



*Risk reduction for Building Energy Efficiency investments*

---

# Business and replication plan of the EEnvest search & match platform

---

**eurac**  
research

**GNE FINANCE**  
High Impact Investments

**SINLOC**  
Sistema Iniziative Locali

**energyinvest**



**R2M**  
RESEARCH TO MARKET  
SOLUTION

 **POLITECNICO**  
MILANO 1863

  
**UIPI**  
1923  
INTERNATIONAL UNION  
OF PROPERTY OWNERS

**Ecrowd!**  
Invest in a better today

---

## Document Information

<b>Authors</b>	Cécile Barrere, R2M Solution Email address: <a href="mailto:cecile.barrere@r2msolution.com">cecile.barrere@r2msolution.com</a> Rachel Desmaris, R2M Solution Sophie Dourlens, R2M Solution
<b>Quality reviewers</b>	Dimitrios Ntimos, IES Cristian Pozza, Eurac Research
<b>Deliverable type:</b>	Report
<b>Dissemination level:</b>	Public
<b>Deliverable number</b>	Deliverable D7.3
<b>Actual delivery date:</b>	26 <sup>th</sup> August 2022
<b>Version:</b>	Final version
<b>Keywords:</b>	Due-diligence, Energy renovation projects
<b>Project title</b>	Risk reduction for Building Energy Efficiency investments
<b>Project acronym</b>	EEnvest
<b>Project website</b>	<a href="http://www.eenvest.eu">http://www.eenvest.eu</a>

This project has received funding from the European Union’s Horizon 2020 research and innovation programme under Grant Agreement n. 833112.

The opinion stated in this document reflects the authors’ view and not the opinion of the European Commission nor that of the European Climate, Infrastructure and Environment Executive Agency. The Agency and the Commission are not responsible for any use that may be made of the information this document contains.

All EEnvest consortium members are also committed to publish accurate and up to date information and take the greatest care to do so. However, the EEnvest consortium members cannot accept liability for any inaccuracies or omissions nor do they accept liability for any direct, indirect, special, consequential or other losses or damages of any kind arising out of the use of this information.

Version Log			
Issue Date	Rev. No.	Author	Change
15/12/2020	0.1	Rachel Desmaris, R2M Solution	Draft
17/06/2022	0.2	Cécile Barrere, R2M Solution	Final version
30/06/2022	1	Cristian Pozza, Eurac Research	Review

---

## **Table of Contents**

<b>1</b>	<b>INTRODUCTION</b>	<b>6</b>
1.1	Aims and objective	6
1.2	Report structure	6
1.3	Relation to other activities in the project	6
1.4	Contributions of partners	7
<b>2</b>	<b>METHODOLOGIES IMPLEMENTED TO COLLECT THE INFORMATION</b>	<b>8</b>
2.1	Methodology for the ER Business Model assessment	8
2.2	Methodology to collect the replication vision of each partner	8
<b>3</b>	<b>EENVEST EXPLOITABLE RESULTS FOLLOW-UP</b>	<b>10</b>
3.1	Initial list of exploitable results (M6)	10
3.2	Updated list of exploitable results (M24)	14
3.3	Updated ER Assessment (M36)	15
<b>4</b>	<b>RISKS ANALYSIS</b>	<b>17</b>
4.1	Aggregated Market analysis of ERs (M18)	17
4.2	Risk on the state of development at M22	18
4.3	ERs risk analysis (M22)	19
<b>5</b>	<b>EXPLOITATION STRATEGY OF THE ERS</b>	<b>22</b>
5.1	Initial exploitation strategy	22
5.2	Individual exploitation of results at M36	24
<b>6</b>	<b>REPLICATION POTENTIAL OF THE EENVEST RESULTS</b>	<b>29</b>
6.1	Replication based on project partners visions M36 and D6.3	29
	<b>CONCLUSION</b>	<b>34</b>

---

## List of Figures

Figure 1 - Overall ER management process.....	8
Figure 2 - EEnvest ERs - Market Maturity .....	17
Figure 3 - EEnvest ERs - Market Dynamic.....	17
Figure 4 - EEnvest ERs - Market Competition .....	18
Figure 5 - Current and expected TRL at project end.....	19
Figure 6 - Risk Analysis Template, risk classification & likelihood and impact mapping.....	20
Figure 7 - Risk Analysis, main categories (left) and associated mitigation measures (right)..	21

## List of Tables

Table 1 - Initial list of Exploitable results presented in the Grant agreement.....	10
Table 2 - Virtual paperboards used to animate the workshop on Exploitation .....	12
Table 3 - Validated list of exploitable results (M6) .....	13
Table 4 - Current and expected TRL of each ERs .....	18
Table 5 - M36 TRL of each ERs .....	19
Table 6 - Exploitation strategy envisioned at the beginning of the project.....	22
Table 7 – Owner(s) and description of the individual exploitation of ERs.....	24
Table 7 - Foreseen individual exploitation of ERs.....	26
Table 8 - Related intellectual property rights .....	27
Table 9 - Vision of the consortium on replication partners.....	30
Table 10 - Market analysis for replication .....	30
Table 11 - Replication paths.....	31

---

## *Abstract*

The deliverable D7.3 Business and replication of the EEnvest search and match platform focuses first on the Exploitable Results (ERs) list evolution throughout the project lifetime. This first part shows that the consortium adapted to detected internal gap with the development of ER8 – Project Quality Self-Assessment Tool and intended to offer the possibility to tailor the de-risking final report introducing ER9 – Multi-Criteria Decision Analysis. During the last year of project, the distinction of ER and technological tools supported the development of the project result exploitation plan, encouraging project partners to think about individual exploitation plan of certain ERs in addition to the exploitation of the EEnvest Platform integrating most of the ERs as functionalities. The development of the EEnvest platform (ER0) has suffered from delays in WP4 and WP5. For these reasons, it was possible to reach the stage of Minimum Viable Product (MVP, TRL7) and a commercial version of the platform is not available yet. Nevertheless, the step from MVP to TRL9 would mostly demand additional time and money for ICT work, models and methodologies being ready for integration.

Follow a market and risk analysis of each project's Exploitable Result (ER) conducted in M18 and M22, respectively. The analysis highlights the market maturity, dynamic and level of competitiveness of each ER's market as well as it reflects on the level of risk lying on TRL maturity of the ERs at M22

The business study ends with a chapter reporting the exploitation strategies proposed by the ER owners for each ER at the beginning and at the end of the project to show how this exploitation evolved. The business projection developed for the ERs was supported by an ad-hoc questionnaire completed through bilateral semi-structured interviews organized by R2M with each ER owner. The ERs consists of models, methodologies and improved processes. The exchanges led to the conclusion that several ERs have a meaningful standalone exploitation potential while a few ERs can be exploited only through a platform integrating them as functionalities.

Finally, the replication potential of the platform and individual ERs is discussed based on findings on market trends for residential sector, and questionnaires issued to the consortium partners to gather their views, ambitions and the replication paths envisioned.

---

# 1 INTRODUCTION

## 1.1 AIMS AND OBJECTIVE

This deliverable presents the vision of EEnvest project partners beyond the end of the project, in particular in terms of business potential and replication perspectives of the project Exploitable Results (ERs). This includes both the vision for the overall EEnvest platform as well as for individual and joint ERs mature during the project, the majority of the ERs have been translated into functionalities within the EEnvest platform.

The analysis of the individual ERs is presented in the form of aggregated results in the core of the document and is fully detailed in the annex of this report.

The analysis for each of those ERs includes:

- A list of the owners / developers, their background declaration and management ideas in the case of shared ERs;
- A description of the result, its targeted customers & market segment, customer relationships, channels and value proposition;
- An update on the state of development, including current and expected TRLs;
- A short-term exploitation vision, strategy and actions, 2 years after the project end;
- A mid-term exploitation vision, 5 years after the project end.
- An IP management strategy

The process to collect these data was supported by an ad-hoc questionnaire completed through bilateral semi-structured interviews organized by R2M with each ER owner(s). The Collection this data was an iterative exercise. The final version of the questionnaire is available for all ERs in annexes. This final report offers a complete market analysis and business model template questionnaires for each ER that reflect the latest progress of the project as well as the exploitation intentions of the various project partners.

This deliverable is treating EEnvest exploitation focus on the individual ERs, EEI business potential analysis in general and the replication vision of each EEnvest consortium partner.

## 1.2 REPORT STRUCTURE

**Chapter 2** presents the methodology which led to the elaboration of this deliverable.

**Chapter 3** reports the ER list evolution throughout the project lifetime.

**Chapter 4** talks about individual ER market and the ER risk analysis conducted at M22

**Chapter 5** focus on few key elements of the individual exploitation strategy extracted from the ER business model questionnaires

**Chapter 6** reports the replication vision per partner.

## 1.3 RELATION TO OTHER ACTIVITIES IN THE PROJECT

The development of the EEnvest *deliverable D7.3 “Business and replication of the EEnvest search & match platform (draft M18)”* is supported by task 7.4 “Business and replication plan of the EEnvest – Search&Match platform”.

---

The exploitation and replication strategies and plans are informed by all other work packages of EEnvest since they will structure their timeline and provide the content (exploitable results, lessons learnt and findings, etc.) to be exploited through appropriate commercial / marketing / protection channels. The progress of the implementation of this exploitation and replication plan have been monitored and reported through the project periodic reports as well as through further deliverables which include this final version of D7.3 (M36).

## **1.4 CONTRIBUTIONS OF PARTNERS**

R2M is the main editor of this report: R2M ensured the design of the methodology to gather, analyze, and discuss the vision with all project partners. All partners contributed to the effort and reviewed the final report to make sure it accurately represents the situation at the time of submitting the report.

---

## 2 Methodologies implemented to collect the information

### 2.1 METHODOLOGY FOR THE ER BUSINESS MODEL ASSESSMENT

To establish a preliminary exploitation strategy for each ER, an ad-hoc questionnaire was designed. The questionnaire, presented in Appendix 1, is the integration of:

- Elements from an ad-hoc exploitation-oriented questionnaire developed by R2M and already successfully used in earlier collaborative R&D projects
- Selected questions from the Business Model Canvas template (Alexander Osterwalder<sup>1</sup>)
- Selected questions from the Innovation Radar Questionnaire<sup>2</sup> (European Commission)

Figure 1 presents the overall process which was implemented to conduct the preliminary market analysis and business model analysis for each ER:

- (Step 1) The questionnaire was sent to each ER leader by email. ER leaders were asked to book a slot for an online meeting with R2M using the Meetingbird<sup>3</sup> online scheduling appointment tool.
- (Step 2) During semi-structured interviews, R2M discussed each question with the ER leader, took notes and wrote a synthesis of the key points discussed. Afterwards, ER leaders sent a first draft of the completed questionnaire.
- (Step 3) When needed, interactions continued via emails to further complete the questionnaire. In fact, exchanges between ER leaders, ER co-owners and R2M are expected to last until finalizing each ER exploitation strategy.

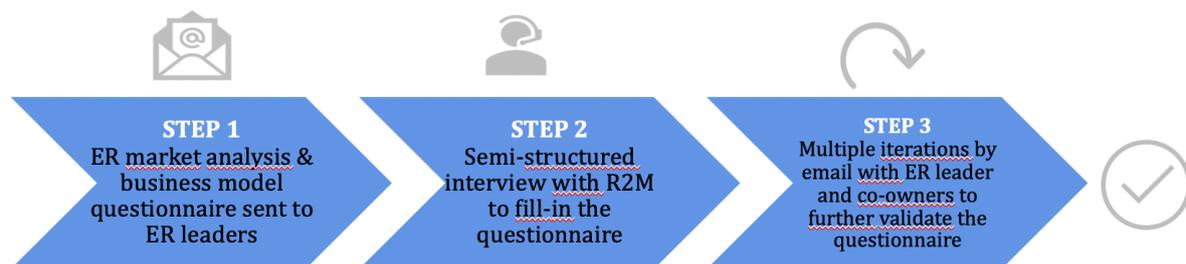


Figure 1 - Overall ER management process

### 2.2 METHODOLOGY TO COLLECT THE REPLICATION VISION OF EACH PARTNER

R2M investigated the EEnvest consortium vision proposing a one-to-one replication interview with each consortium partner. The interview was structured based on an online questionnaire elaborated by R2M in order to collect, understand and analyze each partner' vision on the EEnvest Exploitable Results and their potential replication intentions.

---

<sup>1</sup> Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers, Alexander Osterwalder , 2010

<sup>2</sup> Innovation Radar: Identifying Innovations and Innovators with High Potential in ICT FP7, CIP & H2020 Projects - Giuditta De Prato, Daniel Nepelski, Giuseppe Piroli, 2015

<sup>3</sup> <https://meetingbird.com/>

---

This questionnaire was introduced shortly by R2M during a WP leader meeting in May 2022, then made available online for the partners who wanted to start consulting the questions and preparing answers. The one-to-one sessions to support completing the questionnaire occurred between the 20th May 2022 and 6<sup>th</sup> June 2022. The review of the answers was possible until mid-June allowing sufficient time for partners to reflect on questions.

