

This section analyses the strengths, weaknesses, opportunities, and threats for each KER. This will serve as input for "*D6.2 Market analysis*".

2.7 Exploitation Strategy

This section identifies the optimal exploitation strategy for each KER, analyzing the different paths by which the KER can reach the market.

2.8 IPR Strategy and Protection

This section identifies all KER-related intellectual property. It includes background IP, foreground IP as well as any applicable third-party IP. It will also include any joint-IP resulting from open innovation-based collaboration between consortium partners.

2.9 Background IPR

All applicable background IP developed by the individual partners before the commencement of MEZeroE is described in this section.

2.9.1 Foreground IPR

This section describes all foreground IP and the chosen method of IP protection.

3 Analysis of Key Exploitable Results

Five elements have been considered while analyzing the KERs:

1. Innovativeness
2. Technology/Market readiness level and time-to-market
3. Assessment of the roadmap and milestones
4. Risk assessment
5. IPR strategy and protection



3.1 KER 13: Web-based multi-side virtual marketplace [VMKP-KER]

3.1.1 Description of KER

The web-based multi-side virtual marketplace is the most important key exploitable result of the project. It serves as the digital single-entry point for all the services developed within MEZeroE, which include the nine pilot lines as well as the three open innovation services.

3.1.2 Exploitation manager

The exploitation manager for KER 13 is R2M.

3.1.3 Innovativeness introduced.

The marketplace is an environment to access innovation services for building envelope products contributing to achieve the NZEB target. Organizations can accelerate the production, design, and certification of their products by making use of the Pilot Measurement and Verification Lines (PM&VL) and Open Innovation Services (OIS) that are offered through the marketplace. The marketplace is expected to expand, allowing new service providers outside the MEZeroE consortium to join.

The marketplace's innovativeness is enabled by its unique innovative features:

Feature 1: Establishment of a single-entry point

The MEZeroE platform enables startups, SMEs, and organizations of all sizes to access a marketplace that supports all phases of the building envelope product development journey. The PM&VLs and the large catalogue of supporting open innovation services can accelerate the development journey, at any point from ideation to market-entry, and even new market internationalization. Manufacturers can access such services from a single digital entry point, thus accelerating all development processes.

Feature 2: User Experience and Usability

The platform has been developed with user experience at its core, placing itself at the center of the exchange between service providers and service buyers, facilitating their interaction. The platform interface has been developed according to the following principles:

- **Availability and accessibility:** it is accessible through a variety of desktop and mobile browsers.
- **Clarity:** The interface is simple and intuitive, built on standard user experience concepts.
- **Trust:** the marketplace has been developed using constant feedback from end-users to meet expectations of trust and reliability.

Feature 3: Security and privacy

The platform provides users with full control over the data that is stored in the platform and shared with other users. Users have been segmented, and data visibility can be fine-tuned to the different sub-groups. Data privacy is preserved using Privacy by Design and Privacy by Default approaches.



Feature 4: Role-specific landing pages

The platform provides dedicated landing pages tailored to the different user types. These role-specific entry points clearly communicate relevant services, value propositions, and engagement pathways, helping users quickly understand how the marketplace supports their needs.

Feature 5: Content-driven user acquisition and engagement

The platform integrates content elements such as success stories, guides, and thematic articles to attract new users and support informed decision-making. This content is designed to demonstrate value, showcase successful innovation journeys, and explain complex testing, validation, and innovation processes in an accessible way to boost continuous user acquisition and long-term trust.

3.1.4 Technology/Market readiness level and milestones

The marketplace has reached TRL 8, as it is fully qualified to operate in the market. It is currently at MRL 5, where it will remain during the initial post-project phase until the first 100 customers have been serviced.

Development roadmap milestones:

- Set up of technical specifications, data structures and processes of the marketplace.
- Architecture design and core services.
- Platform testing with consortium partners.
- Services implemented and populated by consortium partners.
- Platform validation with consortium partners.
- Landing pages for all users operative.
- Early adopters and ambassadors' programs launched.
- Full commercial launch

Envisaged post-project roadmap (2026-2028 period)

- Setting up of Legal Entity which will exploit the MEZeroE marketplace.
- Early-stage exploitation through existing platform.
- Continuous communication and dissemination exercises to raise awareness in the community.

Envisaged post-project roadmap (From 2028)

- Update, or de-development of the platform applying lessons learnt
- Onboarding new service providers
- Continuous dissemination and communication campaigns to raise awareness
- Continuous publishing of educational content
- Addition of services in new European languages



3.1.5 Associated risks and mitigation strategies

Table 4 presents the risks and mitigation strategies for KER 13.

Table 4 – Risks and Mitigation Strategies KER13

#	Risk	Mitigation strategy
13.1	Peer consumers do not trust MEZeroE platform	IT and Business developer will manage and moderate the platform content ensuring quality and security of transactions
13.2	Peer consumers continue to use fragmented channels to serve their business needs	Push a holistic pan innovation approach to meet all the peer consumers requirements
13.3	Peer producers do not find it useful or convenient to share their know-how on the platform	Support peer producers in sharing their know-how by adjusting platform features
13.4	Lack of engagement from early adopters in initial stages of marketplace launch	Support early adopters through dedicated landing pages and specific benefits.

3.1.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 5 presents the SWOT analysis for KER 13.

Table 5 – SWOT Table for KER13

Type	Description
Strength	<ul style="list-style-type: none"> Open Innovation Services are an added value for platform revenue streams. A single point off access for all services and testing facilities for building envelope products. Established partners in the MEZeroE Consortium with reputed know-how and a strong technical background provides trust and credibility.
Weakness	<ul style="list-style-type: none"> High maintenance costs associated to platform. Multinational partners slow-down decision making. Low budget for marketing, sales, and dissemination.
Opportunity	<ul style="list-style-type: none"> Developing an ecosystem that can fulfill the goal of boosting the transition of the NZEB market. Cooperation with sister projects can create interesting synergies for the post-project scenario. Opportunities for peer producers and partners to increase their revenues through the marketplace.
Threat	<ul style="list-style-type: none"> Peer consumers can bypass the marketplace and contact service providers and pilot lines directly if they find the costs too high.

	<ul style="list-style-type: none"> External political factors (epidemics, market crashes, war, etc.) can influence the NZEB market.
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3.1.7 Exploitation Strategy

The exploitation strategy for the Marketplace (KER13) is built on a lead fee business model, designed to align marketplace value creation with service provider success. Instead of acting as a transactional intermediary, MEZeroE functions as a digital innovation marketplace that identifies, qualifies, and distributes leads to service providers.

MEZeroE does not charge buyers or impose subscription fees on service providers. Instead, service providers pay a commission only when a qualified lead is generated and shared with them. Lead details are transmitted directly to the selected service providers, who then engage with the prospective client to deliver the service. Payments between service providers and buyers happen outside the platform, as do all file exchanges.

From an operational perspective, the lead fee model allows MEZeroE to remain lightweight and scalable. The platform avoids the complexity of handling payments, contracts, or escrow services, while enabling earning revenue based on lead generation. It also avoids potential disputes related to IP and payments. This structure supports gradual marketplace growth, continuous onboarding of new service providers, and adaptive pricing strategies, while maintaining trust and long-term engagement.

Overall, the exploitation of the MEZeroE marketplace is driven by a clear value proposition: delivering qualified, high-intent leads to specialized service providers within the European building envelope innovation ecosystem.

The exploitation potential of the MEZeroE marketplace has been validated through a detailed market analysis exploring three alternative revenue scenarios: a 5% commission on service provider revenues generated through marketplace leads, a 7% commission, and a flat-fee model applied per contractual engagement depending on the price of each service. Across these scenarios, bottom-up TAM, SAM, and SOM calculations for the initial portfolio of nine PM&VLs and three OIS indicate that the marketplace can support over €23 million in cumulative service provider revenue between 2026 and 2030. The analysis further shows that revenue growth is driven both by increasing service utilization and by onboarding additional service providers. However, the realization of these projections is highly dependent on effective marketing and sales execution (see *Deliverable 6.2 – Market Analysis for more information*).

3.1.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER13, with detailed information provided in the project IP Registry (*Annex 1*).

3.1.8.1 Background IPR

No background intellectual property has been identified as required for or constraining for the implementation or exploitation of KER13 beyond what is documented in the Background IP Registry (See *Annex 1. Section A Pre-existing/background IP*).



3.1.8.1 Foreground IPR

KER13 generates foreground intellectual property related to the MEZeroE marketplace, including software components, platform design, content structuring, service logic, decision-making mechanisms, and operational know-how. The ownership and classification of this foreground IP are documented in detail in the Foreground IP Registry (See *Annex 1. Section B Foreground IP*).



3.2 KER 1: Advanced BIPV and hybrid PV/T systems characterization facing Efficiency and Safety requirements. [PM&VL-KER-1]

3.2.1 Description of KER

The main objective of PM&VL1 is the development of specific testing procedures for Building Integrated PV (BIPV) and PV/Thermal products, studying the influence of inherent coupled effects existing during the operation of building-integrated PV and PV/T components (yet unaddressed by current standardization frameworks), influencing efficiency and safety requirements: high operation temperature, g-value evaluation, non-conventional electric performance under permanent shading conditions (urban environment), connections, fire reaction and overall analysis of coupled effects (e.g. fire-electric, mechanical-electric, thermal-electric, etc.) and assessment of new risks. A visual overview of the relevant facilities at KER 1 is provided in figure 1.

Figure 1 – Visual overview of PM&VL1 facilities



3.2.2 Exploitation manager

The exploitation manager for KER 1 is TECNALIA.

3.2.3 Innovativeness introduced.

The pilot line's main innovation is brought by its unique capabilities:

1. Complete characterization of the efficiency and safety requirements of Building Integrated PV (BIPV) and PV/Thermal products.
2. Innovative test methodology to cover regulations lacks and coupling testing and modeling activity.
3. Supporting industrial partners from products development to commercialization phases, facilitating an open innovation approach within the pilot line testing path.

These capabilities are enabled by the pilot line's unique innovative features:



Feature 1: Coupled effect characterization by experimental tests (e.g., fire-electric).

At present, the characterization of energy economy-mechanical-fire requirements (regulated by building regulations) and the basic characterization of electrical PV modules (regulated by IEC 61215 and IEC 61730) are carried out in separate tests. In the current standardization framework, there are no assessment methods defined to perform the characterization of coupled effects, inherent of BIPV/BIPV-T systems. In PM&VL1, methods to assess coupled effects are studied based on the operation conditions expected for BIPV and BIPV-T systems.

Feature 2: Methodology combining indoor/outdoor testing sequences.

The combination of indoor/outdoor testing activities allow studying possible degradation effects derived from accelerating aging, mechanical tests, etc. while establishing an outdoor follow-up of the tested solutions. A methodology to leverage the combined indoor/outdoor testing is developed to improve the analysis and performance of new BIPV/BIPV-T systems.

Feature 3: Experimental testing in the presence of fire and characterization of the behavior of products in front of fire by simulation.

The calorimetric hood allows assessing the behavior of BIPV products and systems in the presence of fire. Using the great scale calorimeter, the parameters (HRR) needed to carry out simulations with the BIPV products and systems are assessed. Using these parameters, simulations of the behavior of the BIPV modules in the presence of fire can be done to understand their behavior and their influence in a building fire.

Feature 4: Optical parameter evaluation of the products over the whole range of incident angle.

Optical parameter evaluation over the whole range of angles, which allows measuring these parameters at any incident angle. This is useful for definition of the optimal orientation of the product.

Feature 5: BIST and BIPV-T specific standardization new testing procedures:

PM&VL1 includes new tests to obtain information on the power, efficiency and constructive viability of BIST and BIPV-T development phase systems in an operational environment, subject to real generation and demand conditions. The performance of the system is compared against standard PV and ST products tested simultaneously with the test sample during a period.

3.2.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It will transition to MRL 5 once 50 tests have been concluded.



Development roadmap milestones:

- Design and implementation of new testing systems.
- Preparation and optimization of the new tests.
- Validation of the new tests.
- Methodology and process to be offered.
- First trials concluded.
- Demonstration phase of the service initiated.
- Full commercial launch

3.2.5 Associated risks and mitigation strategies

Table 6 presents the risks and mitigation strategies for KER 1.

Table 6 – Risks and Mitigation Strategies KER1

#	Risk	Mitigation strategy
1.1	Tests are expensive. High barrier to entry.	Dividing tests into stages to be agreed with client, to make investment easier and less demanding to customer's cash flow.
1.2	Maintenance of testing equipment is highly disruptive and can take time.	Plan maintenance to reduce downtime and ensure minimum disruption to tests.
1.3	Misalignment of pilot line capabilities with producer needs.	Regularly update and verify lab profiles and services offered.
1.4	Delayed test results affecting production timelines.	Establish clear timelines and penalties for delays in service agreements.
1.5	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
1.6	Dependence on research project for revenue.	Diversify client base and develop contingency plans.

3.2.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 7 presents the SWOT analysis for KER 1.

Table 7 – SWOT Table for KER1

Type	Description
Strength	<ul style="list-style-type: none"> • Possibility of assessing a range of requirements, including mechanical resistance, fire safety, durability, efficiency, and optical parameter evaluation, providing a product's full characterization and assessment. • Possibility of performing standard tests (more than 1,000 tests accredited by ILAC-ENAC) as well as innovative non-standard tests, all within one organization.

	<ul style="list-style-type: none"> Advanced and unique testing facilities, including a great calorimetric hood and <i>Kubik</i>. Large team interdisciplinarity, allowing performance of combined tests: fire, electric, mechanical, etc.
Weakness	<ul style="list-style-type: none"> Testing prices are expensive.
Opportunity	<ul style="list-style-type: none"> There is currently low confidence in the BIPV sector due to fire-related issues. PM&VL1's innovative procedures can help increase confidence in BIPV. Recent EU directives are encouraging growth in the BIPV and BAPV markets. This growth will require safety of new products.
Threat	<ul style="list-style-type: none"> Growth in BIPV market may not grow at expected rate and demand for testing services may see a decrease. Some of the tested performances assessed are not mandatory.

3.2.7 Exploitation Strategy

PM&VL1 is operated by Tecnalia, a large and established research organization. As such, PM&VL1 will continue to deliver its services partly through Tecnalia's standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL1 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL1:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL1, the average price per service is €7,000, the yearly operational capacity is 300 services per year, and an occupation rate of 40% is reported by Tecnalia for the period 2026-2030.

Based on these assumptions, up to 60% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 180 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €7,000, this results in a maximum annual marketplace-enabled service value of approximately €1.26 million for PM&VL1.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL1 remains well below this operational ceiling throughout the projection period. The projected service obtainable market (SOM) increases gradually from 15 services in 2026 to 54 services in 2030. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, PM&VL1's marketplace exploitation is demand-constrained rather than capacity-constrained over the analyzed period, leaving enough headroom to accommodate higher volumes as



marketplace adoption increases. This approach ensures that PM&VL1 can provide services through the MEZeroE marketplace without disrupting internal commercial activities.

3.2.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER1, with detailed information provided in the project IP Registry (*Annex 1*).

3.2.8.1 Background IPR

Background intellectual property relevant to KER1, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.2.8.2 Foreground IPR

KER1 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, as well as scientific and technical publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.3 KER 2: Energy demand and indoor occupants' comfort performance characterization [PM&VL-KER-2]

3.3.1 Description of KER

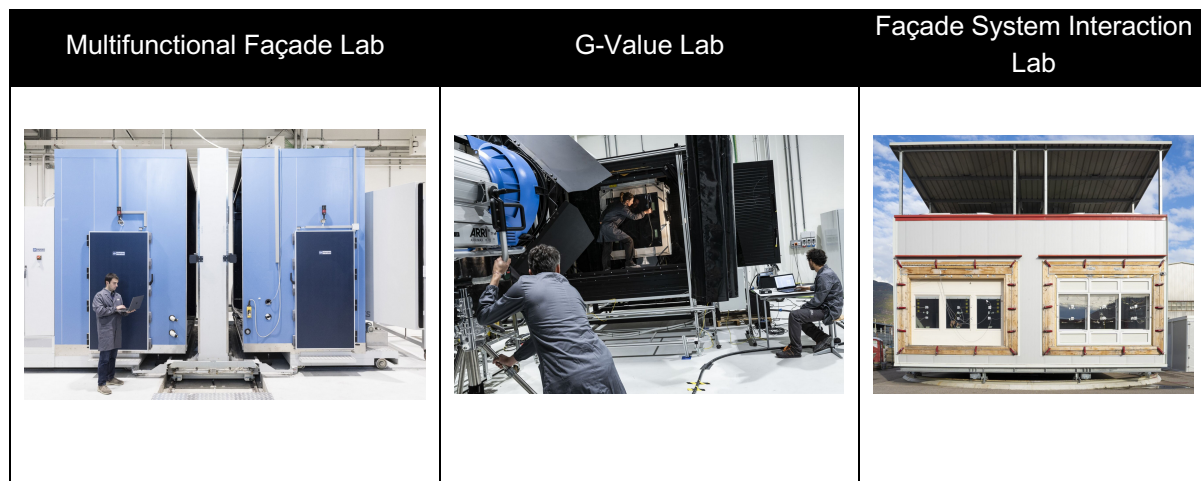
This pilot line focuses on the test chain of innovative building envelope components and particularly on their impact on the IEQ, their health requirements, and their energy demand.

The pilot line can detect possible weaknesses related to products and suggest new challenges to the industrial partners (and future clients) with an open innovation approach, due its development chain formed by 7 laboratories:

- 1 Calorimeter for U-value measurement and additional fully controlled thermal tests.
- 2 G-value measurement system
- 3 Test chamber for VOC and other contaminants.
- 4 Hygrothermal Testing Lab for material properties measurements.
- 5 Façade System interactions Lab with twin chambers with full control of indoor thermal conditions
- 6 Thermal manikin to study heat transfer to and from human bodies
- 7 Sound lab for indoor acoustic tests.

A visual overview of the relevant facilities at KER 2 is provided in figure 2.

Figure 2 – Visual overview of PM&VL2 facilities



3.3.2 Exploitation manager

The exploitation manager for KER 2 is EURAC.

3.3.3 Innovativeness introduced.

The pilot lines main innovation is brought by its unique capabilities:

1. Complete characterization of all the envelope parts and their effects on internal occupants in real operating conditions, both involving human subjects or thermal manikins.
2. Coupling testing and modeling activity, hence exploiting the tests to calibrate models, and broadening the analyses.
3. Supporting industrial partners (and future platform clients) from product development to commercialization phases focusing on an open innovation approach within the pilot line testing path.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Thermal testing.

- a) Calorimeter for U-value measurement and additional fully controlled thermal tests:

Double climatic chamber with guarded hot box. Temperature and relative humidity can be controlled in both chambers. Artificial sun irradiation can be simulated using specific lamps from "cold" (outdoor) chamber.

- b) G-value lab:

G-value measurement system based on the cooled plate method. Metering box equipped with an absorber connected to a hydraulic circuit. The metering box is in a thermal box where air temperature and wind speed are controlled. A sun simulator completes the asset. Two measurement methods are available: calorimetric measurement and direct measurement through heat flux sensors.

Feature 2: Acoustic testing.

A comprehensive set-up for indoor acoustic tests to evaluate the effect of the façade on the indoor space. It could be used within both in Façade System Interactions Lab but also in living labs.

Feature 3: Testing chamber for VOC and other contaminants.

Infrastructure to calibrate IAQ sensors and evaluate the emissions from façade materials and systems, and from other materials typically found in buildings.

Feature 4: Hygrothermal testing lab for material properties measurements

Laboratory for the hygrothermal characterization of building materials. After a full characterization the materials can be modelled in hygrothermal simulation software (WUFI, DELPHIN, EN 15026) to predict their behavior in realistic design conditions.

Feature 5: Façade System Interactions Lab



Twin chambers with full control of indoor thermal conditions where it is possible to perform tests on perceived IEQ with people, in particular thermal, acoustic, visual comfort, and IAQ, also using thermal manikins for objective measurements. These thermal manikins consist of a human-shaped heat source to perform objective and repeatable experiments on heat transfer to and from human bodies.

3.3.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It is expected to reach MRL 5 within the project's timeframe.

Development roadmap milestones:

- Definition of the framework of tests and identification of involved laboratories.
- First assessment of user stories.
- Tests development and demonstration phase.
- Advanced definition of user stories and final set-up.
- Full commercial launch

3.3.5 Associated risks and mitigation strategies.

Table 9 presents the risks and mitigation strategies for KER 2.

Table 8 – Risks and Mitigation Strategies KER 2

#	Risk	Mitigation strategy
2.1	Tests are expensive, high barrier to entry.	Dividing tests into stages to be agreed with client, to make investment easier and less demanding on customer's cash flow.
2.2	Maintenance of testing equipment is highly disruptive and can take time.	Plan maintenance to ensure minimum disruption to tests.
2.3	Measurements take much longer than planned, becomes bottleneck for further tests.	Reduce number of measuring points to reasonable number.
2.4	Delayed test results affecting production timelines.	Establish clear timelines and penalties for delays in service agreements.
2.5	Inadequate communication between labs and producers.	Utilize a robust, user-friendly communication channel.
2.6	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
2.7	Maintenance and downtime of lab equipment leading to service delays.	Implement a proactive maintenance schedule and have backup equipment.

3.3.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 10 presents the SWOT analysis for KER 2.

Table 9 – SWOT Table for KER2

Type	Description
Strength	<ul style="list-style-type: none"> High competences in different fields related to building performances that can support the customer in achieving the objectives. Ability to study all the parts of the building envelope from different perspectives (energy and comfort) Large network which customers can access. Ability to couple advanced test methodology with simulation activity. Flexibility in performing simulation and tests.
Weakness	<ul style="list-style-type: none"> Bureaucracy may be time-consuming.
Opportunity	<ul style="list-style-type: none"> Holistic evaluation of building performance is rapidly becoming more relevant in the industry. Evaluation of human comfort in the built environment is rapidly gaining relevance as user perception becomes of primary importance
Threat	<ul style="list-style-type: none"> Management of marketplace services and internal tests can become a challenge to the organization.

3.3.7 Exploitation Strategy

PM&VL2 is operated by Eurac, a large and established research organization. As such, PM&VL2 will continue to deliver its services partly through Eurac's standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL2 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL2:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL2, the average price per service is €10,000, the yearly operational capacity is 25 services per year, and an occupation rate of 90% is reported by Eurac.

Based on these assumptions, up to 10% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 2.5 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €10,000, this results in a maximum annual marketplace-enabled service value of approximately €25,000 for PM&VL2.



However, the market analysis (see *Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL2 remains aligned with this operational ceiling throughout the projection period. The projected service obtainable market (SOM) increases gradually from 8.9 services in 2026 to 25 services by 2028, remaining constant thereafter. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, PM&VL2's marketplace exploitation becomes capacity-constrained rather than demand-constrained from 2028 onwards. This approach ensures that PM&VL2 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary source of scaling constraint from 2028 onwards.

3.3.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER2, with detailed information provided in the project IP Registry (*Annex 1*).

3.3.8.1 Background IPR

Background intellectual property relevant to KER2, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.3.8.2 Foreground IPR

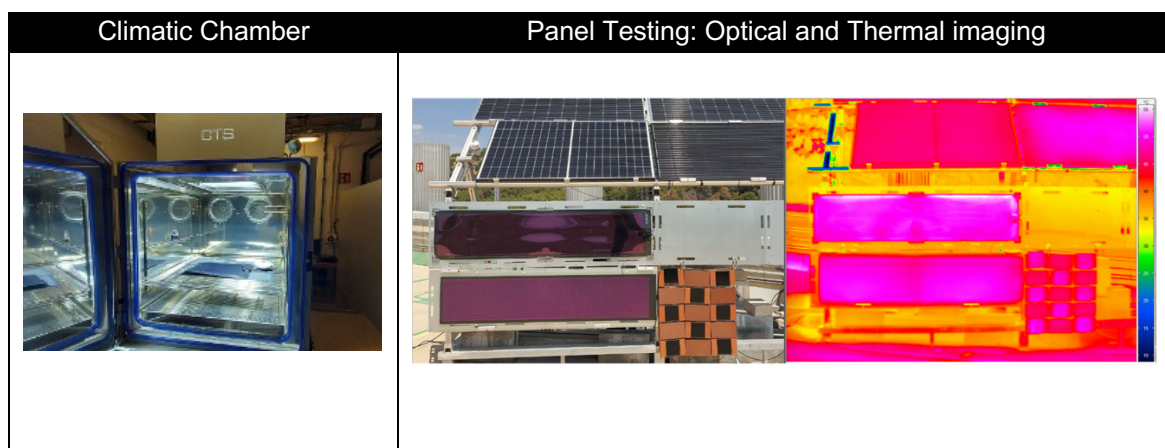
KER2 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, newly developed protocols, as well as scientific and technical publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).

3.4 KER 3: Active energy component characterization facing Efficiency requirement. [PM&VL-KER-3]

3.4.1 Description of KER

PM&VL3 allows for the assessment of PV products intended for use as building envelope components, specifically BIPV and BAPV systems. The evaluation focuses on the reliability of these products, using accelerated tests to validate the stability and material quality necessary for their outdoor application as active energy-generating elements in buildings. Tailored testing protocols will be employed through a systematic approach to address new requirements not covered by current standards, particularly those related to product stability and energy performance. Additionally, the suitability of BIPV/BAPV systems for real-world conditions will be assessed under both outdoor and simulated environments. A visual overview of the relevant facilities at KER 3 is provided in figure 3.

Figure 3 – Visual overview of PM&VL3 facilities



3.4.2 Exploitation manager

The exploitation manager for KER 3 is LEITAT.

3.4.3 Innovativeness introduced.

The pilot lines main innovation is brought by its unique capabilities:

1. Possibility to adapt and develop a tailor-made testing protocol to cover the BIPV/BAPV manufacturer needs enabling real market information about product reliability, using simulated tests and outdoor performance data.
2. Flexibility of testing protocols according to the SoA of current tests. Improvement of the visibility of the BIPV product strengths and benefits to help reach wider market penetration.
3. Verification of performance at non-standard test conditions to validate “real” performance of the products.

4. Provide information for BIPV manufacturers to better simulate the performance of their product with using simulation tools.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Fast materials/components characterization for better industrial feedback.

Current photovoltaic product homologation processes (based on IEC 61215 among others) do not contemplate an easy first evaluation of new materials or components, nor do they consider specific requirements given by their use in buildings. As a first pillar, PM&VL3 will have customized protocols for each type of product with shorter and faster tests adapted from most widely used IEC standards. In this way, industrial users can have a quick but efficient estimate of the performance of their most innovative products according to the target application without high expenses in materials (no need for finished prototypes at this stage) and time spent.

Feature 2: Characterization of BIPV products by advanced combined tests.

BIPV products with new features need an assessment of energy production adapted not only to energy demand but also to new architectural designs. In PM&VL3, the inclusion and consideration of combined stresses for the correct evaluation of these innovative products not considered in the standards will be done in climatic chambers including new variables affecting degradation and lifetime according to the application. The new advanced protocols consider the inclusion of innovative tests published in the last years that are now reaching standard level (e.g., LeTID LID, ...) and the possible combination of their effects (e.g. temperature, humidity, light, operational voltage, ...). Other protocols not as common for PV systems, but relevant for BIPV applications such as shadows, diffuse irradiation, etc. are also offered.

Feature 3: Characterization of BIPV products in real conditions.

As an enhancement to the accelerated tests, the line has an adapted outdoor characterization with specific set ups to control temperature while monitoring natural irradiation for a complete performance evaluation of the products. This characterization can be done by instantaneous measurement at different conditions or with a longer continuous monitoring.

Feature 4: Active energy characterization of BIPV elements in real environment and non-optimal conditions.

To enhance the tests in outdoor conditions previously described an evaluation or performance with natural ageing and "non-optimal" conditions is offered: including shadows, diffuse light, non-optimal orientation. These are more realistic for the validation of long term BIPV/BAPV.

3.4.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It will transition to MRL 5 once 50 tests have been conducted.



Development roadmap milestones:

- Implementation of a set of advanced testing protocols for PV-based components and products.
- Upgrade of available testing facilities: installation of IV signals collector with larger power peak and of new-data logger.
- Testing methodology and processes to be offered.
- Initial PM&VL trials
- Initiation of demonstration activities
- Full commercial launch

3.4.5 Associated risks and mitigation strategies

Table 12 presents the risks and mitigation strategies for KER 3.

Table 10 – Risks and Mitigation Strategies KER3

#	Risk	Mitigation strategy
3.1	Most tests are standard and non-mandatory tests, which means low demand.	Ensuring clear and defined user stories and good practices in promotion can attract users.
3.2	Maintenance of testing equipment is highly disruptive and can take time.	Plan maintenance to ensure minimum disruption to tests
3.3	Measurements take much longer than planned, becomes bottleneck for further tests	Reduce number of measuring points to reasonable number
3.4	Misalignment of pilot line capabilities with producer needs.	Regularly update and verify lab profiles and services offered.
3.5	Delayed test results affecting production timelines.	Establish clear timelines and penalties for delays in service agreements.
3.6	Obsolescence of testing technologies.	Invest in continuous research and development
3.7	Maintenance and downtime of lab equipment leading to service delays.	Implement a proactive maintenance schedule and have backup equipment.
3.8	Rising energy costs impacting lab operations	Invest in energy-efficient technologies and consider renewable energy sources.

3.4.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 13 presents the SWOT analysis for KER 3.

Table 11 – SWOT Table for KER 3

Type	Description
Strength	<ul style="list-style-type: none"> • Tests can be adapted to cover a wide range of products/applications. • Modulable and adaptable photovoltaic outdoor testing station.

	<ul style="list-style-type: none"> • Polyvalent climatic chamber which can apply high variety of conditions to the tested modules allowing a large variety of tests. • Instrumentation to test up to 80V and 20A of single modules.
Weakness	<ul style="list-style-type: none"> • Limitations in terms of number and size of products/prototypes that can be validated and tested.
Opportunity	<ul style="list-style-type: none"> • BIPV and Agri-voltaic markets are experiencing considerable growth, requirement of testing within the markets is expected to grow.
Threat	<ul style="list-style-type: none"> • Various manufacturers require certified tests that are not offered, which could become a barrier to entry.

3.4.7 Exploitation Strategy

PM&VL3 is operated by Leitat, a large and established research organization. As such, PM&VL3 will continue to deliver its services partly through Leitat’s standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL3 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL3:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL3, the average price per service is €3,000, the yearly operational capacity is 7 services per year, and an occupation rate of 50% is reported by Leitat.

Based on these assumptions, up to 50% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 3.5 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €3,000, this results in a maximum annual marketplace-enabled service value of approximately €10,500 for PM&VL3.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL3 reaches this operational ceiling early in the projection period. The projected service obtainable market (SOM) increases from 6.6 services in 2026 to 7 services by 2027, remaining constant thereafter. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, PM&VL3’s marketplace exploitation becomes capacity-constrained rather than demand-constrained from 2027 onwards. This approach ensures that PM&VL3 can provide services through the



MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint from 2027 onwards.

3.4.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER3, with detailed information provided in the project IP Registry (*Annex 1*).

3.4.8.1 Background IPR

Background intellectual property relevant to KER3, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.4.8.2 Foreground IPR

KER3 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, newly developed protocols, datasets and templates, as well as scientific and technical publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).