At the end of the process, all the nine EEnvest partners responded to the questionnaire. Results are presented and summarized in D7.1 Chapter 5 and D7.3 Chapter 6.

### 3 EEnvest exploitable results follow-up

#### 3.1 INITIAL LIST OF EXPLOITABLE RESULTS (M6)

To better reflect the reality of the project, the initial list of exploitable results presented in the Grant agreement (Table 1) has been reviewed.

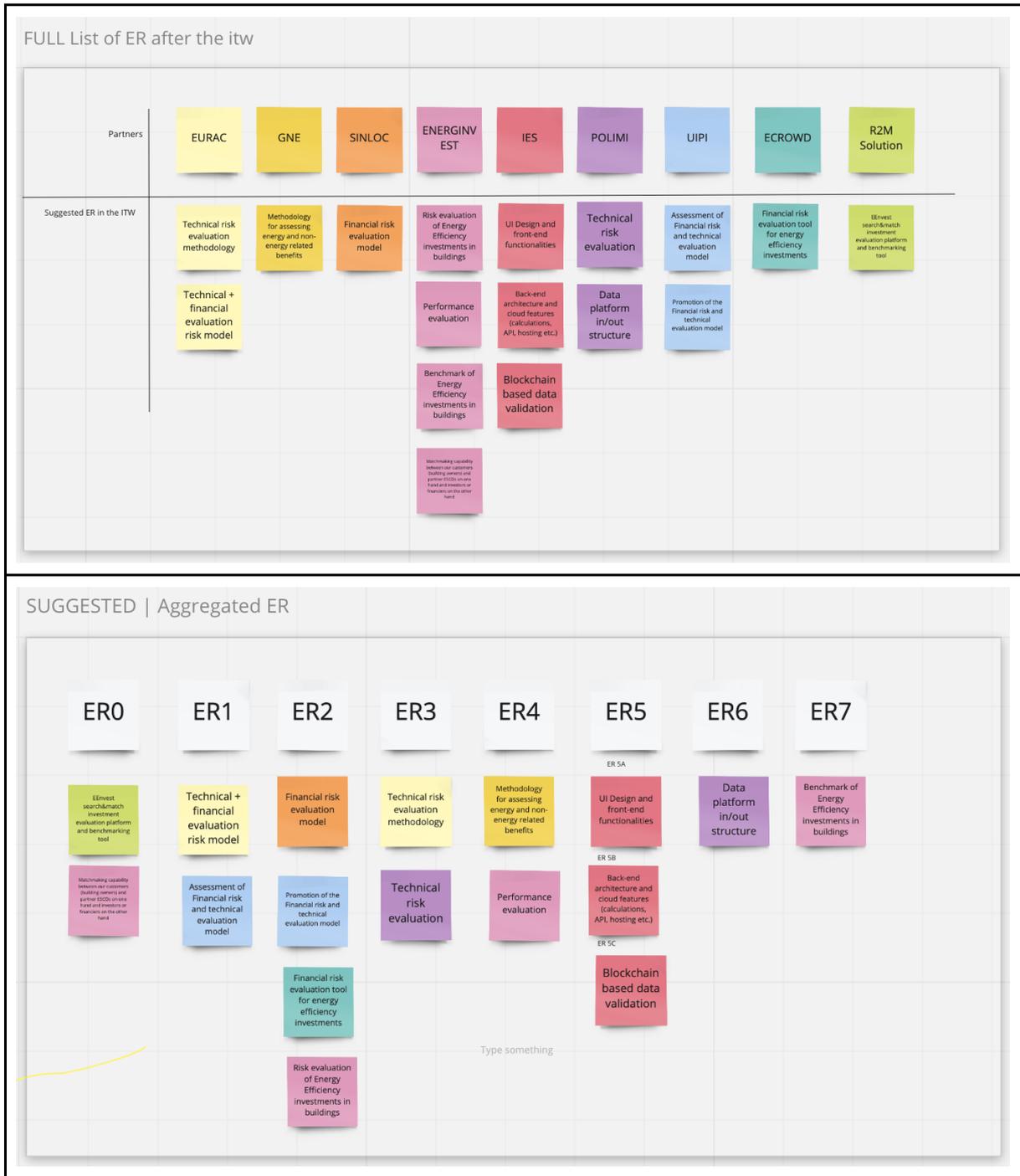
**Table 1 - Initial list of Exploitable results presented in the Grant agreement**

Exploitable Results	Owner / manager	Exploitation strategy	End-Users / customers
<b>Main (collective) project result</b>			
EEnvest search&match investment evaluation platform and benchmarking tool	R2M Solutions has been identified as the potential exploiter of the platform and is willing to put in place all commercial agreements with IP owners.	Exploitation strategy will be tailored to the different countries targeted, leveraging the network of the consortium partners: <ul style="list-style-type: none"> <li>● <b>Italy:</b> Eurac Research, Politecnico di Milano and R2M Solutions</li> <li>● <b>France, Spain &amp; UK:</b> R2M and GNE Finance</li> <li>● <b>Belgium &amp; Germany:</b> Energinvest and UIPI</li> </ul>	Real Estate developers and managers, investors and public authorities.
<b>Supplemental (individual) project results</b>			
Linking the project solutions to third party independent assessor (e.g., ICP) of investment opportunities	R2M Solution	Offer services underpinning the EEnvest approach/method to potential end users leveraging network of LEED, ESCo, Real Estate and Financers	Developer, ESCo, utility
Energy efficient building value modelling (R1) and energy efficiency solution learning curves (investment/effect using €/€ and/or kWh/€ units)	EURAC Research	Workshops for dissemination and organization of service related to investment in building energy efficiency to public and private real estate, offering building stock management approach based on building value, robust technology and benchmarks.	Real estate (single owner of building stock), DSO (connecting owners), central and local authority governing a territory
Knowledge transfer and training for the investment evaluation platform and benchmarking tool (R3)	Politecnico di Milano (POLIMI)	Offer service of training on the use of the “EEnvest – search&match building energy efficiency investment evaluation platform” for different perspective investors. The trainings will be organized according to users’ search and needs to create a wider target groups of trained EEnvest framework users.	Association of Building Constructors, professionals, students, public parties and Chamber of Commerce.
Risk rating models for building energy efficiency solutions (R1) and Investment	Energinvest	Currently, Energinvest focuses mainly on EPC for public sector based on customer’s own financing. Ambition to expand into EPC for	ESCo, Real estate, Private building owners, Multi-apartment owner associations,

Evaluation Platform & benchmark (R3) to underpin EPC services		private and real estate sectors with external financing.	Investors, Public institutions, SME's Financiers
EEnvest platform functionalities, architecture and blockchain based data validation	IES	IES will exploit the functionalities developed for the EEnvest platform as part of their existing and future software tools.	Private and public Community managers, utilities, ESCOs, service companies
Asset Valuation Methodology including both energy efficiency and non-energy related improvements	GNE Finance	As part of GNE Finance's investment management services, the Asset Valuation Methodology will be used to improve both the due diligence and the deal assessment.	Investors
Financial risk and technical evaluation model; Open access to the platform for UIPI members	UIPI	UIPI will promote the use of the financial risk evaluation model and technical evaluation model among its members to foster de-risked energy efficiency investments	Property owners; members of property owners associations
Financial risk evaluation model	SINLOC	The financial risk evaluation model will be the main input of the investment evaluation platform. Even though the technical model itself will not be visible from the outside, the model will be widely exploited through the use of the platform from the final users.	Investors, Financiers, Banks
Financial risk evaluation model	ECrowd	The financial risk evaluation model will be incorporated in ECrowd's due diligence process and help to reduce friction in the due diligence process, ease the decision making process and eventually allowing more energy efficiency investments to be eligible for financing.	Investors, Financiers

Indeed, the list of exploitable results have been discussed with partners during interviews and the exploitation workshops (see Table 2). The validated list of exploitable results is presented in Table 3.

**Table 2 - Virtual paperboards used to animate the workshop on Exploitation**



SUGGESTED | Leadership & contributors & ownerships

	ER0	ER1	ER2	ER3	ER4	ER5	ER6	ER7
	EInvest search&match investment evaluation platform and benchmarking tool	Technical + financial evaluation risk model	Financial risk evaluation model	Technical risk evaluation methodology	Methodology for assessing energy and non-energy related benefits	ER SA UI Design and front-end functionalities Back-end architecture and functionalities (calculations, API, front-end UI) UI/UX - Stakeholder based validation	Data platform in/out structure	Benchmark of Energy Efficiency investments in buildings
Exploitation LEADER	R2M Solution	EURAC	SINLOC	EURAC	GNE	IES	POLIMI	ENERGINV EST
CONTRIBUTORS	ALL	UIPI ENERGINV EST GNE	ECROWD ENERGINV ST UIPI	POLIMI	ENERGINV EST	NO	EURAC	NO
OWNERS	IES EURAC SINLOC	EURAC	SINLOC	EURAC	GNE	IES	POLIMI	ENERGINV EST
Comments								

**Table 3 - Validated list of exploitable results (M6)**

ER#	Name	Exploitation leader	Contributors	Owners
ER0	EInvest search&match investment evaluation platform and benchmarking tool	R2M Solution	ALL	IES EURAC Research SINLOC
ER1	Technical + financial evaluation risk model	EURAC Research	UIPI Energinvest GNE	EURAC
ER2	Financial risk evaluation model	SINLOC	ECrowd ENERGINVEST	SINLOC
ER3	Technical risk evaluation model	EURAC Research	Politecnico di Milano	EURAC Research
ER4	Methodology for assessing energy and non-energy related benefits	GNE	Energinvest	GNE
ER5	Technical platform	IES	NO	IES
ER6	Data platform in/out structure	Politecnico di Milano	EURAC Research	Politecnico di Milano
ER7	Benchmark of energy of efficiency investments in buildings	Energinvest	NO	Energinvest

---

Each ER Manager will be asked to fill-in an ad-hoc ER description template. They will be periodically revised and updated during the project. See final version in **Annex A to J**.

Also, during the next phase of the project, R2M will circulate a further detailed questionnaire in order to gather short and medium-term ER exploitation visions, as well as intellectual property (IP) considerations. The questionnaire addresses the envisaged exploitation model, identification of milestones, limitations, risks and potential collaboration / resources required. With respect to IP, the questionnaire includes possible forms of protection, understanding of Prior Art and Freedom to Operate (FTO) and partner background declarations (particularly relevant for jointly owned ERs) among others.

## **3.2 UPDATED LIST OF EXPLOITABLE RESULTS (M24)**

During the 2nd Exploitation Workshop held the 23th of June 2021, the managers were invited to update the ER list and the status of development of their ER. During the session, the ‘Project Quality Self-Assessment Questionnaire’ developed by Energinvest has been added to the list of EEnvest ERs as ER08. ER00 will showcase the EEnvest project results from ER01 to ER08.

### **ER list and notes regarding status of development**

**ER00** – The EEnvest Platform development is ongoing. The exploitation strategy is maturing.

**ER01** – Discussions are still needed for technical and financial parts. The partners will demonstrate that the results can be maintained through. They will provide the information to support the scientific validation of the result. They do not have yet a clear business concept outside of the use of the results through the platform.

**ER02** – They are testing the methodology based on the case studies of D3.2. The method description is in already, the final review is ongoing, the deliverable will be soon uploaded and it is confidential. Feedback will be collected during September 2021 WS. The method should not be updated in the future (not as ER01). The ER will be exploited through the platform + exploited within SINLOC through follow-up projects with SINLOC involved. Based on risk distribution, the method developed applies to building, but it can also be applied to other investments.

**ER03** – Technical risk methodology as ER01, tests still needed to prove robustness, publications are in preparation.

**ER04** – Will develop a new process – 70% progress (pending T4.4)

**ER05** – Digital platform / Prototype developed, ready for PPs testing round since June 2021.

**ER06** – Process / Service / Completed, it will be uploaded into the horizon result platform this summer.

**ER07** – Improved service – Improving the service by using KPIs, platform, features of the platform. ER07 is about using the benefits of the platform. ENERGINVEST is one of the PPs who can approach potential platform customers. Integrate it into a smart existing EPC. No need to develop anything. Promoting the platform. Integrating the EEnvest into ENERGINVEST modeling would not represent a lot of jobs and is a vector of exploitation. More advanced status of the platform needed. A finished product is needed. With the platform ENERGINVEST can go from advising to structured and broadening the access to more investors. ENERGINVEST could develop more services to investors, supporting the investors to reach the good projects. (M35) ER07 is very dependent on platform functionalities. If the platform is not finalized the service cannot be executed. Needed = benchmark material. Service submitted to platform projects population. Is the platform able to benchmark projects today? (Benchmark functionality implemented?) If yes, ENERGINVEST could upload the project data and direct

---

---

the customer to the best investor profile. Interest is there but lack of visibility on platform capacity.