3.5 KER 4: Dynamic glass systems facing efficiency requirement. [PM&VL-KER-4]

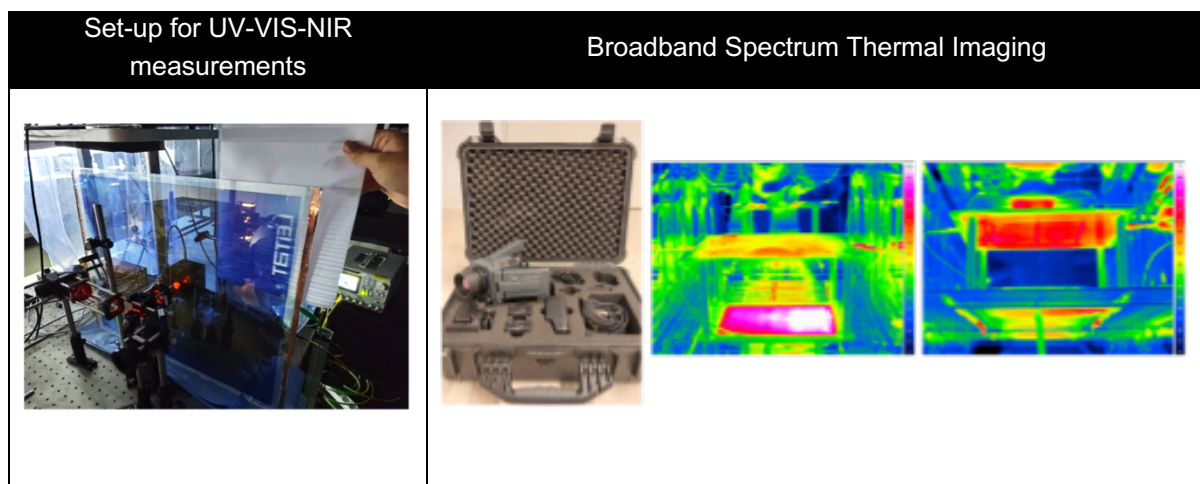
3.5.1 Description of KER

PM&VL4 offers a spectrum of modelling, characterization, testing and validation tools to advanced window makers as well as a design and consulting service to evaluate the impact of glazing elements on the overall energy performance of buildings. The main tools and services of the pilot line are:

- Identification of weak points in glazing systems and definition of customer-oriented solutions to improve the comfort-to-performance ratio.
- Definition of new design methods and tools aimed at maximizing the performance of dynamic glazing (e.g., maximize daylight, regulate the solar gain, regulate the luminous transmittance) and minimizing energy consumption (e.g., heating, cooling, and lighting loads).
- Implementation of innovative user-centered shading control algorithms capable of quantifying and minimizing thermal loads.
- Designing innovative windows and glazing elements complying with national/international legislation framework standards and assessing their impact in terms of energy and comfort criteria.

A visual overview of the relevant facilities at KER 4 is provided in figure 4.

Figure 4 – Visual overview of PM&VL4 facilities



3.5.2 Exploitation manager

The exploitation manager for KER 4 is LEITAT.

3.5.3 Innovativeness introduced

The pilot lines main innovation is brought by its unique capabilities:

1. Advanced validation: A comprehensive set of tools for dynamic glazing (e.g., electrochromic, thermochromic) validation.
2. State-of-the-art equipment: Utilizes UV-VIS-NIR spectrophotometers, VarioCAM® thermal imaging, and climatic chambers for real-world performance testing.
3. Simulation integration: Combines software tools like Optics, WINDOW, EnergyPlus, Rhino, Grasshopper and ClimateStudio for whole-building energy and daylight simulations.
4. New standards: Establishes new protocols and benchmarks to support the market adoption of smart glazing technologies in nearly zero-energy buildings.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Solar control tool

to provide an exhaustive characterization of the most relevant optical features of dynamic Insulating Glazing Units (IGU), where single components and entire glazing elements can be measured. Data collected includes Transmittance/Reflectance/Absorption Spectra, visible light transmittance, T_{VIS} , Total Solar Energy Transmittance, T_{SO} , solar heat gain coefficient, g and switching time, cyclability and stability.

Feature 2: Visual comfort assessment:

First all-in-one glare measurement equipment, enabling measuring the luminance of a given surface and calculating the Daylight Glare Probability according to daylight comfort standard EN 17037.

Feature 3: Thermal comfort assessment:

Alternative to EN ISO 7730 and EN 1525, based on empirical indoor data and weather forecasts. Thermal analysis allows visualizing variations in air and radiant temperatures, detecting humidity levels, and assessing the effectiveness of insulation. By pinpointing areas of heat loss or gain, it allows for more precise adjustments in heating or cooling systems. This approach not only ensures optimal comfort but also contributes to energy efficiency.

Feature 4: Smart control tool

Aimed at evaluating the effectiveness of automatic control systems embedded in electro-active smart glazing on the quality of the indoor climate, based on both empirical and simulated data.

Feature 5: Energy saving tool and Visual Comfort tool

Evaluating electro-active smart glazing by comparing simulated models with empirical data. This process assesses how automatic control systems impact indoor climate, focusing on temperature, light, and energy efficiency, to enhance the performance of smart windows.



3.5.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL4. It will transition to MRL5 once 50 tests have been conducted.

Development roadmap milestones:

- Solar Control Tool at mock-up scale
- Visual Comfort Tool available as a simulation tool.
- Visual Comfort Tool tested as a portable kit.
- Thermal Comfort Tool available as a simulation tool.
- Smart Control Tool tested a portable kit.
- Smart Control Tool available as a simulation tool.
- Energy Saving Tool available as a simulation tool.
- Full Commercial Launch.

3.5.5 Associated risks and mitigation strategies

Table 15 presents the risks and mitigation strategies for KER 4.

Table 12 – Risks and Mitigation Strategies KER4

#	Risk	Mitigation strategy
4.1	Misalignment of pilot line capabilities with producer needs.	Regularly update and verify lab profiles and services offered.
4.2	Maintenance and downtime of lab equipment leading to service delays.	Implement a proactive maintenance schedule and have backup equipment.
4.3	Talent shortages in specialized testing fields.	Invest in training programs and establish partnerships with universities.
4.4	Supply chain disruptions affecting lab consumables.	Maintain a strategic stockpile and diversify suppliers.

3.5.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 16 presents the SWOT analysis for KER 4.

Table 13 – SWOT Table for KER 4

Type	Description
Strength	<ul style="list-style-type: none"> • Tests can be adapted to cover a wide range of products/applications. • Highly advanced climatic chamber, capable of recreating almost any type of environmental condition.

	<ul style="list-style-type: none"> • Wide spectrum spectrophotometer able to measure optical transmittance from the visible range to the near infrared range of wavelength allowing full characterization of optical properties.
Weakness	<ul style="list-style-type: none"> • Limitations in terms of number and size of products/prototypes that can be validated and tested.
Opportunity	<ul style="list-style-type: none"> • The Smart Glazing market is experiencing considerable growth. Requirement of testing within the markets is expected to grow. • Windows are the weakest element in the building envelope. Testing of windows is essential for both retrofits as well as new builds.
Threat	<ul style="list-style-type: none"> • Various manufacturers require certified tests that are not offered, which could become a barrier to entry.

3.5.7 Exploitation Strategy

PM&VL4 is operated by Leitat, a large and established research organization. As such, PM&VL4 will continue to deliver its services partly through Leitat’s standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL4 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL4:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL4, the average price per service is €3,000, the yearly operational capacity is 5 services per year, and an occupation rate of 70% is reported by Leitat.

Based on these assumptions, up to 30% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 1.5 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €3,000, this results in a maximum annual marketplace-enabled service value of approximately €4,500 for PM&VL4.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL4 reaches the operational capacity from the start of the projection period. The projected service obtainable market (SOM) is 5 services per year from 2026 onwards, reflecting immediate saturation of the available capacity.

As a result, PM&VL4’s marketplace exploitation is capacity-constrained from the outset. This approach ensures that PM&VL4 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint throughout the analyzed period.



3.5.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER4, with detailed information provided in the project IP Registry (*Annex 1*).

3.5.8.1 Background IPR

Background intellectual property relevant to KER4, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.5.8.2 Foreground IPR

KER4 generates foreground intellectual property primarily in the form of operational know-how of PM&VL4, newly developed protocols, software and datasets, algorithms, as well as scientific and technical publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.6 KER 5: Mutual behavioral control and interaction through IOT and AI solutions based on building envelope and users' needs and corrections. [PM&VL-KER-5]

3.6.1 Description of KER

PM&VL5 focuses on the operational phase of the building life cycle. It aims at analyzing and optimizing building envelope systems considering user experience and behavior to improve the mutual behavioral conditions in terms of both energy and comfort.

The pilot line examines occupant perception of indoor environment, as well as physiological responses to the indoor environmental conditions. Occupant comfort, behavior, and assessment of acceptability is studied using interfaces between building controls. A visual overview of the relevant facilities at KER 5 is provided in figure 5.

Figure 5 – Visual overview of PM&VL5 facilities



3.6.2 Exploitation manager

The exploitation manager for KER 5 is DTU.

3.6.3 Innovativeness introduced.

The integration of various methods to monitor human responses is the core innovative feature of the pilot line. The methods include physiological responses (objective measurements of human bodily reactions), subjective assessments of comfort, well-being, and health status (subjective responses) and cognitive function (objective measurements of the effects on cognition, mental skills, reaction time and other responses characterizing cognitive and perception functions including monitoring of brain functions).

Human responses can be monitored while participants are exposed to variations in all four domains (thermal, acoustic, visual and air quality), including economic and other contextual factors.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Occupant perception and comfort.

Wearable sensors are deployed to assess occupants' physiological responses to the four domains of indoor environment (thermal, visual, acoustic and air quality). This is combined with objective measurements of indoor environmental variables and subjective responses collected through standardized questionnaires. These are related to the monitored indoor environmental variables enabling learning about occupants' preferences and needs, including variations between individuals over time.

Feature 2: Personal preferences.

The perception of the thermal environment varies between occupants due to differences in individual preferences, clothing, and activity level. The preferences, health conditions and requirements related to work or leisure activities also influence the perception of air quality, noise, and light. Exposure to a variation to all four domains is used to investigate individual variations in occupants' preferences and prioritizations.

Feature 3: Occupant behavior.

The Occupants' use of interfaces (building controls and façade elements) is examined in the field using post-occupancy evaluations and IoT sensors.

3.6.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL4. It will transition to MRL5 once 50 tests have been conducted.

Development roadmap milestones:

- Chamber Studies: Focchi, Velux and Windowmaster.
- Definition of Experimental design: Focchi, Velux and Windowmaster.
- Recruitment of Human Subjects: Focchi, Velux and Windowmaster.
- Execution of experiments with human subjects: Focchi, Velux and Windowmaster.
- Data analysis: Focchi, Velux and Windowmaster.
- Main objectives and hypothesis formulated in collaboration with Focchi and Pellini
- Chamber Studies with Focchi and Pellini
- Definition of Experimental design with Focchi and Pellini
- Recruitment of Human Subjects with Focchi and Pellini (test 1)
- Execution of experiments with human subjects with Focchi and Pellini (test 1)
- Recruitment of Human Subjects – Pellini (test 2)
- Execution of experiments with human subjects – Pellini



- Data analysis – Pellini
- Full Commercial Launch.

3.6.5 Associated risks and mitigation strategies

Table 18 presents the risks and mitigation strategies for KER 5.

Table 14 – Risks and Mitigation Strategies KER5

#	Risk	Mitigation strategy
5.1	Most tests are non-mandatory, which have lower demand.	Ensuring clear and defined user stories and good practices in promotion can attract users.
5.2	Tests are expensive, high barrier to entry	Dividing tests into stages to be agreed with client, to make investment easier and less impactful on customer's cash flow.
5.3	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
5.4	Maintenance and downtime of lab equipment leading to service delays.	Implement a proactive maintenance schedule and have backup equipment.
5.5	Rising energy costs impacting lab operations	Invest in energy-efficient technologies and consider renewable energy sources.
5.6	Cybersecurity threats targeting sensitive data.	Strengthen cybersecurity infrastructure and conduct regular security audits.
5.7	Talent shortages in specialized testing fields.	Invest in training programs and establish partnerships with universities.

3.6.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 19 presents the SWOT analysis for KER 5.

Table 15 – SWOT Table for KER5

Type	Description
Strength	<ul style="list-style-type: none"> • Largest collection of climate chambers in the world • World leading researchers in the indoor environment field. • Strong presence in standardization and organization: AHSRAE, ISIAQ, IEA, REHVA, ISO, EN.
Weakness	<ul style="list-style-type: none"> • Low availability of testing infrastructure due to teaching, and other research projects
Opportunity	<ul style="list-style-type: none"> • Multidomain exposure is gaining importance. • Companies able to handle multisensory aspects will have a strong competitive advantage
Threat	<ul style="list-style-type: none"> • High pricing can become a barrier to entry

3.6.7 Exploitation Strategy

PM&VL5 is operated by DTU, an established university. As such, PM&VL5 will continue to deliver its services partly through DTU's standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL5 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL5:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL5, the average price per service is €35,000, the yearly operational capacity is 5 services per year, and an occupation rate of 75% is reported by DTU.

Based on these assumptions, up to 25% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 1.25 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €35,000, this results in a maximum annual marketplace-enabled service value of approximately €43,750 for PM&VL5.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL5 reaches the operational capacity from the start of the projection period. The projected service obtainable market (SOM) is 5 services per year from 2026 onwards, reflecting immediate saturation of the available capacity.

As a result, PM&VL5's marketplace exploitation is capacity-constrained from the outset. This approach ensures that PM&VL5 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint throughout the analyzed period.

3.6.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER5, with detailed information provided in the project IP Registry (*Annex 1*).

3.6.8.1 Background IPR

Background intellectual property relevant to KER5, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.6.8.2 Foreground IPR

KER5 generates foreground intellectual property primarily in the form of operational know-how of PM&VL5, newly developed protocols, datasets, and custom scripts, as well as scientific and technical



publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.7 KER 6: Thermal, air, acoustic, structural and fire resistance characterization of the multi-layers dry nEESs. [PM&VL-KER-6]

3.7.1 Description of KER

PM&VL6 provides a combination of multiscale modelling, testing and numerical analysis services within existing indoor lab facilities, using small-scale test mock-ups. These include FEM-based analyses for thermal conductivity, as well as dynamic simulations addressing thermal comfort, energy, and structural performance. In addition, PM&VL6 offers monitoring kits for in-situ campaigns in real buildings, functioning as living labs for multilayer dry envelope systems and components. These campaigns assess thermal, air quality, air resistance, acoustic, and structural performance under real operating conditions. A visual overview of the relevant facilities at KER 6 is provided in figure 6.

Figure 6 – Visual overview of PM&VL6 facilities



3.7.2 Exploitation manager

The exploitation manager for KER 6 is POLIMI.

3.7.3 Innovativeness introduced.

1. Comprehensive Measurement & Verification (M&V) test-chain for multilayer dry envelope solutions, adaptable to different target groups (materials producers, façade manufacturers, practitioners, contractors, investors, and end-users).
2. Integrated multiscale modelling, testing, and numerical analysis, combining FEM analyses, dynamic simulations, and experimental testing to characterize envelope solutions from lab scale to real conditions.

3. In-situ monitoring and living lab campaigns in real buildings, supported by monitoring kits to assess thermal, air quality, air resistance, acoustic, and structural performance.
4. Multidisciplinary evaluation covering health, safety, and performance, leveraging POLIMI expertise in full-scale testing, structural design and modelling, building component analysis, and energy performance assessment.
5. Development-oriented approach beyond standalone testing, enabling the design, optimization, and validation of innovative multilayer dry envelope solutions at different levels of detail.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: The Materials and Structures Lab

The Materials and Structures Lab (M&S Lab) is an existing testing laboratory used to assess the mechanical performance of materials under both standard and extreme conditions, including full-scale mechanical tests both considering out-of-plane (e.g., bending, impact) and in-plane loading conditions.

Feature 2: Building Energy Efficiency Lab

The Building Energy Efficiency lab (BEElab) is an innovative testing facility developed within the MEZeroE project. It features a comprehensive set-up for hygrothermal, acoustic and IAQ monitoring and testing to evaluate the performance and impacts of different building envelope components.

Feature 3: Multiscale M&V approach.

An interoperable and multiscale approach for testing multilayer dry envelope solutions to establish a common language and enable comparison between software simulations and laboratory mock-up results.

Feature 4: Multidisciplinary test-chain.

Three MEZeroE industrial partners' products have been evaluated along the test-chain, covering mechanical and safety resistance as well as hygrothermal performance, using a multidisciplinary and holistic approach.

3.7.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It will transition to MRL 5 once 50 tests have been conducted.