**ER08 (New ER created)** – The ‘**Project Quality Self-Assessment Tool**’ (PQSAT) will provide a general impression/indication of the quality of the project. If the customer wants to go further then there is something to exploit, an improvement of part of the project could be proposed via consultancy services. ENERGINVEST would act as a facilitator, the ER08 is inspired by the ICP and QualitEE project results. It appears to be a bit in competition with the SmartEPC which already deals with project quality checks. Once integrated the self-assessment into the platform, the platform would trigger additional needs for extra advice. What would not be good would be to leave this tool outside of the platform and transform the PQSAT in a satellite tool. We think that it would deteriorates the customer’s perception sending the message that the platform is not a standalone tool.

(M35) Energinvest is an EPC expert and facilitator. The customer wants results and asks an ESCO to design the project, the ESCO would have the responsibility of the project design. In a Separate Base Contracting (SBC) approach, the ER08 is easier to use. ER08 is for client developing project in SBC context. The ER08 is a plus at consortium level but not as easy to be inserted into ENERGINVEST workflow. ER08 could indicate to building owners or asset managers where the project can be improved. It is not easy to commercialize as standalone tool.

### 3.3 UPDATED ER ASSESSMENT (M36)

The final ER assessment of the Project final ERs are visible in the Annexes. Below, we will present and comment a few key elements of the business canvas.

#### Updated list of exploitable results (M36)

At M35, the ERs names have been updated based on the ER managers preference. Taking into consideration the last development of the project, particularly the WP4 (T4.4) and WP6, an ER named Multiple Criteria Decision Analysis has been added to the list of EEnvest’s ERs. To increase the chance of success of the EEnvest results exploitation, the consortium identified 4 technological bricks with higher commercial and scientific exploitation potential, to be promoted on the market. The consortium estimates that the technological bricks identified have a high potential to be “exploited”.

- **ER0\_B0:** The EEnvest Platform (**R2M**)
- **ER1\_B1:** Technical & Financial Risk Evaluation Model (**EURAC Research**)
- **ER4\_B2:** Multiple Benefits Assessment Methodology (**GNE**)
- **ER9\_B3:** Multiple Criteria Decision Analysis (**GNE**)
- **ER8\_B3:** Project Self-Assessment Tool (**Energinvest**)
  
- **ER2:** Financial risks evaluation model (**SINLOC & ECrowd**)
- **ER3:** Technical risks evaluation model (**EURAC Research**)
- **ER5:** EEnvest IT engine (**IES**)
- **ER6:** EEnvest data input sheet and investment evaluation report (**POLIMI**)
- **ER7:** Benchmark of EEI in buildings (**Energinvest**)

---

Each ER Manager has been asked to update the ER description template – see Annexes A to J.

The Horizon Results Platform (HRP) is the place that the EC has designed to publish key results generated by EU funded projects, hence where beneficiaries are called to upload, manage and kind of "advertise" their results to a desired audience, while other beneficiaries can check what is currently available (as strategies, processes, tools, etc. on a specific area or topic) and benefit from them, or cite them for new proposals.

EEnvest has published 5 KERs on HRP: ER0, ER1, ER4, ER6 and ER8.

---

## 4 Risks Analysis

### 4.1 AGGREGATED MARKET ANALYSIS OF ERs (M18)

#### Market maturity

Figure 2 shows how EEnvest ER owners are considering the maturity of the markets they are targeting. Only ER2 reports a mature market. ER1, 3, 4 and 7 see a potential to create a new market. ER0, 5 and 6 evolve in emerging markets.

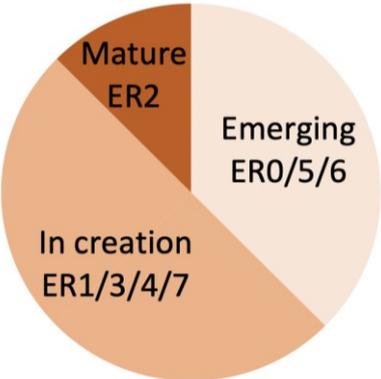


Figure 2 - EEnvest ERs - Market Maturity

#### Market dynamics

In terms of market dynamics, ER owners have been asked whether the market targeted was:

- In decline,
- Holding steady,
- Growing.

Figure 3 shows how EEnvest ER owners are considering the dynamics of the markets they are targeting. Most of them consider the targeted markets are growing.



Figure 3 - EEnvest ERs - Market Dynamic

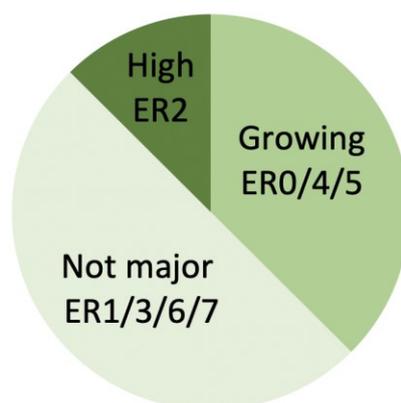
#### Market competition

Finally, ER owners have assessed how strong competition was in the markets targeted, according to the following categories:

- Patchy, no major players,

- **Established competition** but none with a proposition like the one under investigation,
- **Several major players** with strong competencies, infrastructure and offerings.

Figure 4 shows how EEnvest ER owners are considering the competition level of the markets they are targeting. Logically, as the markets targeted are mostly emerging and growing, the associated level of competition so far is rather low. In mirror, for ER2 who evolves in a mature market, the level of competition is reported as being high.



**Figure 4 - EEnvest ERs - Market Competition**

## 4.2 RISK ON THE STATE OF DEVELOPMENT AT M22

**State of development at M22** - In October 2020, each ER leader was asked to evaluate the current level of development of their ER and their expected level of development by the end of the project. The results are presented in Table 4. The information is also plotted on Figure 5.

**Table 4 - Current and expected TRL of each ERs**

		Current level of TRL - <b>October 2020</b>	Expected level of development for the result (TRL)
ER0	EEnvest search&match investment evaluation platform and benchmarking tool	3	9
ER1	Technical + financial evaluation risk model	4	8
ER2	Financial risk evaluation model	4	8
ER3	Technical risk evaluation methodology	4	6
ER4	Methodology for assessing energy and non-energy related benefits	1	6
ER5	Technology components (front-end, back-end, Blockchain)	4	7
ER6	Data platform in/out structure	4	7
ER7	Benchmark of Energy Efficiency investments in buildings	2	6

The information is also plotted on Figure 5. This graph<sup>4</sup> makes a parallel between TRL and resources needed to progress along the TRL chain. Resources can be seen as need of time, money or/and people. There, 3 peaks correspond to the 3 phases of intense efforts of the innovation life cycle: Pre-maturation, Maturation and Transfer to market. Note that there are

<sup>4</sup> Nepelski et al. 2018

also 2 valleys sometimes named “valleys of death” which correspond to phase transition carrying a risk of abandonment if no sufficient planning has been anticipated.

The TRL survey results plotted on top of the figure show that partners are today deeply involved into the Maturation phase. We might worry about the fact that end of project TRL are given at TRL 6 to TRL 8 but after speaking with a couple of ER owners we realize that most of the methodologies are already developed at M18 and ER exploitation through consulting at M36 won't be too challenging to attain. What worries more the ER owners is the implementation of the methodology into the digital platform. ER owners have translated those worries into risks listed in the risk analysis.

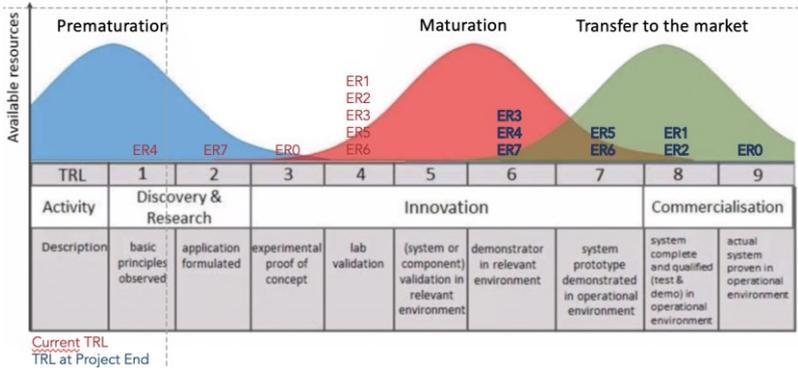


Figure 5 - Current and expected TRL at project end

Updated state of development (M36) - After the M36 update of the ER assessment questionnaire, here is the status of development of the ERs at the end of the project.

Table 5 - M36 TRL of each ERs

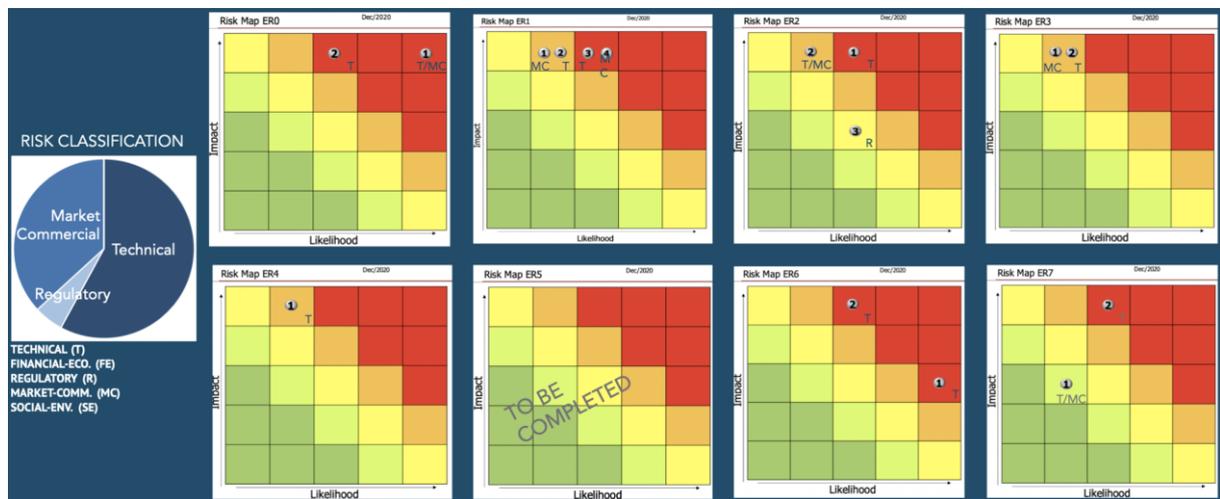
		Previous level of TRL <b>October 2020</b>	End of project TRL <b>June 2022</b>
ER0	EEnvest S&M investment evaluation platform and benchmarking tool	3	7
ER1	Technical + financial evaluation risk model	4	7
ER2	Financial risk evaluation model	4	8
ER3	Technical risk evaluation methodology	4	6
ER4	Methodology for assessing energy and non-energy related benefits	1	7
ER5	Technology components (front-end, back-end, Blockchain)	4	7
ER6	Data platform in/out structure	4	7
ER7	Benchmark of Energy Efficiency investments in buildings	2	8
ER8	Project Quality Self-Assessment Tool	-	8
ER9	Multiple Criteria Decision Analysis	-	6

### 4.3 ERS RISK ANALYSIS (M22)

M22 - In the ER questionnaires, each ER leader provided a list of risks associated with the ER exploitation. The results of the risk analysis are visible in Figure 6 and 7.

As shown in Figure 6, most of the risks listed fall into 2 categories: Technical and Market/Commercial. In the questionnaire, each risk is characterized by a level of likelihood and

a level of impact. These characteristics are mapped using a visual grid with traffic light colours allowing identifying at first sight which ERs have exploitation risks with high likelihood and/or high impact.

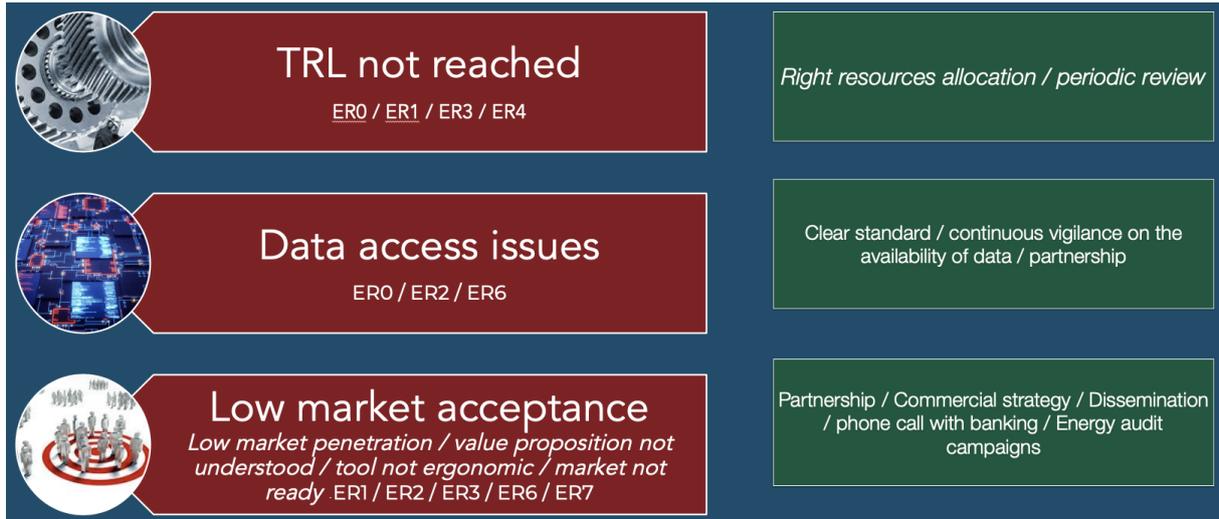


**Figure 6 - Risk Analysis Template, risk classification & likelihood and impact mapping**

Also, for each risk listed, the ER leader was asked to identify a mitigation measure that could and should be implemented as soon as possible to lower likelihood and/or impact of the risk associated. In 6 months and in 1 year, the dots plotted on the risk analysis grid should have moved from reddish colours to greenish colours.

ER leaders have reported sometimes comparable risks threatening the exploitation strategy of their ER. Figure 7 shows the 3 categories of risk and corresponding mitigation measure identified:

- First, the risk of not reaching a high TRL at project end should be mitigated by a close monitoring of resources and periodic progress reviews.
- Second, the difficult access to data in quantity and quality is reported as weighting on the project progress, impacting the ER exploitation strategies. Mitigation measures are under assessment and include paying more attention to ER's need for data and the nature of the data needed should be clearly expressed, also building partnerships may help securing data input streams. To ensure quality, the need to create data standards arise.
- Third and last category of risks identified corresponds to low market acceptance motivated by different reasons depending on the ER considered. To mitigate this risk various initiatives should be started as soon as possible such as the implication of potential customers in the platform design, the dissemination efforts and the definition of the commercial strategy.



**Figure 7 - Risk Analysis, main categories (left) and associated mitigation measures (right)**

## 5 EXPLOITATION STRATEGY OF THE ERs

### 5.1 INITIAL EXPLOITATION STRATEGY

The grant agreement envisioned the following distributed exploitation strategy by country, at the beginning of the project this exploitation plan focus on the EEnvest platform itself:

**Table 6 - Exploitation strategy envisioned at the beginning of the project**

Country	Leaders	Exploitation Strategy and Channels	Expected impact																								
Italy	EURAC + POLIMI+ R2M	The leaders will organize dedicated workshops to present EEnvest, exploiting the stakeholders' network we have. The target will be the actors in building energy efficiency market mainly public and private real estate, financiers, and designers. To financiers, we offer support to develop reliable business models based on building real estate market value. To real estate, we offer tools and methods for supporting the decision process in energy management of a building stock, and interactions among involved stakeholders. To designers we offer a robust analysis of technology risks and possible failures. Key activities will be: (i) collection of building performance targets and needs (designers); (ii) audit of the building stock (real estate asset managers or financiers); (iii) definition of costs/benefits for different transformation scenarios; (iv) final assessment after energy efficiency renovation, by using structure, tools, and skills as developed in EEnvest project. POLIMI, being a public university, has the expertise and direct channels with some municipalities to which the EEnvest results are addressed, including public administrations, Chambers of Commerce, Associations of Professional Architects and Engineers, Energy Clusters, National Association of Building Constructors. POLIMI will also focus on educational/training purposes, considering the students of today will become the	The limited investment for workshop organization will lead to important returns associated with services requested afterwards and the mobilized investments (leveraging factor). Estimated impacts in the table a side. <table border="1" data-bbox="1018 891 1390 1010"> <thead> <tr> <th>Year</th> <th>Investment</th> <th>Return</th> <th>Leveraging factor</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>€ 5,000</td> <td>€ 10,000</td> <td>€ 1,000,000</td> </tr> <tr> <td>2</td> <td>€ 5,000</td> <td>€ 11,000</td> <td>€ 1,100,000</td> </tr> <tr> <td>3</td> <td>€ 5,000</td> <td>€ 15,000</td> <td>€ 1,500,000</td> </tr> <tr> <td>4</td> <td>€ 5,000</td> <td>€ 20,000</td> <td>€ 2,000,000</td> </tr> <tr> <td>5</td> <td>€ 5,000</td> <td>€ 30,000</td> <td>€ 3,000,000</td> </tr> </tbody> </table>	Year	Investment	Return	Leveraging factor	1	€ 5,000	€ 10,000	€ 1,000,000	2	€ 5,000	€ 11,000	€ 1,100,000	3	€ 5,000	€ 15,000	€ 1,500,000	4	€ 5,000	€ 20,000	€ 2,000,000	5	€ 5,000	€ 30,000	€ 3,000,000
Year	Investment	Return	Leveraging factor																								
1	€ 5,000	€ 10,000	€ 1,000,000																								
2	€ 5,000	€ 11,000	€ 1,100,000																								
3	€ 5,000	€ 15,000	€ 1,500,000																								
4	€ 5,000	€ 20,000	€ 2,000,000																								
5	€ 5,000	€ 30,000	€ 3,000,000																								

		professionals/stakeholders/financiers of tomorrow.	
France, Spain & UK	R2M & GNE Finance	<b>R2M</b> has active branches in France and Spain and we will push the solutions among our network of Real Estate, ESCOs and professionals in these countries. In France, we will leverage the INEF4 network. Planned workshops and events will allow us to promote the solutions that can be offered at attractive price points for early adopters. <b>R2M UK</b> office will engage pension funds, trustees and insurers via consultants, often connected to global asset managers that manage properties also in other countries (e.g, France and Spain).	Based on the 700 €/m2 primary investment of a deep energy refurbishment mentioned above and a 0.5% relative increase of current renovation rate resulting in 300,000 m <sup>2</sup> . This would equal to 210 MM€.
Belgium & Germany	Energinvest & UIPI	The EEnvest solutions will enable <b>Energinvest</b> to better map out the risks involved in the energy efficiency implementation process. To do this mapping in the early stage of the process and provide risk mitigation we aim at integrating these solutions in Energinvest's implementation methodology and schemes (Tendering documents, Requests for Proposal, Requests for Financing). <b>Energinvest</b> will thus actively promote EEnvest solutions among existing and prospect customers and partners. The platform will be commercialized through our existing network of contacts with Banks (e.g. Belfius Bank, BNP Paribas Fortis), Third Party Investors (e.g. PMV) and ESCOs (members of BELESCO, the Belgian ESCO Association, and other). We will specifically present EEnvest solutions to public authorities through our contacts at ministry cabinet and government administration level. For the non-public sector, we have good contacts with ESCOs as we are managing the Belgian ESCO Association, BELESCO. We will organize an event to promote and test the usefulness of such a tool for ESCOs and other stakeholders. We also aim to engage private and real estate managers into the implementation of	Based on the 700 €/m2 primary investment of a deep energy refurbishment mentioned above and a 0.5% relative increase of current renovation rate resulting in 25,000 m <sup>2</sup> . This would equal to 17.5MM€.

		energy efficiency projects based on EPC fostered by the EEnvest solution.	
--	--	---------------------------------------------------------------------------	--

## 5.2 INDIVIDUAL EXPLOITATION OF RESULTS AT M36

At M36, the exploitation is focusing not only on the final EEnvest Platform corresponding to ER0 but on each ER and particularly on ER01, ER04, ER08 and ER09.

In Table 7, we present first the update of the ER description and then look at the foreseen individual exploitation and IP Management proposed.

**Table 7 – Owner(s) and description of the individual exploitation of ERs**

ER#	Leader of the ER	Co-owners	Description of the ER
ER0	R2M	All	<p>The EEnvest platform provides investors with the possibility to evaluate the risk of investment in energy efficiency for buildings. The web-based search platform matches the demand and offer of buildings to be retrofitted with funding available from external financiers.</p> <p>The EEnvest platform will provide reliable information on the risk associated with energy renovation measures, combining proprietary risk evaluation models with the specific features of the property evaluated. The platform will use a blockchain-based data exchange validation system in order to guarantee the security and quality of the information. In this way, EEnvest will connect technical and financial communities, such as building owners, designers and potential transaction financiers, as well as private investors.</p> <p>To carry out the risk evaluation, the EEnvest platform will use a framework developed within the project that will combine technical-financial due-diligence mechanisms, resulting in a set of possible renovation actions presented in an organized and user-friendly way.</p>
ER1	EURAC Research	SINLOC, POLIMI	<p>Consultancy to real estate developer and to investors (Banks, investment funds, crowdfunding, ESCOs)</p> <p>Support investors in terms of assessing the risk related to investment in EE projects. Provide investors with recommendations.</p>

<b>ER2</b>	SINLOC	-	<p>Consultancy to real estate developer and to investors (Banks, investment funds, crowdfunding, ESCOs)</p> <p>Support investors in terms of assessing the risk related to investment in EE projects. Provide investors with recommendations.</p>
<b>ER3</b>	EURAC Research	POLIMI	Support owners or designers (research projects) in terms of assessing the additional technical risk in terms of energy renovation.
<b>ER4</b>	GNE	Energinvest, EURAC Research	Methodology/Process could be consulting services to implement this methodology. in the residential/commercial markets. Specifically, the methodology serves to unveil and make operational the MBs hidden value using a data-driven approach.
<b>ER5</b>	IES	-	<ol style="list-style-type: none"> <li>1) A web app that calculates risks and generates EEnvest report that communicates with other software components via API</li> <li>2) Front-end improvements in existing commercial tool called CIM, including the capability to execute calculations</li> <li>3) A web app that validates reports using open source blockchain validation tool</li> </ol> <p>Jointly all the above consist of the EEnvest search &amp; match platform</p>
<b>ER6</b>	POLIMI	EURAC Research, IES	A method for collecting and processing the data needed for risks analysis. Consultant service (by POLIMI)
<b>ER7</b>	Energinvest	IES, EURAC Research, SINLOC, GNE, POLIMI	<p>Today Energinvest is coaching their customers through the whole process of their building energy renovation project, from A to Z. The services include some financing counselling though this is still not a very well explored area yet.</p> <p>Thanks to the EEnvest Platform and its capability of benchmarking relevant KPI, based on the EEnvest Evaluation methodology, of different energy efficiency projects uploaded to this EEnvest Platform, it will be possible for Energinvest to add an additional layer of services to the customer. Energinvest will thus be able to expand its portfolio of services to include KPI and results related to technical risks aspects, financial risk performance and multiple benefits performance and have these benchmarked with other projects.</p> <p>These additional services will be particularly interesting when counselling customers during their search for financing. The Risk evaluation performed by the</p>

			Platform, allows project owners (Energinvest's customers) to put emphasis on those aspects of their energy efficiency project that are objectivised and can be of interest to financiers (e.g, financial performance risk, EU Taxonomy compliance, SDG focus,...), hence increasing their change to obtain financing of their EE project.
<b>ER8</b>	Energinvest	-	PQSAT is intended to provide a self-assessed assurance of the quality of the EE project set-up of the projects uploaded to the EEnvest Platform and as such enhances the risk evaluation capability of the EEnvest Platform, making it interesting to investors. PQSAT can be particularly interesting when counselling customers during their search for financing. Energinvest will thus be able to expand its portfolio of services to include PQSAT and the interpretation of PQSAT to support customers to anticipate flaws in the set-up of their project, take corrective actions and increase their change to obtain financing of their EE project through the EEnvest platform.
<b>ER9</b>	GNE	SINLOC, Energinvest	Technical, Financial, and Multi-Benefits assessments are calculated and used as inputs for the MCDA for benchmarking different investment alternatives. The MCDA follows a step-by-step basis. A first step refers to selecting the different investment alternatives that are of interest to the user, as well as selecting the criteria (i.e., KPIs) that will be used to study the investment alternatives. With the final multi-Criteria score values, the projects can be ranked and the preferred projects for the investor are shown. As a result, the investor is now able to choose the preferred project according to the MCDA analysis.

In the next Table 8 are summarized the individual exploitation paths foreseen by individual ERs. More details regarding the customer relationship and channels used to reach the customers are available in each ER assessment questionnaires, see Annexes A to J.

**Table 8 - Foreseen individual exploitation of ERs**

<b>ER</b>	<b>Output</b>	<b>Objective of exploitation</b>
<b>ER1</b>	Consulting service  Significantly improved process	Technical consultancy to real estate developer/investor (financer)/investment fund. Support them in terms of assessing the additional risk in terms of energy renovation
<b>ER2</b>	Significantly improved process	Thanks to the EEnvest output SINLOC wants to increase the quality and value of its deliverables and by doing so have 10% more clients/per year.