Development roadmap milestones:

- A. Development of the BEElab
 - A1. Building Energy Efficiency pilot prototype.
 - A2. Equipment purchases and set-up.
 - A3. Calibration and validation of the testbed and set-up.
 - A4. Set-up and execution of BEElab activities within PM&VL6.



- B. Development of the M&S Lab
 - B1. Reaction steel frame for in-plane test of façade.
 - B2. Hydraulic load system.
 - B3. Calibration and validation of the in-phase test.
 - B4. Set-up and execution of M&S activities within PM&VL6.

- C. Development of PM&VL6
 - C1. PM&VL6 Work Scenarios.
 - C2. Elaboration of a full pilot-line benchmark workflow.
 - C3. Full Market Commercialization.

3.7.5 Associated risks and mitigation strategies

Table 21 presents the risks and mitigation strategies for KER 6.

Table 16 – Risks and Mitigation Strategies KER6

#	Risk	Mitigation strategy
6.1	Regulatory non-compliance of lab tests in different countries.	Regularly update compliance requirements and provide training on regional regulations.
6.2	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
6.3	Intellectual property disputes over innovative tests.	Clearly define IP rights and responsibilities in user agreements.
6.4	Fluctuating demand affecting lab resource allocation.	Implement flexible scheduling and resource management systems.
6.5	Dependence on research project for revenue.	Diversify client base and develop contingency plans.
6.6	Inflation leading to increased operating costs.	Implement cost-control measures and adjust pricing strategies as necessary.
6.7	Talent shortages in specialized testing fields.	Invest in training programs and establish partnerships with universities.
6.8	Supply chain disruptions affecting lab consumables.	Maintain a strategic stockpile and diversify suppliers.

3.7.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 22 presents the SWOT analysis for KER 6.

Table 17 – SWOT Table for KER6

Type	Description
Strength	<ul style="list-style-type: none"> • Possibility of a coupled study of structural and hygrothermal performances for building envelope solutions.



	<ul style="list-style-type: none"> • Capability of testing the entire systems in real-scale and not just single component mockups. • BEElab: Tests performed in real-life conditions of use. • M&S: Possibility to test in-plane seismic behavior of non-structural façade elements.
Weakness	<ul style="list-style-type: none"> • Low availability of testing infrastructure university research activities.
Opportunity	<ul style="list-style-type: none"> • EPBD will require efforts in increasing the number of high energy efficient buildings, which may result in the development of new products that need to be tested.
Threat	<ul style="list-style-type: none"> • High pricing can become a barrier to entry

3.7.7 Exploitation Strategy

PM&VL6 is operated by Polimi, an established university. As such, PM&VL6 will continue to deliver its services partly through Polimi’s standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL6 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL6:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL6, the average price per service is €10,000, the yearly operational capacity is 9 services per year, and an occupation rate of 90% is reported by Polimi.

Based on these assumptions, up to 10% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 0.9 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €10,000, this results in a maximum annual marketplace-enabled service value of approximately €9,000 for PM&VL6.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL5 reaches the operational capacity from the start of the projection period. The projected service obtainable market (SOM) is 9 services per year from 2026 onwards, reflecting immediate saturation of the available capacity.

As a result, PM&VL6’s marketplace exploitation is capacity-constrained from the outset. This approach ensures that PM&VL6 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint throughout the analyzed period.

3.7.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER6, with detailed information provided in the project IP Registry (*Annex 1*).

3.7.8.1 Background IPR

Background intellectual property relevant to KER6, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.7.8.2 Foreground IPR

KER6 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, as well as the BEEpilot prototype. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.8 KER 7: Durability characterization of block-walls. [PM&VL-KER-7]

3.8.1 Description of KER

PM&VL7 focuses on the determination of mechanical resistance and stability of connections and joints between envelope components and supporting structures, addressing safety requirements related to static and dynamic loads. The pilot line also considers durability aspects, including degradation processes caused by environmental and biological corrosion, which may reduce mechanical resistance over time. In addition, PM&VL7 accounts for functional requirements of connections related to thermal and vibro-acoustic insulation, tightness, heat capacity, and humidity management.

The pilot line established a test-chain for the comprehensive evaluation of envelope connections and includes the following sublines:

- **Mechanical Testing 7.1: Mechanical testing of envelope connections.**

This subline enables the determination of mechanical parameters of envelope components and their connections, including connections between envelope components and structural elements, while considering the influence of aging processes. Testing of the mechanical properties of materials used in envelope components and connections is also included.

- **Durability of Materials 7.2: Durability of materials.**

Subline 7.2 complements mechanical testing by assessing the influence of ageing on the mechanical properties of connections. Aging conditions include exposure to variable humidity and temperature, UV and Xe radiation, and fungal action.

- **Vibro-acoustic testing 7.3: Vibro-acoustic comfort and connections influence.**

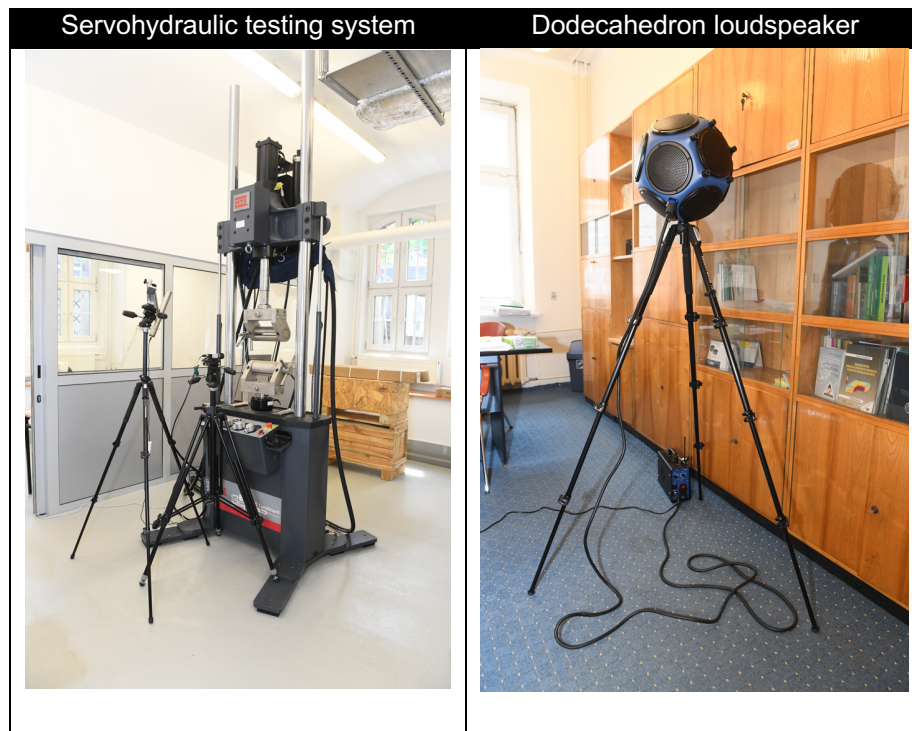
This subline evaluates vibroacoustic comfort influenced by envelope connections using dynamic and acoustic parameters such as dynamic stiffness, damping, and velocity level difference at junctions, providing a holistic assessment of noise and vibration performance.

- **Thermal Testing 7.4: Thermal comfort and interior microclimate.**

This subline focuses on hygrothermal simulations of temperature and humidity distribution at connection locations. Input data are derived from material property tests, including thermal conductivity, specific heat, vapor permeability, and heat capacity. This subline enables assessment of the impact of connections on building envelope energy efficiency.

A visual overview of the relevant facilities at KER 7 is provided in figure 7.

Figure 7 – Visual overview of PM&VL7 facilities



3.8.2 Exploitation manager

The exploitation manager for KER 7 is CUT.

3.8.3 Innovativeness introduced.

1. Lifecycle-aware mechanical characterization of envelope connections, integrating mechanical resistance testing with durability effects caused by environmental and biological degradation (e.g. humidity, temperature, UV, fungi), addressing safety and long-term performance in a single test-chain.
2. Advanced vibro-acoustic optimization workflow for connections, introducing velocity level difference and dynamic parameters to guide connector design from early material and geometry selection through prototype testing and in-situ living lab validation.
3. Simulation-driven thermal and hygrothermal optimization of connections, coupling laboratory-measured thermal and humidity parameters with numerical simulations to assess the influence of joints on envelope energy efficiency before full-scale realization.
4. Early-stage in-situ validation and feedback loop, enabling correction and optimization of connection solutions in terms of thermal, humidity, acoustic, and vibration performance prior to full building deployment.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Advanced mechanical and dynamic testing of envelope connections



PM&VL7 provides a comprehensive set of mechanical tests for envelope connections, including shear resistance, tensile strength, bond properties, corner strength, fatigue life, thermo-mechanical fatigue, and low-temperature cracking. Dynamic characteristics such as stiffness, complex modulus, damping, and resonance behavior are assessed over a wide temperature range, including out-of-plane dynamic testing of façade systems under simulated extreme loads (wind, seismic). Several procedures extend or adapt existing standards to address flexible façade systems and large deformations not fully covered by current guidelines.

Feature 2: Durability and aging assessment under environmental and biological exposure

The pilot line integrates durability testing to evaluate how aging processes affect the mechanical performance of connections. Aging scenarios include variable temperature and humidity, freeze-thaw cycles, UV and Xe radiation, seawater and sea-breeze exposure, and biological contamination by fungi and moulds. Material degradation is assessed through mechanical retesting and microstructural analysis using SEM, OM, and FTIR, with extended or intensified test protocols where standard procedures are insufficient.

Feature 3: Vibro-acoustic performance characterization of connections

PM&VL7 enables detailed vibro-acoustic assessment of envelope connections using parameters such as dynamic stiffness, critical damping ratio, and direction-averaged junction velocity level difference. These measurements allow evaluation of flanking transmission, vibration reduction, and airborne and impact noise performance. The testing workflow supports iterative optimization of connector design from early development stages through laboratory validation and in-situ measurements in living labs using RMS and/or VDV procedures.

Feature 4: Thermal and hygrothermal performance evaluation of joints

The pilot line includes hygrothermal simulation-based assessment of temperature and humidity distribution at connection locations. Simulations are informed by laboratory-measured material properties such as thermal conductivity, heat capacity, and vapor permeability. This approach enables evaluation of the impact of connections on indoor microclimate and building envelope energy efficiency, supporting early-stage selection and optimization of connection solutions.

3.8.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It will transition to MRL 5 once 50 tests have been conducted.

Development roadmap milestones:

- Purchase of equipment (vibroacoustic devices, hydraulic cylinder and necessary accessories, climatic, light UV and Xe chambers, FTIR)
- Preparation of the testing procedure, forms, and software
- Preparation of machine park to meet the requirements of testing lines.
- Beamline testing on sample materials provided by industrial partners.
- Fine tuning of testing lines to provide optimal working time.
- Full market launch



3.8.5 Associated risks and mitigation strategies

Table 24 presents the risks and mitigation strategies for KER 7.

Table 18 – Risks and Mitigation Strategies KER7

#	Risk	Mitigation strategy
7.1	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
7.2	Intellectual property disputes over innovative tests.	Clearly define IP rights and responsibilities in user agreements.
7.3	Fluctuating demand affecting lab resource allocation.	Implement flexible scheduling and resource management systems.
7.4	Inflation leading to increased operating costs.	Implement cost-control measures and adjust pricing strategies as necessary.
7.5	Rising energy costs impacting lab operations	Invest in energy-efficient technologies and consider renewable energy sources.
7.6	Cybersecurity threats targeting sensitive data.	Strengthen cybersecurity infrastructure and conduct regular security audits.
7.7	Market saturation leading to intense competition.	Differentiate services through innovation and superior customer service.
7.8	Currency fluctuations impacting international transactions.	Use hedging strategies and consider fixed-rate contracts where possible.

3.8.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 25 presents the SWOT analysis for KER 7.

Table 19 – SWOT Table for KER7

Type	Description
Strength	<ul style="list-style-type: none"> Ability to conduct dynamic tests of the façade system in the out-of-plane direction. Ability to conduct full durability diagnostics for membranes and foils in accordance with the EN 13859 standard. Ability to conduct full durability diagnostics of modern materials in terms of UV, XE, temperature and humidity aging. Ability to conduct structural diagnostics before and after aging using SEM, OM and FTIR. Wide range of mechanical, durability, acoustic and thermal tests.
Weakness	<ul style="list-style-type: none"> Majority of tests performed are outside the scope of accreditation. Possible dissatisfaction from clients resulting from the inability to perform full product diagnostics.

Opportunity	<ul style="list-style-type: none"> • Development of new research methods, especially in the field of durability diagnostics of modern materials. • Possibility of expanding and conducting research with foreign partners.
Threat	<ul style="list-style-type: none"> • The war in Ukraine may discourage foreign partners from cooperation. • High inflation and fluctuations in the euro exchange rate may difficult growth.

3.8.7 Exploitation Strategy

PM&VL7 is operated by CUT, an established university. As such, PM&VL7 will continue to deliver its services partly through CUT's standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL7 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL7:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL7, the average price per service is €2,340, the yearly operational capacity is 30 services per year, and an occupation rate of 90% is reported by CUT.

Based on these assumptions, up to 10% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 3 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €2,340, this results in a maximum annual marketplace-enabled service value of approximately €7,020 for PM&VL7.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL7 rapidly reaches the yearly operational capacity. The projected service obtainable market (SOM) is 26.8 services per year from 2026, and 30 services per year from 2027 onwards, remaining constant thereafter. This progression is driven by the increasing marketing and sales factor applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, PM&VL7's marketplace exploitation becomes capacity-constrained from 2027 onwards. This approach ensures that PM&VL7 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint from 2027 onwards.

3.8.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER7, with detailed information provided in the project IP Registry (*Annex 1*).

3.8.8.1 Background IPR

Background intellectual property relevant to KER7, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.8.8.2 Foreground IPR

KER7 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, newly developed protocols and frameworks, as well as scientific and technical publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.9 KER 8: Thermal-optical characterization of advanced façade systems. [PM&VL-KER-8]

3.9.1 Description of KER

PM&VL8 enables a full-scale performance evaluation of the thermal and optical characteristics, as well as comfort-related criteria, of transparent multi-functional facade elements using a fully calorimetric PASSYS outdoor test stand. On-site performance evaluation of solar gains and heat transfer is carried out using a novel in-situ g-/U-value measurement kit. The measurement kit can also be integrated into a lab measurement rig, allowing g-value measurements on sample probes under real solar radiation conditions with flexible solar incidence angles covering the full incident hemisphere. In addition, a detailed visual characterization of complex shading and daylighting systems is performed using a novel goniophotometer-based approach. Measurement results are combined with validated simulation methods to develop calibrated calculation models. A visual overview of the relevant facilities at KER 8 is provided in figure 8.

Figure 8 – Visual overview of PM&VL8 facilities



3.9.2 Exploitation manager

The exploitation manager for KER 8 is UIBK.

3.9.3 Innovativeness introduced.

1. Advanced optical and thermal characterization of semi-transparent façade elements, addressing the increasing need for high-resolution input data required by state-of-the-art simulation tools used for energy, visual, and thermal comfort assessment.

2. Tight coupling of novel measurement techniques with validated simulation methods, enabling calibrated calculation models and higher-fidelity product characterization compared to conventional façade testing approaches.
3. Cost-effective and in-situ measurement of solar heat gain performance, reducing the gap between theoretical product data and real operational performance and enabling quality benchmarking of existing façades for retrofit purposes.
4. Angular-dependent optical performance assessment of real systems, including 2D g-value characterization and improved visual performance analysis of complex shading and daylighting components.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Precise calorimetric measurements.

PM&VL8 includes a fully calorimetric PASSYS outdoor façade test stand equipped with large-area heat flux sensors, enabling highly precise calorimetric measurements of real-scale façade mock-ups under outdoor conditions.

Feature 2: Time-efficient measurements.

The pilot line enables time and cost-efficient measurement of optical characteristics of transparent façade systems incorporating advanced shading or daylighting solutions. The resulting datasets support the generation of simulation input parameters, including BTDFs, for detailed performance modelling.

Feature 3: Component measurements.

PM&VL8 provides in-situ measurement of g-value, solar transmission, and thermal performance directly on installed façades, as well as 2D angular-dependent g-value measurements on small-scale samples using real solar radiation with flexible incidence angles.

Feature 4: Simulation-assisted component evaluation:

Measurement results are combined with simulation-assisted characterization workflows to extrapolate performance benchmarks, enable enhanced parameter studies, and support integration of measured data into advanced façade performance models.

3.9.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It will transition to MRL 5 once 50 tests have been conducted.

Development roadmap milestones:

- A Development of PASSYS
 - A1. Constructing new PASSYS calibration wall.
 - A2. Finalize equipping PASSYS with large-area heat flux sensors, recalibration and test measurements with the previous measurement concept (by calibrating an R-C lump model).
 - A3. Recalibration of new PASSYS cell and test measurements.
 - A4. Measuring testing façade including industrial components



- A5. Recalibration of the large-area heat-flux plates

- B Development of 2D In-situ G-Value device
 - B1. Mechanical setup of the measurement apparatus to automate the measurement procedure for static measurements under real sun irradiation.
 - B2. Conception, Design and Setup of a flexible measurement on small-scale glazing probes.
 - B3. Extended measurements on the industry products using the flexible in-situ measuring device.
 - B4. Setup and test of the 2D g-value device including the flexible metering box and sun mirror.
 - B5. Extended measurements on industry products using the flexible measuring box

- C Development of Goniophotometer
 - C1. Mechanical setup of the measurement apparatus to automate the measurement procedure for multiple incident angles
 - C2. Implementation and validation of the new detector concept for higher accuracy and faster measurement runs
 - C3. Application of the modified measurement device on sample probes.
 - C4. Measuring of Industry products.
 - C5. Implementation and testing of the new detector concept.

- D Development of assisted simulations
 - D1. Thermal glazing system simulations coupled with in-situ g-value measurements.
 - D2. Optical raytracing simulations of complex facade systems coupled with Goniophotometer measurements
 - D3. Dynamic building simulations of dynamic facades coupled with instantaneous PASSYS cell testing

- E PM&VL8 full market launch

3.9.5 Associated risks and mitigation strategies

Table 27 presents the risks and mitigation strategies for KER 8.

Table 20 – Risks and Mitigation Strategies KER8

#	Risk	Mitigation strategy
8.1	Tests are expensive, high barrier to entry	Dividing tests into stages to be agreed with client, to make investment easier and less impactful on customer's cash flow.
8.2	Maintenance of testing equipment is highly disruptive and can take time.	Plan maintenance to ensure minimum disruption to tests
8.3	Measurements take much longer than planned, becomes bottleneck for further tests	Reduce number of measuring points to reasonable number



8.4	Misalignment of pilot line capabilities with producer needs.	Regularly update and verify lab profiles and services offered.
8.5	Inadequate communication between labs and producers.	Utilize a robust, user-friendly communication platform within the marketplace.
8.6	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
8.7	Fluctuating demand affecting lab resource allocation.	Implement flexible scheduling and resource management systems.
8.8	Maintenance and downtime of lab equipment leading to service delays.	Implement a proactive maintenance schedule and have backup equipment.
8.9	Talent shortages in specialized testing fields.	Invest in training programs and establish partnerships with universities.

3.9.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 28 presents the SWOT analysis for KER 8.

Table 21 – SWOT Table for KER8

Type	Description
Strength	<ul style="list-style-type: none"> • Completeness: visual and thermal characteristics of a complex façade system can be evaluated within the same pilot line. • In-situ measurements are provided in the (practical) field application, not only in (theoretical) lab setting. • Fast measurement concepts are optimized to deliver fast results, compared to established measurement methods. • Novel state of the art methods. • Simulation-coupled measurement methods aligned with current simulation methods to provide optimum input data for simulations.
Weakness	<ul style="list-style-type: none"> • Non-standard measurement methods provided are not fully standardized yet. • Non-accredited measurement devices at PMVL8 are not accredited, therefore the results might not be usable for certification or for normative evaluations. • The newly developed measurement methods are still not established and need further research. This might lower the reliability of results. • Restrictions in sample size for the Goniometer. Only small-scale samples can be measured.
Opportunity	<ul style="list-style-type: none"> • Growing relevance of in-situ performance evaluation of installed façades. • Increasing demand for fast and cost-efficient BSDF measurements. • Establishment of BSDF data as an industrial standard: BSDF measurements of façade products in a Klems-resolved basis are becoming standard practice for daylight and energy simulations. • Rising interest in non-normative g-value evaluation.

	<ul style="list-style-type: none"> Increasing demand for non-standard testing approaches.
Threat	<ul style="list-style-type: none"> Non-standard measurements have limited demand. Future normative regulations may continue to rely on existing measurement methods, which could limit the potential for non-standard measurement methods.

3.9.7 Exploitation Strategy

PM&VL8 is operated by UIBK, an established university. As such, PM&VL8 will continue to deliver its services partly through UIBK's standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL8 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL8:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL8, the average price per service is €2,500, the yearly operational capacity is 50 services per year, and an occupation rate of 30% is reported by UIBK.

Based on these assumptions, up to 70% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 35 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €2,500, this results in a maximum annual marketplace-enabled service value of approximately €87,500 for PM&VL8.

However, the market analysis (see Deliverable 6.2 – market analysis) indicates that the projected marketplace uptake for PM&VL8 remains below this operational ceiling throughout the projection period. The projected service obtainable market (SOM) increases gradually from 13.4 services in 2026 to 46.9 services by 2030. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, PM&VL8's marketplace exploitation is demand-constrained rather than capacity-constrained over the analyzed period, leaving enough headroom to accommodate higher volumes as marketplace adoption increases. This approach ensures that PM&VL8 can provide services through the MEZeroE marketplace without disrupting internal commercial activities.

3.9.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER8, with detailed information provided in the project IP Registry (*Annex 1*).



3.9.8.1 Background IPR

Background intellectual property relevant to KER8, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.9.8.2 Foreground IPR

KER8 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, and newly developed measurement and automation processes. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.10 KER 9: Fire safety, hygro-thermal, and acoustic characterization of wooden-based prefab façade systems. [PM&VL-KER-9]

3.10.1 Description of KER

PM&VL9 allows testing innovative wood-based façade and building envelope elements and structures. Depending on the specific façade system under investigation, the pilot line addresses a comprehensive set of performance aspects, including fire safety (fire resistance, reaction to fire, and façade fire scenario testing), moisture management (moisture transfer, interstitial condensation, and mould growth), acoustic performance (sound insulation, noise transmission, and indoor noise), thermal properties (thermal transmittance, thermal inertia, and thermal bridges), overall durability (hygrothermal resistance, hail impact resistance, and burglar resistance), and environmental footprint.

By considering the overall performance of façade elements across the full value chain: from design and production to installation and maintenance, the pilot line enables integrated and comprehensive testing of wood-based envelope solutions.

PM&VL9 further provides specific mechanical testing of façade elements and jointing techniques, with particular focus on wind load resistance, to ensure building safety in terms of mechanical resistance and stability, safety in case of fire, and safety and accessibility in use. Experimental methods are based on existing standards (including EN 1363, EN 13823, ISO 5660-1, EN ISO 8990, among others), which are adapted where necessary to address product-specific characteristics. A visual overview of the relevant facilities at KER 9 is provided in figure 9.

Figure 9 – Visual overview of PM&VL9 facilities



3.10.2 Exploitation manager

The exploitation manager for KER 9 is ZAG.

3.10.3 Innovativeness introduced.

1. Holistic performance-based testing of wood-based façade elements, extending standardized experimental methods to address product-specific use cases and real operating conditions.
2. Integration of laboratory testing, regulatory requirements, and living lab validation into a single testing path, covering the full value chain from design to installation and maintenance.
3. Advanced Performance Monitoring & Verification under simulated and real-life conditions, including the use of non-standard test setups where required to assess real performance beyond normative benchmarks.

These capabilities are enabled by the pilot line's unique innovative features:

Feature 1: Advanced fire safety testing and instrumentation

PM&VL9 provides large-scale façade fire testing for reaction to fire and fire resistance, combining standardized methods with targeted and emerging façade fire testing approaches. A unique capability is the full instrumentation of fire experiments, including temperature and heat flux measurements, mass loss, video-based fire spread tracking with AI-supported analysis, combustion gas monitoring, and thermal power determination using oxygen consumption calorimetry. Fire resistance testing is further enhanced by the capability to assess corners (2D) and selected 3D structural configurations.

Feature 2: Hygiene, moisture management, and mold risk assessment

Wood-based materials and structures are evaluated for moisture transfer, interstitial condensation, and mold growth using advanced hygrothermal simulation tools (e.g. WUFI, DELPHIN, BISCO, TRISCO, SOLIDO, EN 15026). These simulations are complemented by hands-on experimental verification through disassembly and inspection of exposed wall structures to validate moisture behavior.

Feature 3: Integrated acoustic and thermal performance evaluation

The pilot line enables comprehensive assessment of acoustic and thermal properties of façade elements and assemblies, including sound insulation, noise transmission, thermal transmittance, thermal inertia, and thermal bridges. Testing is performed using calibrated calorimetric methods, climatic chambers with guarded hot boxes, controlled hygrothermal conditions, and complementary heat flux and g-value measurement techniques.

Feature 4: Durability and mechanical resistance under environmental loading

Durability is evaluated through artificial ageing under combined heat, moisture, cold, and simulated rain conditions, followed by impact and hail resistance testing. Mechanical resistance and stability are assessed through wind-load testing of façade elements and jointing techniques to ensure safety in use.

Feature 5: Safety in use and environmental footprint assessment



The pilot line includes burglar resistance testing in accordance with EN 1627-1630 standards and mechanical safety assessments. Environmental performance is evaluated through life-cycle assessment in line with EN 15804 and ISO 14000 standards, including contribution and hotspot analysis.

3.10.4 Market readiness level and milestones

The pilot line is currently at an overall level MRL 4. It will transition to MRL 5 once 50 tests have been conducted.

Development roadmap milestones.

- Definition of all needed tests for performance-based description of the elements.
- Pilot line set-up.
- Definition of additional needed equipment and actions needed for purchase.
- Purchase of equipment.
- Modification of existing test methods to fit newly developed innovative products.
- Definition of needed samples with IND partners.
- PM&VL Pricing definition.
- Individual short-term testing
 - Acoustic tests.
 - Hygrothermal behavior tests with hands-on moisture testing.
 - Hail resistance tests.
 - Impact resistance tests.
 - Wind load resistance tests.
 - Execution of individual long-term tests
 - LCA
- Full Commercial Launch

3.10.5 Associated risks and mitigation strategies

Table 30 presents the risks and mitigation strategies for KER 9.

Table 22 – Risks and Mitigation Strategies KER9

#	Risk	Mitigation strategy
9.1	Tests are expensive, High barrier to entry	Dividing tests into stages to be agreed with client, to make investment easier and less impactful on customer's cash flow.
9.2	Maintenance of testing equipment is highly disruptive and can take time	Plan maintenance to ensure minimum disruption to tests
9.3	Measurements take much longer than planned, becomes bottleneck for further tests	Reduce number of measuring points to reasonable number

9.4	High costs of innovative tests limiting accessibility.	Offer a range of services, from basic to advanced, with scalable pricing.
9.5	Dependence on a few major clients for revenue.	Diversify client base and develop contingency plans.
9.6	Dependence on research project for revenue.	Diversify client base and develop contingency plans.
9.7	Inflation leading to increased operating costs.	Implement cost-control measures and adjust pricing strategies as necessary.
9.8	Maintenance and downtime of lab equipment leading to service delays.	Implement a proactive maintenance schedule and have backup equipment.
9.9	Rising energy costs impacting lab operations	Invest in energy-efficient technologies and consider renewable energy sources.
9.10	Market saturation leading to intense competition	Differentiate services through innovation and superior customer service.

3.10.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 31 presents the SWOT analysis for KER 9.

Table 23 – SWOT Table for KER9

Type	Description
Strength	<ul style="list-style-type: none"> • Interdisciplinary staff allows easier communication with industry. • Geographical position of ZAG is an advantage for Central European entities. • Willingness to adapt to client's requirements and improvise with testing methodologies wherever necessary.
Weakness	<ul style="list-style-type: none"> • Occasionally booked to capacity – bottleneck to growth. • Lack of space for infrastructural growth • Marketing efforts are low. • Small institute with limited resources for operations.
Opportunity	<ul style="list-style-type: none"> • Timber is gaining prominence in construction, rapid growth. • More and more companies want testing, technical assessments and certification provided by single entity.
Threat	<ul style="list-style-type: none"> • No insight into customer's preparation of samples. • Some of the equipment used is made at Zag. Can become a barrier with calibration and accreditation.

3.10.7 Exploitation Strategy

PM&VL9 is operated by ZAG, the Slovenian National Building and Civil Engineering Institute. As such, PM&VL9 will continue to deliver its services partly through ZAG's standard commercial practices, and



partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of PM&VL9 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for PM&VL9:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For PM&VL9, the average price per service is €10,000, the yearly operational capacity is 240 services per year, and an occupation rate of 40% is reported by ZAG.

Based on these assumptions, up to 60% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 144 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €10,000, this results in a maximum annual marketplace-enabled service value of approximately €1.44 million for PM&VL9.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for PM&VL9 reaches the operational ceiling rapidly. The projected service obtainable market (SOM) reaches 183 services in 2026 and 240 services per year from 2027 onwards, remaining constant thereafter. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, PM&VL9's marketplace exploitation becomes capacity-constrained from 2027 onwards. This approach ensures that PM&VL9 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint from 2027.

3.10.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER9, with detailed information provided in the project IP Registry (*Annex 1*).

3.10.8.1 Background IPR

Background intellectual property relevant to KER9, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).

3.10.8.2 Foreground IPR

KER9 generates foreground intellectual property primarily in the form of operational know-how of the PM&VL, newly developed protocols, as well as scientific and technical publications produced during the project. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



3.11 KER 10: Legislative and Standard framework services for CE marking [OIS-KER-1]

3.11.1 Description of KER

Open innovation service 1 (OIS1) provides a range of subservices for product certification and marking, applied to newly developed building envelope products. In addition, OIS1 offers a general framework to support the creation of tailored certification roadmaps for nearly zero energy building envelope products developed outside the consortium.

Subservices in OIS1:

- 1.1 Identification of the best methods for product characterization
- 1.2 Definition of a regulation framework guiding product design
- 1.3 Definition of lists of necessary tests for product certification
- 1.4 Establishment of a clear informative path to CE marking
- 1.5 Definition of a framework for the support of background data for verification of the test results to assess reliability of the experimental methods
- 1.6 Provision of ready-to-use approaches for the evaluation of economic rationale towards circular economy, environmental-social audits, LCA and LCC analysis
- 1.7 Definition of support methods for digitalization of the construction products

3.11.2 Exploitation manager

The exploitation manager for KER 10 is ZAG.

3.11.3 Innovativeness introduced.

The innovativeness introduced by OIS1 is brought by the innovativeness of its individual subservices:

Subservice 1: Identification of the best methods for product characterization

The aim of this service is to identify the best methods for product characterization. It consists of advising the manufacturer on which test methods need to be performed to obtain the desired product characterization for nZEB envelope products.

Subservice 2: Definition of a regulation framework guiding product design

This subservice provides support, advice, and guidance to manufacturers already at the product design stage regarding the regulatory requirements (and, when necessary, certification requirements) that the product must meet placed on the market.

The experience of the OIS1 members in assessment processes, combined with the knowledge obtained during product characterization, offers manufacturers a precise perspective at the product design stage. This includes a technical description of the product, a clear definition of the product's intended use, and an early identification of applicable regulatory and/or certification requirements.



Subservice 3: Definition of lists of necessary tests for product certification

This subservice involves the elaboration of a list of necessary tests for product certification, based on product characterization, intended use, and applicable regulations and standards.

In the case of innovative products for which a common and accepted assessment document (EAD: European Assessment Document) does not yet exist, the knowledge generated during product characterization, testing activities, and regulatory analysis can be transferred to assessment bodies as high-value technical input. This information may support the elaboration of new assessment documents, including the proposal of new test methods to assess novel product characteristics. The use of such information can shorten both the development of assessment documents and the overall certification process.