<b>ER3</b>	Consulting service  Significantly improved process	Technical consultant to real estate developer Support owners or designers in terms of assessing the additional risk in terms of energy renovation
<b>ER4</b> <b>ER9</b>	Consulting service  Significantly improved process	Methodology/Process could be consulting Services to implement this methodology.  The Multiple Criteria Decision Analysis (MCDA) is a Decision-making support tool, enabling benchmark functionality for investors and project promoters.
<b>ER5</b>	New product	IES will exploit the functionalities developed for the EEnvest platform as part of their existing and future software tools. In particular ,the methodology and approach for data validation based on blockchain will be added to other IES software solutions, especially in the field of smart and community grid planning and management, building performance assessment in operation and Measurement & Verification. This will enable the company to provide new services and more attractive tools to support ESCOs and smart grid actors. Besides this, the exploitation path will also include revenue for royalties coming from the licensing of the EEnvest platform itself.
<b>ER6</b>	Consulting	The overall data platform in/out structured methodology could be exploited within POLIMI consulting services
<b>ER7</b> <b>ER8</b>	Consulting  New service	Thanks to the database, quantification and benchmarking: it will be possible for Energinvest to add a layer of services and expand its portfolio to include the financing aspects creating a fully fledged consulting service.  Risk evaluation is close to the financing aspects, so it will be included. Increase the chance to get finance. Objectivize things. Risks are sufficiently documented.

As one can see in ‘Table 8 - Foreseen individual exploitation of ERs’, most of the partners envisage to exploit their ER developing new **consulting services** to add to their **current portfolio of activities**.

The final Table 9 present the protection strategy proposed to manage the IP considering the exploitation path envisaged.

**Table 9 - Related intellectual property rights**

<b>ER</b>	<b>Protection strategy</b>
<b>ER0</b>	TRL7 today, joint ownership until it reaches TRL9  Once at TRL9, transfer agreement could be planned to give the exploitation to one of EEnvest’s partner (R2M) including compensations for co-owners according to the level of involvement in the development of the final platform.  After the transfer agreement is established, the owner will licence EEnvest Platform for free to Consortium partners and against a payment to external interested parties.
<b>ER1</b>	TRL7, joint ownership

	<p>In case of TRL9 and exploitation, what is best is to transfer the ownership to one partner of the co-owners (SINLOC, EURAC Research, POLIMI) allowing the now only owner to licence to other EEnvest partners or to external parties. To be fair, the licencing mechanism should contemplate a compensation for the previous co-owners.</p> <p>Another option is to plan a mutual Licence allowing all co-owners to exploit the model precising the scope of the exploitation agreed (EURAC Research &amp; POLIMI--&gt; scientific exploitation, SINLOC --&gt; commercial exploitation.)</p> <p>What is developed in the future (all foreground developed individually after the license of the common ER) is under each partner's copyright.</p>
<b>ER2</b>	<p>SINLOC plans to protect this ER via industrial secret, keeping the information confidential.</p> <p>SINLOC will use excel files developed internally (application in the energy sector + applications of the methodology is possible in other sectors), only giving extracts to the customers without revealing the know-how (pioneer users should be invited to test the model via the platform, it avoids giving the spreadsheet away).</p>
<b>ER3</b>	<p>Publication of methodology, later of database and model. Open science, publication will contribute to expand the scientific knowledge and to promote further research.</p>
<b>ER4</b>	<p>GNE will protect the Multiple Benefits evaluation methodology by copyright.</p> <p>GNE &amp; ECrowd have signed an agreement to join forces exploiting Multiple Benefits evaluation to boost sustainable crowdfunded investments, an excellent result of joining forces within the project and a very good way to conduct joint exploitation.</p>
<b>ER5</b>	<p>Licensing to other partners: for instance, licence to main EEnvest platform exploiter (R2M) or other Consortium partners interested in exploiting the platform. This licence will frame the technical support of the platform.</p>
<b>ER6</b>	<p>POLIMI can transfer this result to the BCode Spin off for the exploitation of the result, this company is in a better position to guarantee its commercialization through the provision of services.</p>
<b>ER7</b>	<p>Transfer agreement or licence agreement (if different partners want to exploit the platform).</p> <p>Energinvest wants to exploit the benchmark option of the EEnvest platform —&gt; If R2M is exploitation manager (meaning that it has the right to exploit after signing an agreement with the EEnvest Platform co-owners) —&gt; R2M will have the possibility to licence to other EEnvest partners for free and under payment to external parties. Energinvest will have the right to exploit the platform through services but not to sublicense the platform.</p>
<b>ER8</b>	<p>Energinvest will protect the PQSAT methodology by copyright.</p>
<b>ER9</b>	<p>GNE plans to protect this result via patent, but in the future, once the development of the tool has reached a more mature state that allows them to determine if it is innovative enough for patenting. Therefore, they must make sure to maintain the strictest confidentiality about the MCDA tool in order not to disrupt the novelty requirement for patenting, and for that they will sign a non-disclosure agreement (DNA) with the partners involved in the development of this result.</p>

---

## 6 Replication potential of the EEnvest results

### 6.1 REPLICATION BASED ON PROJECT PARTNERS VISIONS M36 AND D6.3

#### General vision

EEnvest is an EU Horizon 2020 funded project led by EURAC which has developed a set of models, methodologies and tools addressing the need for full impact analysis and reporting of Energy Efficiency investments.

After 36 months of intense work mostly done during the 2 years historic pandemic of COVID-19, the functionalities needed to develop a de-risking search & match EEnvest platform have been developed. Their integration has led to a Minimum Viable Product (MVP) reaching TRL7/8. All partners recognize that additional development is needed to reach a platform that could be commercialized. The majority of the partners think that there is no need of external partner to continue the research and successfully exploit the entire list of ERs

Beyond the first phases of exploitation in Italy and Spain, and then France, Belgium, Germany and UK, the consortium is thinking of two paths of replication for the EEnvest platform itself: first in other European countries; second, in other type of buildings (e.g. residential) and sectors (e.g. RE, health, transport).

The market study for potential replication in different European countries has not been carried out yet, but if the development in the first European countries is successful (input data, commercialisation) it will be relatively easy to replicate an EEnvest platform designed for de-risking commercial building retrofit investment in other countries.

Regarding the replication in the residential sector, EEnvest technical and financial risk models were in depth analysed by UIPI and thoroughly reviewed and it has been found that these models equally apply to both commercial and residential projects. Therefore, all EEnvest KPIs and methodologies equally apply to the residential sector as well, and for this reason, they are well understood, since they were extensively discussed and applied in EEnvest project. Only one more additional KPI was proposed, about expressing the reference building energy performance, to be introduced in the long-run, in order to render EEnvest methodology compatible with EPC (Energy Performance Certificate) method, which is expected to dominate the energy efficiency market over the next 10 years (up to 2033) since Mandatory Energy Requirements are expected to constitute the main vehicle of European Union in promoting energy efficiency and CO<sub>2</sub> emissions reduction in the building sector, both commercial and residential sectors.

Considered separately, the EEnvest functionalities developed represent a set of key EEnvest results that can be exploited separately through dedicated services.

Technical and financial de-risking models developed allow to predict the risk of budget deviation related to the technical choices. Also, the EEnvest MB assessment methodology is proposed to estimate a set of non-energy benefits of major importance including environmental, social and transversal performance indicators. A Project Quality Self-Assessment Tool states the level of best practice compliance, supporting the project promoters looking for investments in detecting the project weaknesses and giving a clear idea to the investors about how the project has been designed.

The following section details the vision of project partners on the overall EEnvest results replication beyond the end of the project. They were captured through 3 questions, answers are reported in the tables below.

**Table 10 - Vision of the consortium on replication partners**

<b>Question 1:</b> Can you propose specific organisations / stakeholders that could be interested (i.e. worth to be approached) in testing / experimenting the ERs (all project ERs)?	
EURAC Research	Belfius, Volksbank, Euregio+ SGR, Redo SGR, Prelios SGR / Prelios Integra, Casa Spa
SINLOC	Belfius, Volksbank, Prelios
GNE	Private investors, fundraising organisation, project promoters. GNE know-how could be the starting point of other EU funded projects. The result could be further integrated into the SER EU project where GNE and Polimi are project partners since the multibenefit approach applied nicely in this project.
IES	Building owners, project promoters, investors (real estate and wealth/pension funds, fundraising organisation.
Energinvest	Bankers want to test a finalized platform, report, and benchmark project functionalities.
POLIMI	COIMA (big investor company) and Prelios are interested in testing the EEnvest platform. ER6 interests construction companies, R2M Energy, ENERGINVEST, EURAC, SINLOC and GNE.
R2M	Several profiles are interested in testing the EEnvest platform. Most of them are also interested in testing EEnvest bricks, we can list Volksbank, Belfius, Prelios, R2M Energy, Energinvest, Eurac, Sinloc, GNE.
ECrowd	In touch with <a href="https://www.aunaforum.com/">https://www.aunaforum.com/</a> , interested in understanding the green asset value increase + other subjects (consult the website). Catalunya Efficient Energy Cluster ( <a href="https://clusterenergia.cat/?lang=es">https://clusterenergia.cat/?lang=es</a> ), public and private actors. <a href="https://www.eurofintech.net/inicio">https://www.eurofintech.net/inicio</a> , one commission focusing on building construction, energy renovation of hôtels (touristics building).
UIPI	UIPI members
Specific organisations and sometime even specific persons interested in testing the ERs are identified. Nevertheless, the fact that the platform is only a MVP level and that the commercial technical partners (e.g. SINLOC, GNE) would like to exploit commercially the know-how limit the scope of the potential testing phase.	

**Table 11 - Market analysis for replication**

<b>Question 2:</b> Can you characterise future end-users / customers of these outcomes: type of users, market size, geographical location, etc... ?	
EURAC Research	EURAC envisages a replication of EEnvest methodology in the residential sector, RES infrastructures would impose different commercial approach adapting to the size of the project/investment which is different depending which sector is considered. To increase the attractiveness of small residential projects, the clustering is an option. But clustering in the

	residential sector (multifamily houses) organised by the ESCOs is not easy to implement. In the commercial building the asset is owned by one or two owners, the decision-making process is "easier". The investor running a due diligence might impose clustering.
SINLOC	EEI: Private sector (school, hospital, municipal building), ESCOs, investment funds (wider portfolio including different types of buildings) ER1 depends on the technical analysis (quantification of technical risk), replication for private sector types of building only require adapted database that would be provided by ER2 can be applied directly to private sector (school, hospital, municipal building), ESCOs, investment funds (wider portfolio of different)
GNE	Private investors: project promoter, private building owner to whom GNE provides consulting service integrating ER4. Location: Spanish market, potential at EU level through partnerships. Expansion via Italy. End-users in partnership withing EU projects. Financing institutions: Ethic banking, banks in general. Public/private partnerships at regional and national level in Spain and Italy (SER project, GNE is coordinator). Pushing further, improve public policies to encourage buildings renovation.
IES	Building owners, ESCO investors in EU
Energinvest	Project owners: private project owners (public sector not possible due to tendering legal requirements) Investors: funds, banks, real estate funds and energy funds (both project aggregators)
POLIMI	Project promoters, construction companies, banks
R2M	Banks, investment funds, ESCOs, project promoters, crowdfunding
ECrowd	Via collaboration with GNE, trying to enter building renovation market. Plan is to do it with GNE's support, owner's forum, etc...
UIPI	NA
The consortium is in contact with a shortlist of pioneer users and have started concrete exchange with Prelios to help them further tests and use the EEnvest results.	

**Table 12 - Replication paths**

<b>Question 3:</b> Briefly describe envisaged actions for exploitation / replication of the project outcomes. Add any additional comment that you think is relevant in relation with the upcoming EEnvest replication plan.	
EURAC Research	Focus clearly on one subset of investor and one subset of project owners, adjust the workflow and functionalities to the needs. Then expend to emerging markets, add more type of investors. No real limitation in terms of replications. Just need to have one worflow working 100% then add market segment of add one type of project.