Subservice 4: Establishment of a clear informative path to CE marking

This subservice provides a fully developed and clearly defined path enabling an innovative product to achieve CE marking through streamlined procedures, aiming at minimum required time, maximum use of existing available information, and cost optimization. It offers a comprehensive one-stop-shop approach, focusing on minimizing the effort required from the customer. The unique value proposition includes:

- Guidance in the definition of declared properties (in coordination with other services),
- Guidance and support during testing, including selection of appropriate test laboratories, definition of test specimens, and preparation of technical files to be submitted to test laboratories,
- Review of test results and comparison with reference values (in coordination with other services),
- Preparation of the technical file for submission,
- Development of proposed test methods to be introduced into an EAD,
- Support in post-ETA issuing activities, including certification where relevant,
- Support in the preparation of the Declaration of Performance (DoP),
- Support in preparatory certification activities, including analysis of existing regulations (hENs, EADs, ENs, national or non-EU standards), other assessment documents, and relevant European Directives under the CPR, to define and agree with the manufacturer on the scope and approach of the product assessment.

Subservice 5: Definition of a framework supporting background data for verification of the test results to assess reliability of the experimental methods.

Within the service framework, specific support is provided in terms of background data to verify test results and assess the reliability of experimental methods, whether based on standards or alternative guidelines. This includes comparison of assessed results with existing databases.

The subservice includes:

- High reliability data assessment, assuring high level data quality.
- Unique database and benchmarks.
- Possibility to have a third-party review of the data.



Subservice 6: Provision of ready-to-use approaches for the evaluation of economic rationale towards circular economy, environmental-social audits, LCA and LCC analysis.

This subservice provides evaluation of economic rationale in relation to circular economy principles, environmental and social audits, and LCA and LCC analyses, enabling an integrated assessment of nZEB envelope products. It combines knowledge of technical properties, manufacturing processes and product use. This enables the development of realistic usage scenarios and product life-cycle assessments in a more comprehensive manner, with limited or no reliance on external intermediaries.

Subservice 7: Definition of support methods for digitalization of the construction products.

The subservice provides a framework for the digital ecosystem in which building envelope products can acquire a digital representation product characterization, testing campaign, certification processes, and LCA/LCC assessments. It offers consultancy to manufacturers to obtain case specific digital outputs based on the results of the preceding technical services.

3.11.4 Market readiness level and milestones

OIS1 is currently at MRL4. It will transition into MRL5 once 50 services have been provided within OIS1.

Development roadmap milestones:

- Final services scope definition.
- Governance and geographic reach.
- Internal communications processes.
- Liabilities.
- Pricing and revenue structure.
- Full market launch.

3.11.5 Associated risks and mitigation strategies

Table 33 presents the risks and mitigation strategies for KER 10.

Table 24 – Risks and Mitigation Strategies KER10

#	Risk	Mitigation strategy
10.1	Data security and confidentiality breaches.	Implement strong cybersecurity measures and data protection policies.
10.2	Geopolitical tensions impacting cross-border collaborations.	Monitor international relations and have contingency plans for affected areas.
10.3	Market saturation leading to intense competition.	Differentiate services through innovation and superior customer service.
10.4	Currency fluctuations impacting international transactions.	Use hedging strategies and consider fixed-rate contracts where possible.
10.5	Incomplete information received by manufacturer	Implement cross-verification system with the client to ensure all information is communicated before testing begins

10.6	Products innovation requirements are too complex for OIS1 services	Work closely with the client to reassess the project requirements and possibly revise the scope to align better with the capabilities of the OIS1 services
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3.11.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 34 presents the SWOT analysis for KER 10.

Table 25 – SWOT Table for KER 10

Type	Description
Strength	<ul style="list-style-type: none"> Advanced, detailed and highly flexible services related to product certification
Weakness	<ul style="list-style-type: none"> Many clients may not be open to contracting online consulting services related to certification.
Opportunity	<ul style="list-style-type: none"> Digital marketplaces are growing rapidly in B2B services. Certification through a digital marketplace may see rise, especially in the pan-European market.
Threat	<ul style="list-style-type: none"> Service providers in OIS1 are based in varying EU states, where prices for services differ considerably. Inflation and recession in numerous EU states may see a decline in external services. Current EU/USD price may impact cashflow of companies that rely on US and Asia imports for product development.

3.11.7 Exploitation Strategy

OIS1 is led by ZAG, the Slovenian National Building and Civil Engineering Institute, and a group of additional service providers with established market presence. As such, OIS1 will continue to deliver its services partly through standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of OIS1 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for OIS1:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For OIS1, the average price per service is €5,000, the yearly operational capacity is 50 services per year, and an occupation rate of 50% is reported by ZAG.



Based on these assumptions, up to 60% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 30 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €5,000, this results in a maximum annual marketplace-enabled service value of approximately €150,000 for OIS1.

However, the market analysis (see *Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for OIS1 reaches the yearly operational capacity right from the start of the projection period. The projected service obtainable market (SOM) is 50 services per year from 2026 onwards, reflecting immediate saturation driven by strong underlying demand combined with limited available capacity.

As a result, OIS1's marketplace exploitation is capacity-constrained from the outset. This approach ensures that OIS1 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint throughout the analyzed period.

3.11.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER10, with detailed information provided in the project IP Registry (*Annex 1*).

3.11.8.1 Background IPR

Background intellectual property relevant to KER10, including pre-existing know-how and expertise, is documented in the IP registry (See *Annex 1. Section A Pre-existing/background IP*).

3.11.8.2 Foreground IPR

KER10 generates foreground intellectual property primarily in the form of operational know-how and documentation related to the delivery of OIS1 services. The classification of this foreground IP is documented in detail in the Foreground IP Registry (See *Annex 1. Section B Foreground IP*).

3.12 KER 11: Data collection in Living labs [OIS-KER-2]

3.12.1 Description of KER

OIS2 is an integrated monitoring service that combines real building data collection, expert guidance, and efficient testing procedures to optimize product characterization in living labs. Through standardized protocols and seamless stakeholder coordination, it delivers valuable insights into building envelope performance, and indoor environment quality while simplifying the complex task of monitoring and verification.

The aim of OIS2 is to:

- Develop a standardized protocol for monitoring building envelope performance, and indoor environment quality, through a unified framework that ensures consistent evaluation across different building scenarios and environments.
- Facilitate efficient communication and interaction between building product manufacturers, building owners, monitoring designers, and product suppliers through a centralized platform that streamlines the entire monitoring process from initial request to implementation.
- Report comprehensive performance data to stakeholders regarding how products perform in real environments, including detailed analysis of thermal comfort impacts, presented in clear formats.
- Promote the adoption and implementation of both continuous and hotspot monitoring practices for building products performance, and indoor conditions, through demonstrated success cases and clear value propositions.
- Facilitate the collection of standardized monitoring data and metadata from various systems, ensuring data quality and security while supporting effective analysis and reporting of innovative building envelope component performance.

OIS2 mainly consists of three parts:

1. MEZeroE Digital Platform:

- Central access point providing general information about building envelope monitoring, comfort conditions, and energy consumption tracking
- Features an interactive form for clients to request monitoring system consultation and setup.

2. Monitoring System Manager:

- Client-facing responsibilities:
 - Initial consultation and information gathering
 - Monitoring system design and quotation
 - Installation supervision and commissioning
 - Data visualization setup and results reporting
- IoT coordination responsibilities:
 - Device manufacturer liaison
 - Data collection standardization



- Platform integration
- Custom sensor development coordination

3. IoT Manufacturer Network:

- Consists of qualified device manufacturers and monitoring system designers
- Provides monitoring devices and data capture solutions
- Offers REST API/cloud integration capabilities
- Supports custom product development based on specific requirements
- Prioritizes OIS2 service members for device selection and implementation

3.12.2 Exploitation manager

The exploitation manager for KER 11 is EURAC.

3.12.3 Innovativeness introduced.

The monitoring of building and facade components is a complex task requiring multiple stakeholder coordination. OIS2 innovates by creating a unified "one-stop-shop" that connects stakeholders and provides comprehensive performance evaluation solutions.

The fundamental innovation is the simplification of complex monitoring processes. Building owners and manufacturers receive a complete solution without needing to manage individual monitoring system components, significantly reducing the barrier to implementing performance monitoring.

These capabilities are enabled by OIS2's unique innovative features:

Feature 1: A Consolidated Performance Monitoring Service:

- First European-wide single point of contact for evaluating qualitative and quantitative facade performance
- Eliminates fragmented approaches by providing centralized data collection and standardized evaluation methods
- Multi-country, multi-language support backed by leading research institutions.

Feature 2: Specialized Building Envelope Focus

- Dedicated service specifically designed for facade performance evaluation through in-situ monitoring
- Standardized architecture adaptation based on facade type
- Purpose-built protocols specifically for envelope systems rather than generic building monitoring

Feature 3. Pre/Post Retrofit Evaluation:

- Direct comparison capability for building envelope performance before and after renovation
- Standardized methodology for measuring renovation impact in real buildings
- Enables evidence-based validation of improvement claims



Feature 4. Comprehensive Analysis Platform:

- Centralized data and reporting platform for both innovative components and complete envelope systems
- Facilitates knowledge exchange and problem-solving through shared experiences
- Creates a community of practice around envelope innovation

Feature 5. IEQ monitoring – integrates indoor air quality, and occupant surveys:

- Combines indoor air quality, occupant satisfaction, and energy performance in one system
- Structured approach to collecting and analyzing multiple performance indicators
- Holistic evaluation instead of single factor monitoring

Feature 6. Third-Party Integration Capabilities:

- Allows monitoring device developers to benchmark their solutions
- GDPR-compliant comparison of in-place monitoring data
- Creates an ecosystem for continuous innovation in monitoring technology

3.12.4 Market readiness level and milestones

OIS2 is currently at MRL 4. It will transition to MRL 5 once 50 services have been conducted within OIS2.

Development roadmap milestones.

- Final services scope definition.
- Governance and Geographic Processes.
- Internal communications processes.
- Initial Stakeholder feedback incorporated.
- First monitoring ongoing and data received from LLs.
- Pricing and revenue structure
- Monitoring campaigns launched
- Full commercial launch

3.12.5 Associated risks and mitigation strategies

Table 36 presents the risks and mitigation strategies for KER 11.

Table 26 – Risks and Mitigation Strategies KER11

#	Risk	Mitigation strategy
11.1	Data security and confidentiality breaches.	Implement strong cybersecurity measures and data protection policies.
11.2	Diverse language and cultural barriers.	Offer multi-language support and cultural training for staff.
11.3	Disruptions in transport affecting equipment deliveries.	Develop a network of local suppliers and backup transportation options.



11.4	Cybersecurity threats targeting sensitive data.	Strengthen cybersecurity infrastructure and conduct regular security audits.
11.5	Constant changes (upgrades) in the IT infrastructures	Ensuring a robust IT infrastructure
11.6	Integration of external systems with the existing framework/platform. E.g. Incompatibility between different manufacturers' systems	Ensuring a robust IT infrastructure. Establish a standardized data protocol framework and create universal API specifications that all participating manufacturers must follow, with clear technical documentation and support.
11.7	Conflicts in the governance of the platforms/services	Detailed description of different possible scenarios.
11.8	Market Adoption Risk: Slow uptake by traditional building sector.	Develop compelling case studies and ROI calculators demonstrating clear financial benefits, while offering initial pilot programs at reduced costs to establish market credibility.
11.9	Changes in data protection laws (e.g., GDPR updates) or building regulations.	Establish ongoing compliance monitoring with flexible governance and privacy-by-design principles.

3.12.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 37 presents the SWOT analysis for KER 11.

Table 27 – SWOT Table for KER11

Type	Description
Strength	<ul style="list-style-type: none"> OIS2 is collectively provided by a multi-disciplinary range of European companies, research centers and university groups specializing in monitoring and verification, and Post Occupancy evaluation. Services are tested in Living Labs. Multi-lingual and multi-country service, as service providers are from multiple European companies. Post-processing of monitoring data Integration of established IoT manufacturers and research institutions provides immediate technical credibility and market access. Strong potential for knowledge transfer and innovation through cross-border collaboration.
Weakness	<ul style="list-style-type: none"> Regular maintenance of equipment may be required for sustained accuracy. Data protection is crucial and must be handled methodically. Limited initial capacity (5-15 projects/year) may restrict early market growth and service scaling. Dependence on reliable internet and IT infrastructure may limit service performance in certain regions.



Opportunity	<ul style="list-style-type: none"> • Recent technological developments in building products make OIS2 more appealing. • Rising energy prices increase demand for energy efficiency in buildings and make monitoring and optimization services more prevalent. • Post-pandemic awareness has driven interest in indoor environment quality and occupant well-being studies. • EU renovation wave and building performance directives create immediate demand for monitoring solutions in retrofit projects. • Expanding interest in digital twins and smart building platforms aligns directly with OIS2's capabilities.
Threat	<ul style="list-style-type: none"> • Risk of low data quality due to improper calibration or mishandling of equipment, or due to environmental factors. • Financial disparities as service providers are based in different European countries. • Cybersecurity threats and potential data breaches inherent to online services. • Market fragmentation across Europe leads to varying technical standards and certification requirements, complicating service standardization. • Rapid technological advancements may challenge OIS2's ability to keep pace with system updates and integrations.

3.12.7 Exploitation Strategy

OIS2 is led by Eurac, a large and established research organization, and a group of additional service providers with established market presence. As such, OIS2 will continue to deliver its services partly through standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of OIS2 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for OIS2:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For OIS2, the average price per service is €15,000, the yearly operational capacity is 60 services per year, and an occupation rate of 50% is reported by ZAG.

Based on these assumptions, up to 50% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 30 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €15,000, this results in a maximum annual marketplace-enabled service value of approximately €450,000 for OIS2.



However, the market analysis (see *Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for OIS2 reaches the yearly operational capacity rapidly. The projected service obtainable market (SOM) is 52.1 services in 2026 and 60 services per year from 2027 onwards, remaining constant thereafter. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, OIS2's marketplace exploitation becomes capacity-constrained from 2027 onwards. This approach ensures that OIS2 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint from 2027.

3.12.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER11, with detailed information provided in the project IP Registry (*Annex 1*).

3.12.8.1 Background IPR

Background intellectual property relevant to KER11, including pre-existing know-how and expertise, is documented in the IP registry (See *Annex 1. Section A Pre-existing/background IP*).

3.12.8.2 Foreground IPR

KER11 generates foreground intellectual property primarily in the form of operational know-how and documentation related to the delivery of OIS2 services, including software and code associated to the developed API and dashboard. The classification of this foreground IP is documented in detail in the Foreground IP Registry (See *Annex 1. Section B Foreground IP*).

3.13 KER 12: Innovation management services [OIS-KER-3]

3.13.1 Description of KER

Open innovation service 3 (OIS3) is formed by a set of innovation, consulting services and tools which are digitally accessible within the MEZEROE marketplace, that focus on innovation, growth, and collaboration.

The envisaged subservices for OIS3 are:

- 1.1 Expert Mentorship: Accessing other markets.
- 1.2 Expert Connect: Cross-sectorial innovation.
- 1.3 Matchmaking: Focused on product development.
- 1.4 Matchmaking: Focused on commercialization.
- 1.5 Technology Roadmapping tool.
- 1.6 Market Replication Assessment.
- 1.7 Open Innovation Event Management.
- 1.8 BIM Envelope Package Configurator.

3.13.2 Exploitation manager

The exploitation manager for KER 12 is INCURVO.

3.13.3 Innovativeness introduced.

The innovativeness introduced by OIS3 is brought by the innovativeness of its individual subservices:

Service 1: Expert Mentorship – Accessing other markets.

The aim of this service is to provide companies with specific mentors and experts to help them access other markets, which can be other countries or other verticals. It is aimed at Start-ups, SMEs, and large industries interested in open innovation.

Service 2: Expert Connect – Cross-sectorial innovation.

The aim of this service is to provide companies with specific mentors and experts to help them develop products which require support from a sector different to the company's vertical such as IOT, software, nanomaterials, etc. It is aimed at Start-ups, SMEs, and large industries interested in open innovation.

Service 3: Matchmaking – Focused on Product Development

Early stages of Innovation, where two or more companies collaborate sharing know-how to co-develop a product. The union is a partnership, not subcontracting. It is aimed at Start-ups, and SMEs interested in open innovation.

Service 4: Matchmaking – Focused on Commercialization



Where the collaboration is not in IP, but in know-how. The smaller company with a developed product, enters into an agreement with an established SME to commercialize their product and further develop it within the SME's established networks. The union is a partnership, not subcontracting. It is aimed at Start-ups, and SMEs interested in open innovation.

Service 5: Technology Roadmapping tool

The technology roadmapping tool enables a company to develop innovative products and find partners to co-develop innovation projects. The final objective of this process is to let complementary companies work together to develop or find new technologies. It includes within it an idea radar, an innovation compass, and technology tracker.

Service 6: Market replication assessment

A market replication assessment which supports the first application/deployment in the market of an innovation that has already been demonstrated but not yet applied/deployed in the market due to market failures/barriers to uptake. It is aimed at Start-ups, and SMEs interested in open innovation.

Service 7: Open innovation event management

The OI event service creates events such as idea challenges and hackathons with which to engage communities and attract talent in the form of start-ups and young researchers with an open innovation-based approach to solve specific problems company is trying to solve. It is aimed at Start-ups, SMEs, and large industrial companies interested in open innovation.

Service 8: Envelope Package Configurator

The BIM Package Configurator service offers building envelope product manufacturers the minimum digitalized information to be included in a product dataset according to the relevant construction segments and scope.

3.13.4 Market readiness level and milestones

All the subservices in OIS3 are currently at MRL 4. OIS3 will transition to MRL 5 once 50 tests have been conducted.

Development roadmap milestones:

- Overall development of subservices
 - Market research on Open Innovation subservices
 - Selection of Initial services for OIS3
 - Open innovation workshop
 - Open innovation data collection exercise
 - Open innovation roundtables
 - Definition of final services
 - Definition of Lead service providers

- Expert Mentorship in accessing other markets.



- Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable
 - Timeline and milestones
 - Iterations phase
 - Partner pitches
 - Final service ready for commercialization
- Expert Mentorship in cross-sectorial innovation
 - Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable.
 - Timeline and milestones.
 - Iterations phase.
 - Partner pitches.
 - Final service ready for commercialization.
- Matchmaking focused on Product Development
 - Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable
 - Timeline and milestones
 - Iterations phase
 - Partner pitches
 - Final service ready for commercialization
- Matchmaking focused on Product Commercialization
 - Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable
 - Timeline and milestones
 - Iterations phase
 - Partner pitches
 - Final service ready for commercialization
- Innovation Service and Tools
 - Introduction to the service
 - Scope definition



- Objectives definition
- Client input definition
- Content of deliverable
- Timeline and milestones
- Iterations phase
- Partner pitches
- Final service ready for commercialization

- Market Replication Assessment
 - Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable
 - Timeline and milestones
 - Iterations phase
 - Partner pitches
 - Final service ready for commercialization

- Open Innovation Event Management
 - Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable
 - Timeline and milestones
 - Iterations phase
 - Partner pitches
 - Final service ready for commercialization

- BIM Package Configurator
 - Introduction to the service
 - Scope definition
 - Objectives definition
 - Client input definition
 - Content of deliverable
 - Timeline and milestones
 - Iterations phase
 - Partner pitches
 - Final service ready for commercialization

3.13.5 Associated risks and mitigation strategies

Table 39 presents the risks and mitigation strategies for KER 12.



Table 28 – Risks and Mitigation Strategies KER12

#	Risk	Mitigation strategy
12.1	Miscommunication with clients	Implement regular, structured communication protocols and feedback sessions for each service
12.2	Under/over estimation of project timelines	Use data-driven tools for more accurate timeline prediction with regular updates
12.3	Project budget overruns	Implement stringent budget control systems
12.4	Client dependency for critical information	Establish alternative data sources and independent analysis mechanisms
12.5	Diverse language and cultural barriers.	Offer multi-language support and cultural training for staff.
12.6	Inflation leading to increased operating costs.	Implement cost-control measures and adjust pricing strategies as necessary.

3.13.6 SWOT analysis: strengths, weaknesses, opportunities, and threats.

Table 40 presents the SWOT analysis for KER 12.

Table 29 – SWOT Table for KER12

Type	Description
Strength	<ul style="list-style-type: none"> Multi-lingual and multi-country service, as service providers are from multiple European companies. Covers a large portion of the open innovation R&D chain, capable of providing support at many levels of development. Allows companies to enter new markets, vertical and horizontal. Allows companies to partner and collaborate with other entities.
Weakness	<ul style="list-style-type: none"> As service providers are based in different countries, there may be deviation in service prices. Services still require traditional consulting service methodology, making operational capacity a weakness.
Opportunity	<ul style="list-style-type: none"> Increasing interest in open innovation make OIS3 the right set of service at the right time. Post-pandemic, more companies are interested in collaboration co-creation of products. Possibility of upselling OIS3 services to clients interested in testing and certification.
Threat	<ul style="list-style-type: none"> Financial issues as service providers based in multiple European countries where the baseline for such services varies considerably. Clients may still prefer face-to-face consulting options when large sums are involved.

3.13.7 Exploitation Strategy

OIS3 is led by Incurvo, an established innovation firm, and a group of additional service providers with established market presence. As such, OIS3 will continue to deliver its services partly through standard commercial practices, and partly through the MEZeroE marketplace. It is not the objective of this deliverable to analyze or comment on the internal business models or sales processes of individual service providers. The exploitation analysis therefore focuses exclusively on the portion of OIS3 activity that is available to be commercialized through the MEZeroE marketplace.

For this purpose, the following parameters are considered for OIS3:

1. Price: average price per service
2. Yearly operational capacity (YOC): maximum number of services that can be delivered in a calendar year
3. Occupation rate: percentage of annual capacity expected to be occupied by internal sales.

For OIS3, the average price per service is €6,000, the yearly operational capacity is 75 services per year, and an occupation rate of 30% is reported by Incurvo.

Based on these assumptions, up to 70% of the yearly operational capacity remains available for marketplace-based sales. This corresponds to a maximum of 52.5 services per year that could be delivered through the MEZeroE marketplace. At an average service price of €6,000, this results in a maximum annual marketplace-enabled service value of approximately €315,000 for OIS3.

However, the market analysis (*see Deliverable 6.2 – market analysis*) indicates that the projected marketplace uptake for OIS3 reaches the yearly operational capacity rapidly. The projected service obtainable market (SOM) is 68.3 services in 2026 and 75 services per year from 2027 onwards, remaining constant thereafter. This progression is driven by the increasing marketing and sales factors applied over time, reflecting the importance of strong marketing and sales budgets required to close sales through a fully online platform.

As a result, OIS3's marketplace exploitation becomes capacity-constrained from 2027 onwards. This approach ensures that OIS3 can provide services through the MEZeroE marketplace without disrupting internal commercial activities, while clearly identifying operational capacity as the primary scaling constraint from 2027.

3.13.8 IPR Strategy and Protection

The following sections describe the background and foreground intellectual property related to KER12, with detailed information provided in the project IP Registry (*Annex 1*).

3.13.8.1 Background IPR

Background intellectual property relevant to KER12, including pre-existing know-how and expertise, is documented in the IP registry (*See Annex 1. Section A Pre-existing/background IP*).



3.13.8.2 Foreground IPR

KER12 generates foreground intellectual property primarily in the form of operational know-how and documentation related to the delivery of OIS3 services. It also includes code associated to the google app script enabling automation for idea contests. The classification of this foreground IP is documented in detail in the Foreground IP Registry (*See Annex 1. Section B Foreground IP*).



4 Intellectual Property Management Plan

An IP management plan which governs IPR regulations and cooperation between consortium partners to protect MEZeroE's results was introduced within the first year of the project initiation. As MEZeroE focused on collaborative development, steps were taken to ensure equitable and fair management of all intellectual property.

The IP strategy adopted is a generalist strategy, since in MEZeroE all KERs are owned by their respective exploitation managers, except the KER13, The marketplace. Marketplace IP ownership is directly and freely transitioned from the consortium to the legal entity chosen take over the marketplace once the project finalizes.

4.1 Legal Framework

The MEZeroE strategy for management of IP conforms to the rules defined in the Grant Agreement and the conditions agreed upon in the Consortium Agreement, including the general rules and recommendations defined for projects of the H2020 Programme.

4.1.1 Grant Agreement

The Grant Agreement (GA) is the funding agreement determined between the European Commission and the project participants and specifies the rights and obligations of the contracting parties. GA number 953157, Section 3 "RIGHTS AND OBLIGATIONS RELATED TO BACKGROUND AND RESULTS" states the obligations related to management of intellectual property. All Consortium partners are signatories to the Grant Agreement and must oblige with the specified rules. In certain cases, the Grant Agreement allows the Consortium to establish specific rules. These specific rules are included within the Consortium Agreement.

4.1.2 Consortium Agreement

Before MEZeroE commenced, all Consortium Parties entered into a formal Consortium Agreement where individual roles, responsibilities, and mutual obligations were defined. The MEZeroE Consortium Agreement is based upon the DESCA¹ model consortium agreement.

4.2 Basic Definitions

4.2.1 Background:

As per the MEZeroE grant agreement, Subsection 2, Article 24, "Background" means any data, know-how or information — whatever its form or nature (tangible or intangible), including any rights such as intellectual property rights — that:

(a) is held by the beneficiaries before they acceded to the Agreement, and



(b) is needed to implement the action or exploit the results.

4.2.2 Access Rights:

As per the MEZeroE grant agreement, Subsection 2, Article 25, "Access rights" means rights to use results or background under the terms and conditions laid down in this Agreement.

4.2.3 Fair and reasonable conditions:

As per the MEZeroE grant agreement, Subsection 2, Article 25, "Fair and reasonable conditions" means appropriate conditions, including possible financial terms or royalty-free conditions, considering the specific circumstances of the request for access, for example the actual or potential value of the results or background to which access is requested and/or the scope, duration or other characteristics of the exploitation envisaged.

4.2.4 Results:

As per the MEZeroE grant agreement, Subsection 3, Article 26, "Results" means any (tangible or intangible) output of the action such as data, knowledge, or information; whatever its form or nature, whether it can be protected or not, that is generated in the action, as well as any rights attached to it, including intellectual property rights.

4.3 Results and Foreground IP

Results – which are also referred to as Foreground IP – are generated during execution of MEZeroE project. The ownership, protection exploitation, dissemination and transfer of results is regulated by Subsection 3 of the Grant Agreement.

4.3.1 Ownership

In MEZeroE, results are owned by the beneficiary that generates them. Joint ownership of results is regulated by Grant Agreement Article 26.2 "Joint ownership by several beneficiaries" and by any specific rules included in the Consortium Agreement.

Two or more beneficiaries will own results jointly if these have generated from work executed jointly; and it is not possible to establish the respective contribution of each beneficiary or it is not possible to separate them for the purpose of applying for, obtaining, or maintaining their protection.

Each joint owner may (unless otherwise agreed in the joint ownership agreement) grant non-exclusive licenses to third parties to exploit jointly owned results (without any right to sub-license) if the other joint owners are given at least 45 days of advance notice as well as fair and reasonable compensation.

4.3.2 Transfer of Results

Each beneficiary may transfer ownership of its results by following the guidelines outlined in Article 30 “Transfer and licensing of results” of the grant agreement.

A beneficiary that intends to transfer ownership of results must give at least 45 days of advance notice (or less if agreed in writing) to the other beneficiaries that still have (or may request) access rights to the results; unless agreed otherwise in writing or unless deemed impossible under applicable EU and national laws.

4.3.3 Licensing

Each beneficiary may grant licenses to its results by following the guidelines outlined in Article 30.2 “Granting Licenses”.

Each beneficiary may grant licenses to its results (or otherwise give the right to exploit them) if this does not impede the access rights under Article 31; and are not applicable. In addition to these points, exclusive licenses for results may be granted only if all other beneficiaries concerned have waived their access rights.

4.4 Background IP

MEZeroE Background IP was identified and collected before project execution. The management of Background is regulated by Article 9 “Section: Access Rights” of the Consortium Agreement. The beneficiaries defined the Background and provided Access Rights needed for the execution of MEZeroE. The Background has been included in the Consortium Agreement under “Attachment 1”.

4.5 Access Rights

The beneficiaries have agreed to give each other royalty-free access to background required to implement their own tasks during project execution AND for exploiting their own results, except in those cases where a beneficiary has –prior to the signing the Grant Agreement – informed the other beneficiaries that access to its background is subject to certain legal restrictions including those imposed by third parties OR access is not royalty-free.

The granting of Access Rights is conditional, and beneficiaries agree to only access them for the planned purpose and maintain confidentiality.

Further information of access rights to background can be found under Article 25 “Access Rights to Background” of the Grant Agreement.

Further information of access rights to results can be found under Article 31 “Access Rights to Results” of the Grant Agreement.



4.6 Exploitation of Results

Each beneficiary must take measures aiming to ensure exploitation of its results either directly or indirectly up to four years after the period set out in Article 3.

Further information on exploitation of results can be found under Article 28 “Exploitation of Results” of the Grant Agreement.

4.7 Dissemination of Results

The beneficiaries must – unless detrimental to their interests – disseminate their results as soon as possible by disclosing them to the public by making use of appropriate means including in scientific publications.

4.7.1 Providing Open Access to Scientific Publications

Beneficiaries must ensure open access free of charge for any user to all peer-reviewed scientific publications relating to its results.

Further information on providing open access to scientific publications can be found under Article 29 “Dissemination of Results” of the Grant Agreement.

4.7.2 Information on EU Funding

Any dissemination of results will – unless the Commission requests or agrees otherwise – display the EU emblem and include the following text:

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 953157”.

Further information on using the EU emblem can be found under Article 29 “Dissemination of Results” of the Grant Agreement.

4.8 The Innovation Manager

It is the responsibility of the innovation manager to maintain, manage and update the IP registries. All beneficiaries will communicate all IP related updates and discoveries to the innovation manager. The Innovation manager is INCURVO.



5 IPR Management Process in MEZeroE

The MEZeroE consortium's IPR strategy is based on European Commission's IPR helpdesk IP guidelines², and ensures the following steps are implemented:

1. Identification of Background – Implemented at project inception and added to the consortium agreement. In the event the Background is to be included at a later stage during project execution, beneficiaries can notify the innovation manager, providing details of the background in table A – “Pre-existing / Background IP (BGIP) and 3rd Party IP (TPIP) to be used in MEZeroE” of the IP Register (see annex 1).
2. Identification of Results – During project execution, beneficiaries will identify any results to be generated. Beneficiaries can notify the innovation manager, providing details of results expected in table B – “IP to be developed in MEZeroE – BGIP and TPIP” of the IP Register (see annex 1).
3. Establishing of Ownership – Once IP has been included to the IP register, ownership or joint ownership will be determined. Generally, the innovation manager, the coordinator and the notifying beneficiary will determine ownership. In certain cases, other beneficiaries may be invited to the process.
4. IPR Protection – Each beneficiary will examine the possibility of protecting its results and will adequately protect them for a suitable period and territorial coverage if the results can reasonably be expected to be commercially or industrially exploited AND if protecting them is possible, reasonable, and justified.
5. Though IP protection is vital for a prospective commercial or industrial exploitation of results, it is not always mandatory. Beneficiaries will – depending on the nature of the results and business plan – assess the best method of protection, which can be: Patent, utility model, industrial design, copyright, trademark, confidential information.

Further information on Protection of Results can be found under Article 27 “Protection of Results” of the Grant Agreement

6. IPR Register – The innovation manager will oversee maintaining IP registers and managing project-related know-how. However, it will be the responsibility of the exploitation manager of each KER and/or the collaborating beneficiaries to notify the innovation manager of any results, IP and know-how generated.
7. Dissemination and Exploitation – Beneficiaries will to the best of their abilities strive to protect, disseminate, and exploit all project know-how and results, where it is not detrimental to any beneficiary or the consortium.
8. IP Counsel – Beneficiaries will seek professional IP counsel either by contacting the IPR helpdesk or by hiring an IP specialist for events and happenings outside of the scope of the Innovation manager's expertise.