	<p>Limitation is to be known by the users, create a channel to reach them, propose a services. Finding projects should not be so complicated when the service is clear.</p> <p>Main limitation is reaching more of the same stakeholders (often competitors) + Replicate to other types of assets, providing high level service also.</p> <p>ESCO and asset manager/investment fund/banks have very different ways of working.</p> <p>Understand specific projects they are interested in. Advertise projects aligned with their profile instead of leaving them applying filters.</p>
SINLOC	<p>ER0 (in the hypothesis that it is completed): to see what it looks like to estimate the exploitation paths.</p> <p>ER1 replication possible with the constraint to have a technical risk database provided by technical expert of the specific field.</p> <p>ER2 does not need any adaptation to be replicated in other sector/investment. Works without technical risk database, only based on assumptions that need to be stated.</p> <p>ER9: can be exploit in the future, in all sectors.</p>
GNE	<p>Replication of the non-energy benefit methodology ER4 will try to be standalone (separated from the platform).</p> <p>ER4 will be pushed into further projects.</p> <p>ER4 is a good base and the exploitation is to further develop and replicate aligned with the growing needs foreseen (EU taxonomy compliance for instance).</p> <p>Limitation to replication: the main barrier is that the market is changing, flexibility is key in adapting to market dynamics, I.e. quantification of MBs, EU taxonomy better definition.</p> <p>Relevance of the methodology and flexibility to address different stakeholder and asset needs will come from the next developments.</p>
IES	<p>Continue to develop the EENVEST Platform functionalities and introduce features like the integration of the energy simulation tool into the platform.</p> <p>Also issue blockchain certificates for other business such as training and building energy model calibration certificates.</p>
Energinvest	<p>EEnvest know-how related to EEnvest report can support Energinvest's clients. Energinvest could support clients to input the data, maximize the results and analyze the output. The clients looking for financing would use the platform and Energinvest would support the use of it.</p>
POLIMI	<p>POLIMI wishes to continue to develop the EEnvest Platform functionality in next similar project. A step forward could be the integration of the energy simulation tool into the platform.</p>
R2M	<p>R2M will use and introduce EEnvest know-how in next energy renovation related projects (other countries, residential, commercial, public building).</p>

<p>ECrowd</p>	<p>ECrowd is in Spain, in a long and hard process of ECrowd platform upgrade to adapt to the new crowdfunding regulation (nov 2022). A new license from the national regulation will be obtained, this new European license will allow having investors from all EU countries and will allow to finance projects across the EU. Pan-EU licence.</p> <p>Open activities in new countries with joint venture in Italy (will local partners GNE+ECrowd+local partner) --&gt; will finance renovation from 2023 onwards.</p> <p>Next steps will be joint with GNE finance.</p> <p>GNE finance &amp; ECrowd relationships has been tighten during the project. It has been a natural evolution after entering EEnvest consortium and now commercial collaboration is starting to enter jointly the EEI EU market. ECrowd owns the first online platform for participatory investment in sustainability in Spain, it enables participatory financing of projects with social and environmental impact through loans of up to €500,000. In this pooling of skills, capabilities and resources, GNE Finance will act as lead investor for projects of that amount that are aligned with its investment objectives, enabling ECrowd and its network of over 5,700 investors to access more opportunities, carefully selected to align values and financial objectives. This agreement will give investors - middle-income and socially-minded investors who traditionally rely on banks to manage their savings - more opportunities to invest and participate in social and environmental projects.</p>
<p>UIPI</p>	<p>NA</p>
<p>At the end of the project, the consortium partners have the firm intention to build new project and improve their business offers based on the know-how accumulated during the EEnvest projects. The very concrete GNE &amp; ECrowd agreement to establish a new close and long-term collaboration is immediate real-life exploitation of several project results. The replications have high chances to take the path of new research projects with several partners interested in applying the know-how and adapting the EEnvest tools to other sectors by this mean.</p>	

---

## Conclusion

This report presented the maturation of the EEnvest individual ERs and their exploitation strategy and potential replication paths. At the time of writing this report, the situation is very encouraging with partners mobilized to exploit the knowhow through consultancies and further research projects. During the last year of the project, the exploitation strategy was adjusted, moving from an exploitation strategy mainly focused on ER00 to an exploitation strategy encouraging the development of exploitation paths for each individual ERs and particularly ER01, ER04, ER8 and ER9.

The positioning of each partner is clear but still flexible to be adjusted depending on the discussion with first customers. All ER owners have already identified target markets and exploitation routes, and they have in general a clear vision of the time to market for their individual results which is very encouraging. Most partners have started implementing the exploitation strategy, EURAC Research is exchanging with PRELIOS SGR and the project partners to help them testing and using the EEnvest tools. GNE and ECrowd have signed a commercial agreement to start developing joint services integrating the new EEnvest know-how on Multibenefits Assessment. SINLOC is integrating the EEnvest financial de-risking model into the next EEI consultancy. Energinvest is studying how to integrate the PQSAT in a service to support Energy Efficiency projects development in buildings. Advice concerning the IP management has been provided by R2M and all elements are in place for the short term-exploitation of the results.

After the encouraging conclusions of UIPI regarding the replication of EEnvest in the residential sector, additional replication routes towards other sectors have arisen from internal discussion with the project partners. The replication in the renewable energy infrastructure and transport construction and health are promising and will be pursued by EEnvest project partners in the coming years.

## Annex A ERO questionnaire

ER N°	ER00	EInvest Platform	LAST UPDATE
			20/06/2022
ER leader		R2M Solution	
Owner(s) / Developer(s)		Is there one clear "owner" of the innovation or multiple owners?	
		<input type="checkbox"/>	One clear "owner"
		<input checked="" type="checkbox"/>	Multiple "owners"
		List all owners / developers	
		<ul style="list-style-type: none"> <li>Associated partners: ALL</li> <li>Owners: IES, EURAC, SINLOC</li> </ul>	
Key resources and background declaration for "shared ER"		 What Key Resources do your value proposition require?  Explain <b>which background from whom has been used for the production</b> of the jointly developed ER (potentially check the Consortium agreement for former input)  EInvest is the final product of the project. It integrates all EInvest ERs from ER01 to ER08. Its background and scientific validation is the one of its components.  "Know-how or EURAC, SINLOC, ENERGINVEST, POLIMI and GNE particularly used to develop the new methodologies and models.  The platform interface is derived from the ICIM platform, IES product."	
Management Ideas for "shared ER"		 Outline your first ideas of <b>how the ER exploitation of the jointly developed ER could be managed</b> (for example market splitting, licensing among partners, JV setup etc)  Consortium joint exploitation (all partners acting in common) is not envisioned. However, if it becomes clear the next critical step for the development and commercialization of the foreground is continued joint development.  At the end of the project the platform is not ready to be commercialized and its TRL is estimated 7/8 but each partner network encompasses a lot of potential users of the platform or of the platform bricks. The key is to finalize the platform development, a new project and budget should be found to support the necessary remaining IT development.  Joint ownership of ERO is foreseen and an agreement regarding the perimeters of exploitation could be included.  Two main options are under evaluation:  The exploitation by one or more partners of a platform at TRL9.  It's exploitation by bricks via bankers, ESCOs interested in certain tool/bricks obtained as EInvest project results.	

<p><b>Output</b></p>	<ul style="list-style-type: none"> <li>Significantly improved product</li> <li>Significantly improved service (except consulting services)</li> <li>Significantly improved process</li> <li>Significantly improved marketing method</li> <li>Significantly improved organisational method</li> <li>X Consulting services</li> <li>X New product</li> <li>New service (except consulting services)</li> <li>New process</li> <li>New marketing method</li> <li>New organisational method</li> <li>Other (please specify) :</li> </ul>
<p><b>Description of the result</b></p>	<p>The EEnvest platform provides investors with the possibility to evaluate the risk of investment in energy efficiency for buildings. The web-based search platform matches the demand and offer of buildings to be retrofitted with funding available from external financiers.</p> <p>The EEnvest platform will provide reliable information on the risk associated with energy renovation measures, combining proprietary risk evaluation models with the specific features of the property evaluated. The platform will use a blockchain-based data exchange validation system in order to guarantee the security and quality of the information. In this way, EEnvest will connect technical and financial communities, such as building owners, designers and potential transaction financiers, as well as private investors.</p> <p>To carry out the risk evaluation, the EEnvest platform will use a framework developed within the project that will combine technical-financial due-diligence mechanisms, resulting in a set of possible renovation actions presented in an organized and user-friendly way.</p>
<p><b>Illustration (s)</b></p>	 <p>The illustration shows the EEnvest Platform framework on the left, which includes three main components: Technical risk evaluation (risk identification, impact quantification and mitigation measures), Financial risk evaluation (structured framework to convert the technical risk evaluation into economic indicators), and Technical/financial due diligence (standardized scheme to evaluate energy efficiency investments for the renovation of buildings). On the right, a sample dashboard displays a risk profile for a property, showing a 5.7% 1YR Risk of Decline (Very low risk) and an Opinion of Market Value of €535,000. The dashboard also includes a 'Highest Risk' indicator and a note that an appraiser-concluded value and a physical inspection are required for compliance reasons or highly unique properties.</p>
<p><b>Unique selling point</b></p>	<p>The EEnvest platform will provide reliable information on the risk associated with energy renovation measures, combining proprietary risk evaluation models with the specific features of the property evaluated. The platform will use a</p>

	<p>blockchain-based data exchange validation system in order to guarantee the security and quality of the information. In this way, EEnvest will connect technical and financial communities, such as building owners, designers and potential transaction financiers, as well as private investors.</p>
<p><b>Targeted Customers / Market Segment</b></p>	<p><i>For whom are you creating value? Who are your most important customers?</i></p> <ul style="list-style-type: none"> <li>• Building owners</li> <li>• Investors who search for new investment opportunities in the energy efficiency sector, banks, investment funds</li> <li>• Intermediaries like ESCOs, associations and assessors</li> </ul>
<p><b>Customer relationships</b></p>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them? Which ones have you established? How are they integrated with the rest of your business model? How costly are they?</i></p> <p>(June 2022) The relationships exist but the status of development of the platform limits the communication about it. We envisage to approach our network with clear information regarding EEnvest's bricks in order to pass on the messages that EEnvest platform functionalities are ready to be exploited individually or associated while pushing in parallel for the EEnvest platform development finalisation.</p> <p>(June 2021) We are currently investigating how to reach the different customer segments in our countries of operation (Italy, France, Spain). In Italy, we are very well connected with real-estate market players (member of Green Building Council Italia). We have also launched an ESCO in Italy (R2M Energy). Both in Italy and in France, we are distributors of innovative technologies like Onyx Solar PV glass, which makes us contact real-estate market players (architects, building owners, construction companies, engineering companies...) on a regular basis. R2M Solution has also a long-term relationship and collaboration with IES.</p>
<p><b>Channels</b></p>	<p><i>Through which channels do your customer segments want to be reached? How are you reaching them now? How are your channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</i></p> <p>Direct contact (email, calls) have been the most efficient to mobilise stakeholder when organizing EEnvest workshops.</p>
<p><b>Value proposition</b></p>	<p><i>What value do you deliver to the customer? Which one of your customer's problems are you helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</i></p>

	<p>The EEnvest platform helps customers as follows:</p> <ul style="list-style-type: none"> <li>• Building owners, by finding third party financiers to pay for building renovation</li> <li>• Investors who search for new investment opportunities in the energy efficiency sector, by quantifying projects' technical risks and controlling their financial impacts</li> <li>• Intermediaries like ESCOs, associations and assessors, by trusting to a third party the evaluation of the EE project outcomes</li> </ul>									
State of development at present date	<ul style="list-style-type: none"> <li>• At the end of the project the platform is not ready to be commercialized and its TRL is estimated 7/8.</li> <li>• Needs are: improvement of the interface, integration of ER8 and ER9, debugging...</li> </ul>									
Performed trials and achieved results at present date	<ul style="list-style-type: none"> <li>• Tested with the 2 pilot sites data + Prelios project data transmitted to EURAC</li> </ul>									
Current level of development for the result (TRL)	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
Expected level of development for the result (TRL)	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td style="background-color: #0070C0; color: white;">7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
<p>Y1 Y2 Y3 Y4 Y5</p>  <p><b>Short-term (project end + 2y) exploitation vision, strategy and actions</b></p>										
Objective(s) of foreground exploitation	<p> Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years</b> after project closing (this should include a quantification to be measurable)</p> <p>Goal is to catch the attention of potential pioneer users, convince them about the added value of EEnvest platform and tools.</p>									
Expected time for marketability	<p>Is the innovation developed within the project:</p>									
	<table border="1" style="width: 100%;"> <tr> <td style="text-align: center;"><b>X</b></td> <td>Under development</td> </tr> <tr> <td></td> <td>Already developed but not yet being exploited</td> </tr> <tr> <td></td> <td>being exploited</td> </tr> </table>	<b>X</b>	Under development		Already developed but not yet being exploited		being exploited			
	<b>X</b>	Under development								
		Already developed but not yet being exploited								
	being exploited									
<p> Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <p>Less than one year</p>										
Exploitation collaboration with external partners	<p> Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p>									

	<p>No external partner is necessary. The post-EEnvest project development needed to bring from TRL 7 to TRL 9 the platform could be done by the same group of partners. Nevertheless, the need is mostly on the IT development to improve the user experience and add functionalities integrating addition EEnvest ERs (ER8, ER9) into the platform. A IT developer supported by 1 or 2 EEnvest partners could do the job.</p> <p>The IT development needed to improve the UX can be covered by IES (to be checked if they are interested).</p> <p>The expected research results have been obtained considering that the EEnvest platform is at Minimum Viable Product stage.</p>
<p><b>Preliminary exploitation vision</b></p>	Internal use
	Further research needed
	Enabling technology (for subsequent product, service, etc.)
	Training
	Open distribution
	Establishment of industry standard
	x Direct sales / Consultancy service
	X Licensing the innovation to a 3 <sup>rd</sup> party
	IP sale
	Joint Venture
	Launch a start-up or spin-off
	Other → Please specify
<p><b>Foreground exploitation strategy</b></p>	<p> Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <p>Business cases studies have started to be studied via interviews conducted interviews in Italy, Belgium and Spain with potential customers (Belfius, Volksbank, Prelios...). They all show interest for the platform and their feedback start to draw the main axis of the business models.</p>
<p><b>In case of commercialisation, target market</b></p>	<p> Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</p> <p>We think that the MVP is capable to attract early adopters, collect feedback and lead to platform improvement towards a final viable product.</p> <p>The EEnvest bricks have probably a shorter way to market through consulting services (SINLOC, GNE &amp; ECrowd...). The consortium partners are invited to</p>