9. In the event of an IP related dispute, beneficiaries will strive to resolve disputes through internal meetings between the partners, the coordinator, and the innovation manager, before taking legal proceedings through the courts. It is recommended to consult the WIPO Arbitration and Mediation Center³.
10. Collaboration agreements: Access to the following documents have been provided to all consortium partners to help protect and manage IP:
 - a. Non-Disclosure – A standard Non-Disclosure Agreement (NDA)⁴
 - b. Mutual Non-Disclosure Agreement (Mutual NDA)⁵
 - c. Standard transfer agreement⁶
 - d. Standard license agreement (private parties)⁷
 - e. Standard license agreement (public-private partnership)⁸
 - f. Standard R&D agreement⁹

It is the responsibility of collaborating beneficiaries to determine the need of an agreement and if a specific agreement is required instead of a standard agreement. If an agreement has been signed, beneficiaries will notify the Innovation manager.

*Sources of standard agreements: NDA and Mutual NDA: Intellectual property helpdesk (European Commission). Standard transfer agreement, standard license agreements and standard R&D agreements: Spanish office of patents and trademarks.

6 Conclusion

This deliverable has assessed the portfolio of Key Exploitable Results (KERs) developed within the project, with particular focus on their operational readiness, availability, and intellectual property considerations in relation to the future of the MEZeroE marketplace.

KER13, the MEZeroE Marketplace, represents the main exploitable result of the project, acting as the central access point through which services related to testing, validation, certification, living labs, and innovation support can be discovered and accessed. The marketplace ownership is expected to transition to a dedicated legal entity after the project's completion, ensuring continuity, scalability, and long-term exploitation beyond the project lifetime.

KERs 1 to 9, corresponding to the PM&VL pilot lines, together form a comprehensive portfolio of advanced laboratory and testing services for building envelope products. These services are operational and ready to be offered through the marketplace, while continuing to be delivered by the respective partners through their established organizational and commercial structures.

KER10 provides CE marking related subservices, KER11 focuses on living lab services addressing the interaction between building envelope products and indoor air quality, and KER12 delivers a set of open innovation subservices supporting market entry, product development, and scaling strategies.

The analysis conducted in this deliverable has not assessed market demand itself, but rather the operational availability of service providers to deliver their services through the marketplace. The results indicate that most services are operationally constrained rather than demand constrained, suggesting that market demand is expected to exceed current delivery capacity. This confirms the strategic value of the marketplace as a mechanism to onboard additional service providers over time, enabling scaling and ensuring adequate coverage of market needs.

From an intellectual property perspective, no IP-related issues have arisen during the project. None of the development risks identified at earlier stages materialized, and no conflicts related to background or foreground IP were reported. All development milestones were achieved, with only minor delays, and all PM&VLs and Open Innovation Services are fully operational.

Overall, the results demonstrate that the MEZeroE marketplace has strong potential as a valuable exploitation vehicle, supported by a mature and operational service portfolio. The combination of technically advanced PM&VLs, complementary open innovation services, and a scalable marketplace model provides a solid foundation for long-term impact and exploitation beyond the project duration.

7 References

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8 Annex 1 – IP Registry

Section A. Pre-existing / Background IP (BGIP) and 3rd Party IP (TPIP) to be used in MEZeroE.

	Owner(s) of BGIP or TPIP	IP category (Software, report, data, prototype, know-how, etc.).	Description of IP	Nature of IP (Copyright, patent, trademark, industrial design, trade secret).	How will it be used within MEZeroE?	Conditions to use within MEZeroE	Conditions to use outside MEZeroE	Interest in further exploitation through MEZeroE's results
1.	All	N/A	Consortium partners' database of contacts	Trade secret	The database is used to promote and inform about the project. They are also used to invite to join as early adopters, ambassadors, and/or seeds.	Free to use within the project	Restricted	Yes
2.	Eurac	Know-how	Advanced calibration procedures for calorimeter U-value measurements, specialized g-value measurement protocols, VOC testing chamber methodologies, and comprehensive hygrothermal characterization	Trade secret	Used for PM&VL2 related measurement and verification activities.	Free to use within the project	Restricted	No



			procedures for building materials.					
3.	Eurac	Software	Software integration methodologies with hygrothermal simulation tools such along with proprietary data analysis algorithms for coupling testing and modeling activities	Copyright	Used for PM&VL2 related measurement and verification activities.	Free to use within the project	Restricted	No
4.	Eurac	Know-how	Innovative twin chamber configuration for façade system interactions	Trade secret	Used for PM&VL2 related measurement and verification activities.	Free to use within the project	Restricted	No
5.	Leitat	Know-how	PV and BIPV testing procedures	Trade secret	Used for PM&VL3 related measurement and verification activities.	Free to use within the project	Restricted	No
6.	Leitat	Know-how	Climatic chamber operation procedures	Trade secret	Used for PM&VL3 related measurement and verification activities.	Free to use within the project	Restricted	No
7.	Leitat	Software	Python-based IV analysis, optical/thermal monitoring data analysis scripts	Copyright	Used for PM&VL3 related measurement and verification activities.	Free to use within the project	Restricted	No
8.	Leitat	Know-how	Know-how on optical, thermal, and visual comfort testing of glazing systems	Trade secret	Used for PM&VL4 related measurement and verification activities.	Free to use within the project	Restricted	No
9.	Leitat	Software	Python-based tools and scripts for optical and thermal processing for spectral analysis,	Copyright	Used for PM&VL4 related measurement and verification activities.	Free to use within the project	Restricted	No



			temperature mapping, and data acquisition control.					
10.	DTU	Know-how	Know-how in chamber studies and human subject testing.	Trade Secret	Used for PM&VL5 related measurement and verification activities.	Free to use within the project	Restricted	No
11.	DTU	Know-how	Know-how in environmental sensor configurations	Trade Secret	Used for PM&VL5 related measurement and verification activities.	Free to use within the project	Restricted	No
12.	UIBK	Know-how	Measurement concept of Sphere Goniophotometer	Trade Secret	Used for PM&VL8 related measurement and verification activities.	Free to use within the project	Restricted	No
13.	ZAG	Know-how	Processes for obtaining CE marking for NZEB products	Trade Secret	Integration into OIS1 subservice	Free to use within the project	Restricted	Yes
14.	ZAG	Know-how	Know-how related to National approval for Slovenia	Trade Secret	Integration into OIS1 subservice	Free to use within the project	Restricted	Yes
15.	ITEC	Know-how	Know-how related to National approval for Spain	Trade Secret	Integration into OIS1 subservice	Free to use within the project	Restricted	Yes
16.	Tecnalía	Know-how	Know-how related to National approval for Spain	Trade Secret	Integration into OIS1 services	Free to use within the project	Restricted	Yes
17.	Tecnalía	Know-how	Know-how related to CE marking of construction products (Notified body number 1292)	Trade Secret	Integration into OIS1 services	Free to use within the project	Restricted	Yes



18.	Tecniaia	Know-how	Know-how related to technical assessment body for issuing European technical assessments for construction products	Trade Secret	Integration into OIS1 services	Free to use within the project	Restricted	Yes
19.	Eurac	Know-how	Internal database for laboratory tests and monitoring campaigns data	Trade Secret	Integration into OIS1 services	Free to use within the project	Restricted	No
20.	ZAG	Software	LCA and LCC programs	Copyright	Integration into OIS1 services	Free to use within the project	Restricted	Yes
21.	ZAG	Know-how	LCA and LCC procedures	Trade Secret	Integration into OIS1 services	Free to use within the project	Restricted	Yes
22.	Eurac	Document	Post-occupancy evaluation survey questions	Copyright	Integration into OIS2 services	Free to use within the project	Restricted	Yes
23.	Incurvo	Know-how	Know-how related to enabling enterprises entering foreign markets	Trade Secret	Integration into OIS3 services	Free to use within the project	Restricted	Yes
24.	Incurvo	Know-how	Know-how and processes related to matchmaking enterprises with a focus on product commercialization	Trade Secret	Integration into OIS3 services	Free to use within the project	Restricted	Yes
25.	Incurvo	Know-how	Know-how and processes related to matchmaking enterprises with a focus on product development	Trade Secret	Integration into OIS3 services	Free to use within the project	Restricted	Yes



26.	Incurvo	Know-how	Know-how and processes related to innovation event management	Trade Secret	Integration into OIS3 services	Free to use within the project	Restricted	Yes
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Section B. Foreground IP

	Owner(s) of BGIP or TPIP	IP category (Software, report, data, prototype, know-how, etc.).	Description of IP	Nature of IP (Copyright, patent, trademark, industrial design, trade secret).	How will it be used within MEZeroE?	Conditions to use within MEZeroE	Conditions to use outside MEZeroE	Interest in further exploitation through MEZeroE's results
1.	R2M	Code	MEZeroE marketplace Drupal-based code	Copyright	Development of MEZeroE marketplace website	Free to use within the project	Restricted	No
2.	SEP	Know-how	MEZeroE marketplace design and user experience.	Copyright	Development of MEZeroE marketplace website	Free to use within the project	Restricted	No
3.	SEP	Know-how	MEZeroE marketplace content and service arrangement	Trade secret	Development of MEZeroE marketplace website	Free to use within the project	Restricted	No
4.	SEP	Know-how	MEZeroE marketplace service decision tree	Trade secret	Development of MEZeroE marketplace website	Free to use within the project	Restricted	No



5.	Tecnalia	Publication	Flame Spread on an Active Photovoltaic-Roof System. Fire, Vol.8, No. 3, Mar. 2025. Doi: 10.3390/fire8030105	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No
6.	Eurac	Know-how	Novel testing protocols for comprehensive building envelope characterization, innovative methodologies for coupling real-time testing with simulation activities.	Trade secret	N/A	Free to use within the project	Restricted	Yes
7.	Eurac	Publication	Advancements in Hygrothermal Monitoring: A Comparative Study of Sensor Reliability and Installation Strategies in Construction Elements.	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No
8.	Eurac	Publication	Exploiting the Value of Active and Multifunctional Façade Technology through the IoT and AI.	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No
9.	Eurac	Publication	From single tests to a test-chain: A comprehensive approach for evaluating the interaction between the building envelope and the IEQ.	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No
10.	Leitat	Know-how	New testing methodologies combining	Trade secret	N/A	Free to use within the project	Restricted	Yes



			multiple environmental stress factors.					
11.	Leitat	Know-how	Experimental protocols for accelerated ageing and outdoor validation.	Trade secret	N/A	Free to use within the project	Restricted	Yes
12.	Leitat	Data	Datasets and analysis templates correlating simulated and real performance.	Copyright	N/A	Free to use within the project	Restricted	Yes
13.	Leitat	Know-how	Novel modular testing setups	Trade secret	N/A	Free to use within the project	Restricted	Yes
14.	Leitat	Know-how	New testing methodologies and protocols for electrochromic and thermochromic glazing, combining optical, thermal, and comfort performance under real or simulated conditions	Trade secret	N/A	Free to use within the project	Restricted	Yes
15.	Leitat	Data	Simulation workflows and datasets integrating EnergyPlus, WINDOW, Optics, and ClimateStudio for the prediction of energy and daylighting performance of dynamic glazing.	Copyright	N/A	Free to use within the project	Restricted	Yes



16.	Leitat	Know-how	Smart control algorithms for user-centred comfort optimization and energy saving.	Trade secret	N/A	Free to use within the project	Restricted	Yes
17.	DTU	Know-how	Protocols for assessing multidomain effects on subjective assessments of indoor environmental quality.	Trade secret	N/A	Free to use within the project	Restricted	Yes
18.	DTU	Know-how	Protocols for investigating mutual behavioural interactions between occupants and building systems.	Trade secret	N/A	Free to use within the project	Restricted	Yes
19.	DTU	Data	Data collected during chamber studies. These include physiological variables, behavioural data, subjective assessments along with environmental variables.	Copyright	N/A	Free to use within the project	Restricted	Yes
20.	DTU	Software	Custom scripts for sensor data processing, behavioural modelling	Copyright	N/A	Free to use within the project	Restricted	Yes
21.	Polimi	Prototype	The Building Energy Efficiency pilot (BEEpilot) prototype testbed for the multiscale testing and	Copyright	N/A	Free to use within the project	Restricted	Yes



			analysis of innovative building envelope products and/or solutions, especially in reference to their thermal, photometric and comfort performances.					
22.	CUT	Know-how	Innovative test protocols for the comprehensive characterization of building envelope connections in terms of load-bearing capacity and durability	Trade secret	N/A	Free to use within the project	Restricted	Yes
23.	CUT	Know-how	Integrated testing framework that enables a comprehensive assessment of building envelope component connections and their impact on occupant comfort	Trade secret	N/A	Free to use within the project	Restricted	Yes
24.	CUT	Publication	Nowak-Michta, A., A. Kwiecien, and J. Michta, A Roadmap for the Certification of Polyurethane Flexible Connectors Used as Envelope Products in the Next Generation of Healthy, Nearly Zero-Energy Buildings. MATERIALS, 2024. 17(22).	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No



25.	CUT	Publication	Górszczyk, J., K. Malicki, and A. Kwiecien, Laboratory Investigation on Dynamic Complex Modulus of FRPU Composite. MATERIALS, 2024. 17(24).	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No
26.	CUT	Publication	Nering, K., A. Kwiecien, and K. Nering, Evaluating the Impact of Sample Irregularities on the Dynamic Stiffness of Polyurethane: Insights from Experimental and FEM Analysis. MATERIALS, 2024. 17(23).	Copyright	N/A	Free to use for academic purposes	Free to use for academic purposes	No
27.	UIBK	Know-how	Know-how related to the process of rotating the measurement sphere of the Goniophotometer	Trade secret	N/A	Free to use within the project	Restricted	Yes
28.	UIBK	Software	Automation for rotating the measurement sphere of the Goniophotometer	Copyright	N/A	Free to use within the project	Restricted	Yes
29.	UIBK	Software	Data processing for rotating the measurement sphere of the Goniophotometer	Copyright	N/A	Free to use within the project	Restricted	Yes
30.	UIBK	Know-how	Know-how related to the mechanical process of the	Trade secret	N/A	Free to use within the project	Restricted	Yes



			2d g-value measurement device					
31.	UIBK	Software	Automation for the 2d g-value measurement device	Copyright	N/A	Free to use within the project	Restricted	Yes
32.	UIBK	Software	Data processing for the 2d g-value measurement device	Copyright	N/A	Free to use within the project	Restricted	Yes
33.	Zag	Software	Tool for single entry point for handling the channels and services	Copyright	N/A	Free to use within the project	Restricted	Yes
34.	Eurac	Data	Indoor monitoring dataset from Living Lab.	Trade secret	N/A	Free to use within the project	Restricted	No
35.	Eurac	Data	Stakeholder interview data	Copyright	N/A	Free to use within the project	Restricted	No
36.	Eurac	Software	APIs for sensor-to-database communication.	Trade secret	N/A	Free to use within the project	Restricted	Yes
37.	Eurac	Software	Dashboard developed for post-processing of the monitored data and visualizations.	Copyright	N/A	Free to use within the project	Restricted	Yes
38.	Eurac	Software	Toolkit including idea radar, innovation compass, and technology tracker.	Copyright	N/A	Free to use within the project	Restricted	Yes
39.	Incurvo	Template	Template for expert matchmaking in entering other markets service	Copyright	N/A	Free to use within the project	Restricted	Yes



40.	Incurvo	Template	Template for matchmaking for product commercialization service	Copyright	N/A	Free to use within the project	Restricted	Yes
41.	Incurvo	Template	Template for matchmaking for product development service	Copyright	N/A	Free to use within the project	Restricted	Yes
42.	Incurvo	Template	Template for open innovation events services	Copyright	N/A	Free to use within the project	Restricted	Yes
43.	Incurvo	Software	Google app code to automate event participation candidate data and send email copy	Copyright	N/A	Free to use within the project	Restricted	Yes
44.	Polimi	Software	BIM package configurator toolkit	Copyright	N/A	Free to use within the project	Restricted	Yes