	<p>pursue the exchanges started with the potential users (particularly the retail banks &amp; investment funds) and advertised their consulting services.</p> <p>Italy, Belgium and Spain are the countries targeted first.</p>
<b>Market maturity</b>	<i>The market targeted by this innovation is ...</i>
	The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	Market creating: The market is not yet existing but the innovation has clear potential to create a new market
	<input checked="" type="checkbox"/> Emerging: There is a growing demand and few offerings are available
	Mature: The market is already supplied with many products of the type proposed
<b>Market dynamics</b>	<i>Is the market ...</i>
	In decline
	Holding steady
	<input checked="" type="checkbox"/> Growing
<b>Market competition</b>	<i>How strong is competition in the target market?</i>
	Patchy, no major players
	<input checked="" type="checkbox"/> Established competition but none with a proposition like the one under investigation
	Several major players with strong competencies, infrastructure and offerings
<b>Preliminary roadmap or milestones of activities</b>	<p> Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</p> <p>Roadmap: the EEnvest Platform MVP should be finalized in 6 months, adopted by a customer with a The EEnvest Platform MVP should be finalized in 6 months. In the short-term, with Prelios interested in adapting the tools (once ready) into their workflow, we expect the tools to be associated with around 15 mln€/y of retrofits (10 Prelios buildings per year). A well-known pioneer user as Prelios SGR will support 5 to 10 similar replications within the 2 first years of exploitation.</p>
<b>Possible limitations/risks in exploitation</b>	<p> Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p>

	<b>Risk description</b>	<b>Classification (T/FE/R/MC/SE)</b>	<b>Likelihood (high/medium/low)</b>	<b>Impact (severe, moderate, minimal)</b>
	TRL9 not reached at the end of the project; needs more development	T	H	M
	Limited access to data	T	M	M
<b>Mitigation measures for identified limitations/risks</b>	 <i>Initial ideas on how to compensate for these limitations/risks in the exploitation of the ER.</i>			
	<b>Risk description</b>	<b>Mitigation actions (reduce likelihood of occurrence)</b>		<b>Contingency actions (reduce severity of impact)</b>
	TRL9 not reached at the end of the project; needs more development	Close monitoring of EEnvest platform		Develop a brick exploitation strategy
	Limited access to data	Close contact with partner such as Prelios to collect project data from them		Develop a brick exploitation strategy, which does not require a lot of project data
<b>Cost structure</b>	<p><i>What are the most important costs inherent in our business model?</i></p> <p><i>Which key resources are most expensive?</i></p> <p><i>Which key activities are most expensive?</i></p> <p> Starting with a Freemium option seems to be the best to create interest and catch the attention of pioneer users. A business plan was proposed M24 and will be updates at M36. A few functionalities with costs such as the blockchain validation have been detected.</p> <p>2 Business models are proposed, one for the PO segment, one for the investors segment. It is estimated that costs can be more easily requested from the project promoter because of the service value proposed to them (visibility, project quality check, project de-risking...). On the investor side the benchmark option can be monetized and the export of the report.</p>			
<b>Revenue streams</b>	<p> <i>For what value are your customers really willing to pay?</i></p> <p><i>For what do they currently pay?</i></p> <p><i>How are they currently paying?</i></p> <p><i>How would they prefer to pay?</i></p> <p><i>How much does each Revenue Stream contribute to overall revenues?</i></p> <p>Revenue will come from</p>			

Source of external funding required	Invest EU - <a href="https://investeu.europa.eu/index_en">https://investeu.europa.eu/index_en</a> Life calls
Y1 Y2 Y3 Y4 Y5	 <b>Mid-term (project end + 5y) exploitation vision</b>
Objective(s) of foreground exploitation	 Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)  Successful in Italy, Belgium and Spain, expand to other markets such as the residential market.
Foreground exploitation strategy	 Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):  The EInvest Platform will be a commercial product in less than 12 months. The last phase of the design will have involved pioneer users financing EE renovation of commercial building. After the adoption by a few retail banks and investment funds in Italy, Belgium and Spain. The research have created special functionalities for small scale project allowing investment derisking of aggregated EEI.
Preliminary roadmap/ milestones of activities	 Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)  Roadmap:
<b>Related Intellectual Property Rights</b> 	
Market competition	Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b> .
	<input type="checkbox"/> Patent
	<input type="checkbox"/> Industrial design rights
	<input checked="" type="checkbox"/> Copyright
	<input type="checkbox"/> Trademark
	<input type="checkbox"/> Trade secret
	<input type="checkbox"/> Database rights
<input type="checkbox"/> Other (specify): Commissioning know-how	
Protection strategy details	 Explain your <b>protection strategy in more detail</b> here:  TRL7 --> joint ownership until it reaches TRL9

	<p>Once at TRL9, transfer agreement could be planned to give the exploitation to one of EEnvest's partner (R2M) including compensations for co-owners according to the level of involvement in the development of the final platform.</p> <p>After the transfer agreement is established, the partner in charge will licence EEnvest for free to partners and against a payment to external interested parties.</p>
<p><b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b></p>	<p> Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</p>
<p><b>Required funding for protection</b></p>	<p> Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc) Not applicable</p>

## Annex B ER1 questionnaire

ER N°	ER01	Technical + financial evaluation risk model	LAST UPDATE
			24/5/2022
ER leader		EURAC	
Owner(s) / Developer(s)		Is there one clear "owner" of the innovation or multiple owners?	
		<input type="checkbox"/>	One clear "owner"
		<input checked="" type="checkbox"/>	Multiple "owners"
		List all owners / developers	
		<ul style="list-style-type: none"> <li>• Owners : EURAC, SINLOC, POLIMI</li> <li>• Beneficiary: UIPI, ENERGINVEST, GNE, R2M</li> </ul>	
Key resources and background declaration for "shared ER"		<p> What Key Resources do your value proposition require?</p> <p>Explain <b>which background from whom has been used for the production of the jointly developed ER</b> (potentially check the Consortium agreement for former input)</p> <p>Databases from renovation projects developed in the past (EURAC)</p> <p>Energy simulation methodologies and know-how (EURAC-POLIMI)</p> <p>Numerical modeling expertise (EURAC)</p> <p>Professional network – expert based interviews (EURAC)</p> <p>Financial modeling and statistics (SINLOC)</p> <p>Methodology on investment valuation (ENERGINVEST)</p>	
Management Ideas for "shared ER"		<p> Outline your first ideas of <b>how the ER exploitation of the jointly developed ER could be managed</b> (for example market splitting, licensing among partners, JV setup etc)</p> <p>Further development in research projects – EURAC</p> <p>Funding for database population – an investor, which receives a license in return</p> <p>B1 - Licensing to external consultants or clients (banks, investors, technical consultants) – paying clients</p> <p>B1 - Licensing among partners. Engage partners in further EU funded project on similar topics. Provide consulting service jointly.</p>	
Output		<input type="checkbox"/>	Significantly improved product
		<input type="checkbox"/>	Significantly improved service (except consulting services)
		<input checked="" type="checkbox"/>	Significantly improved process (for research, sell tool to a bank)
		<input type="checkbox"/>	Significantly improved marketing method

		Significantly improved organisational method
	X	Consulting services
		New product
		New service (except consulting services)
		New process
		New marketing method
		New organisational method
		Other (please specify) :
<b>Description of the result</b>	<p>Consultancy to real estate developer and to investors (Banks, investment funds, crowdfunding, ESCOs)</p> <p>Support investors in terms of assessing the risk related to investment in EE projects. Provide investors with recommendations.</p>	
<b>Illustration (s)</b>		
<b>Unique selling point</b>	<ul style="list-style-type: none"> <li>• Grounded on our know-how, extended database of simulation work (objective performance assessment + quantified uncertainty + impact assessment « energy performance spread »)</li> <li>• Grounded on expertise of financial partners, who validated the model</li> <li>• Easy to use</li> <li>• Translates technical aspects into financial terms, to make EE project investments comparable to other investments</li> <li>• Potentially integrable into an investor workflow</li> <li>• Scalable: from the single building assessment to the aggregated building form of portfolio, clustering of EEI → One product to invest in.</li> <li>• In the long-term, the model would be updated, enriched by new use cases, database.</li> </ul>	
<b>Targeted Customers / Market Segment</b>		<p><i>For whom are you creating value?</i>  <i>Who are your most important customers?</i>  Investors (Banks, Energy Service Company, investment funds, crowdfunding)</p> <p>Real estate developer  Building owners (to assess risk to renovate their own building)</p>
<b>Customer relationships</b>		<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them?</i>  <i>Which ones have you established?</i>  <i>How are they integrated with the rest of your business model?</i>  <i>How costly are they?</i></p> <p>Direct contacts, dissemination events reaching all type of stakeholder profiles (sustainability officers, investors, project promoters).</p>

	<p>Thanks to ER01 we expect to establish new relationships with real estate developers and large building owners and investors offering a consultancy service of combined technical/financial risk assessment.</p> <p>Make clear that the product B1 needs to be inserted in their workflow or in the EEnvest platform. It is meant to be a complementary service integrated into a larger service.</p>																			
<p><b>Channels</b></p>	<p><i>Through which channels do your customer segments want to be reached? How are you reaching them now? How are your channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</i></p> <p>Direct contacts, business and research partners, EEFIG working group dealing with de-risking commercial building EEI and they are looking for DEEP platform further development. EEFIG could be a kind of loudspeaker mainstreaming the message.</p>																			
<p><b>Value proposition</b></p>	<p><i>What value do you deliver to the customer? Which one of your customer's problems are you helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</i></p> <p>The proposed value is a risk rating of energy efficiency project, in terms of financial KPIs.</p> <p>This service helps customers (investors) to quantify the risk linked to the investment, and to classify the investment in their portfolio. It also helps customers (developers, owners) to benchmark a project.</p> <p>The service could be provided as consultancy, but the tool itself could be licensed as a component for integration into customer (investor) workflow.</p> <p>We will meet the needs for investors to quantify the risks associated to the project.</p> <p>We will support developers and owners in benchmarking their projects.</p>																			
<p><b>State of development at present date</b></p>	<ul style="list-style-type: none"> <li>• Technical part: complete (ER03)</li> <li>• Financial part: complete (ER02)</li> </ul>																			
<p><b>Performed trials and achieved results at present date</b></p>	<ul style="list-style-type: none"> <li>• Tested on the 2 EEnvest pilotes and derivated cases</li> </ul>																			
<p><b>Current level of development for the result (TRL)</b></p>	<table border="1"> <tr> <td colspan="6">Research</td> <td colspan="4">Market</td> </tr> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td><b>7</b></td> <td>8</td> <td>9</td> </tr> </table>	Research						Market				1	2	3	4	5	6	<b>7</b>	8	9
Research						Market														
1	2	3	4	5	6	<b>7</b>	8	9												

Expected level of development for the result (TRL)	Research								
	1	2	3	4	5	6	7	8	9
	Short-term (project end + 2y) exploitation vision, strategy and actions								
Objective(s) of foreground exploitation	<p> Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years after project closing (this should include a quantification to be measurable)</b></p> <p>Here we should define a joint exploitation of the foreground with all partners.</p> <p>We count on SINLOC, ENERGINVEST, PRELIOS, BELFIUS, VOLKSBANK.</p> <p>To involve 20 investors and 200 developers, Y2.</p>								
Expected time for marketability	Is the innovation developed within the project:								
		Under development							
	X	Already developed but not yet being exploited							
		being exploited							
Exploitation collaboration with external partners	<p> Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <ul style="list-style-type: none"> <li>Ready at project closure</li> </ul> <p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p> Energinvest and GNE Finance as partners for product distribution and consultancy.</p> <p>R2M with sustainable consultancy (LEED)</p> <p>IES for service maintenance.</p>								
	Preliminary exploitation vision	X	Internal use						
X		Further research needed							
		Enabling technology (for subsequent product, service, etc.)							
X		Training (insurance, service, banks...)							
		Open distribution							
		Establishment of industry standard							
		Direct sales / Consultancy service							

	X	Licensing the innovation to a 3 <sup>rd</sup> party
		IP sale
		Joint Venture
		Launch a start-up or spin-off
	X	Other → Please specify <i>interface development, engineering (DB population + user experience)</i>
<b>Foreground exploitation strategy</b>	<p> Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <ul style="list-style-type: none"> <li>ER01 will be further developed during EInvest, including more technical risk assessment. So, further research and model internal use are foreseen to validate the current status of development. At project closure, consulting services will be delivered to clients or the model can be licensed to “advanced” users, such as real estate developers who want to assess large portfolios</li> <li>Replicate to other energy assets</li> </ul>	
<b>In case of commercialisation, target market</b>	<p> Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</p> <p><i>Reference market as per GA indications: Italy, Spain, Belgium, UK, France</i></p> <p><i>Market size is huge: investors, real estate, developers, owners</i></p>	
<b>Market maturity</b>	<i>The market targeted by this innovation is ...</i>	
		The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	X	Market creating: The market is not yet existing but the innovation has clear potential to create a new market
		Emerging: There is a growing demand and few offerings are available
		Mature: The market is already supplied with many products of the type proposed
<b>Market dynamics</b>	<i>Is the market ...</i>	
		In decline
		Holding steady
	X	Growing
<b>Market competition</b>	<i>How strong is competition in the target market?</i>	
	X	Patchy, no major players

	Established competition but none with a proposition like the one under investigation																				
	Several major players with strong competencies, infrastructure and offerings																				
<b>Preliminary roadmap or milestones of activities</b>	<p> Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</p> <ul style="list-style-type: none"> <li>- Marketing, in a joint venture with other partners</li> <li>- Training</li> </ul>																				
<b>Possible limitations/risks in exploitation</b>	<p> Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p>																				
	<table border="1"> <thead> <tr> <th><i>Risk description</i></th> <th><i>Classification (T/FE/R/MC/SE)</i></th> <th><i>Likelihood (high/medium/low)</i></th> <th><i>Impact (severe, moderate, minimal)</i></th> </tr> </thead> <tbody> <tr> <td>Low market penetration</td> <td>MC</td> <td>low</td> <td>severe</td> </tr> <tr> <td>Tool does not reach TRL 8</td> <td>T</td> <td>low</td> <td>severe</td> </tr> <tr> <td>Clear correlation btw. Technical issue and risk associated</td> <td>T</td> <td>medium</td> <td>severe</td> </tr> <tr> <td>Cultural barrier vs. Risk model (comprehensive evaluation)</td> <td>MC</td> <td>medium</td> <td>severe</td> </tr> </tbody> </table>	<i>Risk description</i>	<i>Classification (T/FE/R/MC/SE)</i>	<i>Likelihood (high/medium/low)</i>	<i>Impact (severe, moderate, minimal)</i>	Low market penetration	MC	low	severe	Tool does not reach TRL 8	T	low	severe	Clear correlation btw. Technical issue and risk associated	T	medium	severe	Cultural barrier vs. Risk model (comprehensive evaluation)	MC	medium	severe
	<i>Risk description</i>	<i>Classification (T/FE/R/MC/SE)</i>	<i>Likelihood (high/medium/low)</i>	<i>Impact (severe, moderate, minimal)</i>																	
	Low market penetration	MC	low	severe																	
	Tool does not reach TRL 8	T	low	severe																	
Clear correlation btw. Technical issue and risk associated	T	medium	severe																		
Cultural barrier vs. Risk model (comprehensive evaluation)	MC	medium	severe																		
<b>Mitigation measures for identified limitations/risks</b>	<p> Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.</p>																				
	<table border="1"> <thead> <tr> <th><i>Risk description</i></th> <th><i>Mitigation actions (reduce likelihood of occurrence)</i></th> <th><i>Contingency actions (reduce severity of impact)</i></th> </tr> </thead> <tbody> <tr> <td>Low market penetration</td> <td>           Commercial strategy / go to market managing in different mode (plan A / plan B)             Customize market strategy to each segment             Partnership         </td> <td>Reduce the likelihood</td> </tr> </tbody> </table>	<i>Risk description</i>	<i>Mitigation actions (reduce likelihood of occurrence)</i>	<i>Contingency actions (reduce severity of impact)</i>	Low market penetration	Commercial strategy / go to market managing in different mode (plan A / plan B)  Customize market strategy to each segment  Partnership	Reduce the likelihood														
<i>Risk description</i>	<i>Mitigation actions (reduce likelihood of occurrence)</i>	<i>Contingency actions (reduce severity of impact)</i>																			
Low market penetration	Commercial strategy / go to market managing in different mode (plan A / plan B)  Customize market strategy to each segment  Partnership	Reduce the likelihood																			

	<p>Tool does not reach TRL 8</p>	<p>Allocate more resources for validation and testing.</p> <p>Periodic review of the tool (WP2 check of the tool)</p> <p>Specific workshops to focus on most viable product</p>	<p>Reduce the likelihood</p>
	<p>Clear correlation btw. Technical issue and risk associated</p>	<p>Validation of the model by external experts (advisory board members)</p>	<p>Reduce the likelihood</p>
	<p>Cultural barrier vs. Risk model (comprehensive evaluation)</p>	<p>Spread awareness through dissemination events and targeted marketing</p> <p>Get feedback from target countries and target customers</p>	<p>Reduce the likelihood</p>
<p><b>Cost structure</b></p>	<p><i>What are the most important costs inherent in our business model?</i></p> <p><i>Which key resources are most expensive?</i></p> <p> <i>Which key activities are most expensive?</i></p> <p>Personnel cost, subscription to database, communication, marketing</p> <p>Personnel cost is expensive. To update the risk models is expensive.</p>		
<p><b>Revenue streams</b></p>	<p><i>For what value are your customers really willing to pay?</i></p> <p><i>For what do they currently pay?</i></p> <p><i>How are they currently paying?</i></p> <p><i>How would they prefer to pay?</i></p> <p> <i>How much does each Revenue Stream contribute to overall revenues?</i></p> <p>Customers will pay to know risk rating related to the project.</p> <p>Revenue depends on the service provided. If consultancy, a contract is needed to define details. Pay per hour.</p> <p>If there is a tool to be integrated in a specific workflow, testing and training could be custom offer.</p>		
<p><b>Source of external funding required</b></p>	<p>Not for the moment</p>		

Y1 Y2 Y3 Y4 Y5 <b>Mid-term (project end + 5y) exploitation vision</b>	
<b>Objective(s) of foreground exploitation</b>	<p> Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</p> <p><i>Revenue today's are based on research project.. Objective increase the share of consultancy on the overall turnover</i></p>
<b>Foreground exploitation strategy</b>	<p> Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</p> <p><i>The model could be integrated with other services.</i></p>
<b>Preliminary roadmap/ milestones of activities</b>	<p> Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</p> <p><i>Expand the geographic outreach</i></p>
<b>Related Intellectual Property Rights</b> 	
<b>Market competition</b>	<p>Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b>. <i>No needs so far</i></p>
	<input type="checkbox"/> Patent
	<input type="checkbox"/> Industrial design rights
	<input checked="" type="checkbox"/> Copyright - <i>maybe for the algorithms that will merge Technical and financial risks.</i>
	<input type="checkbox"/> Trademark
	<input checked="" type="checkbox"/> Trade secret
	<input type="checkbox"/> Database rights
<input type="checkbox"/> Other (specify):	
<b>Protection strategy details</b>	<p> Explain your protection strategy in more detail here:</p> <p><i>TRL7 --&gt; joint ownership</i></p> <p><i>In case of TRL9 and exploitation, what is best is to transfer the ownership to one partner of the 2 co-owners (SINLOC, EURAC, POLIMI) allowing the partner to licence to other EInvest partners or external. To be fair, the licencing mechanism should contemplate a compensation for the co-owners.</i></p>

	<p><i>Another option is to plan a mutual Licence allowing all co-owners to exploit the model precisng the scope of the exploitation agreed (EURAC &amp; POLIMI--&gt; scientific exploitation, SINLOC --&gt; commercial exploitation.)</i></p> <p><i>What is developed in the future is under its own copyright.</i></p>
<p><b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b></p>	<p> Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</p> <p>NA</p>
<p><b>Required funding for protection</b></p>	<p> Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</p> <p>NA</p>

## Annex C ER2 questionnaire

ER N°	ER02	Financial risk evaluation model	LAST UPDATE
			23/05/2022
ER leader		SINLOC	
Owner(s) / Developer(s)		<i>Is there one clear "owner" of the innovation or multiple owners?</i>	
		<input checked="" type="checkbox"/>	One clear "owner"
		<input type="checkbox"/>	Multiple "owners"
		<i>List all owners / developers</i> <ul style="list-style-type: none"> <li>• Associated partners:</li> <li>• Owners :</li> </ul>	
Key resources and background declaration for "shared ER"		 <i>What Key Resources do your value proposition require?</i> Explain <b>which background from whom has been used for the production of the jointly developed ER</b> (potentially check the Consortium agreement for former input)  SINLOC background, proprietary models, in-house knowledge. Adapt model to develop a new financial model not developed yet in-house to transfer technical risk into financial risk.	
Management Ideas for "shared ER"		 <i>Outline your first ideas of how the ER exploitation of the jointly developed ER could be managed</i> (for example market splitting, licensing among partners, JV setup etc)  (no shared ER)  Integrated into EInvest platform.  Model developed in the spreadsheet by Gabriele → IES translated it into python to integrate into the platform. Gabriele has not seen the result yet (M35).	
Output		<input type="checkbox"/>	Significantly improved product
		<input checked="" type="checkbox"/>	Significantly improved service (except consulting services)
		<input type="checkbox"/>	Significantly improved process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method
		<input checked="" type="checkbox"/>	Consulting services
		<input type="checkbox"/>	New product
		<input type="checkbox"/>	New service (except consulting services)
<input type="checkbox"/>	New process		

		<p>New marketing method</p> <p>New organisational method</p> <p>Other (please specify) :</p>
<b>Description of the result</b>	<p><i>The model developed can be used in our consulting services to provide a better overview of the financial risk of the investment, especially in the building efficiency sector.</i></p>	
<b>Illustration (s)</b>		
<b>Unique selling point</b>	<p><i>Helps with the sensitivity and scenario analysis, more precise and more complete.</i></p> <p><i>New way to assess the risk and variability of the investment.</i></p>	
<b>Targeted Customers / Market Segment</b>	<p><i>For whom are you creating value?</i>  <i>Who are your most important customers?</i>  <i>Companies,</i>  <i>Public institutions</i>  <i>Financial institutions</i></p> <p><i>(same customers as now)</i></p>	
<b>Customer relationships</b>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them?</i>  <i>Which ones have you established?</i>  <i>How are they integrated with the rest of your business model?</i>  <i>How costly are they?</i></p> <p><i>The new service will not be promoted, they will see in the result.</i></p> <p><i>Difficult to promote by itself.</i></p> <p><i>(just a new tool, not stand alone, can't raise the price thanks to this additional price)</i></p> <p><i>Increase the customers satisfaction.</i></p>	
<b>Channels</b>	<p><i>Through which channels do your customer segments want to be reached?</i>  <i>How are you reaching them now?</i>  <i>How are your channels integrated?</i>  <i>Which ones work best?</i>  <i>Which ones are most cost-efficient?</i>  <i>How are we integrating them with customer routines?</i></p> <p><i>Portfolio of customers in the private sector (companies, investment funds, ESCOs). Improved marketing presentation.</i>  <i>Public sector via tenders or via direct contact/assignments.</i></p>	
<b>Value proposition</b>	<p><i>What value do you deliver to the customer?</i>  <i>Which one of your customer's problems are you helping to solve?</i>  <i>What bundles of products and services are we offering to each Customer Segment?</i></p>	

	<p><i>Which customer needs are we satisfying?</i> Value proposition is the same for each kind of customer.</p> <p>More precise assessment of the risk related to the investment (financial models).</p> <p>In SINLOC services sometimes they include multi-benefit assessment. More and more requiring.</p>										
State of development at present date	<ul style="list-style-type: none"> <li>Complete from the methodological point of view + computational part in spreadsheet (Python script under the responsibility of IES, not for SINLOC's use)</li> </ul>										
Performed trials and achieved results at present date	<ul style="list-style-type: none"> <li>Trials completed for the spreadsheet (ER2)</li> <li>Python version (IES) not revised by SINLOC</li> </ul>										
Current level of development for the result (TRL)	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9			
Expected level of development for the result (TRL)	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9			
<table border="1" style="width: 100%;"> <tr> <td style="width: 10%;">Y1</td><td>Y2</td><td>Y3</td><td>Y4</td><td>Y5</td> </tr> <tr> <td style="text-align: center;"></td><td style="text-align: center;"></td><td style="text-align: center;"></td><td style="text-align: center;"></td><td style="text-align: center;"></td> </tr> </table> <p><b>Short-term (project end + 2y) exploitation vision, strategy and actions</b></p>		Y1	Y2	Y3	Y4	Y5					
Y1	Y2	Y3	Y4	Y5							
Objective(s) of foreground exploitation	<p> Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years after project closing (this should include a quantification to be measurable)</b></p> <p>Increase quality and value of the deliverables.</p> <p>5% more clients/per year</p>										
Expected time for marketability	<p><i>Is the innovation developed within the project:</i></p>										
	<table border="1" style="width: 100%;"> <tr> <td style="width: 30px;"></td> <td>Under development</td> </tr> <tr> <td>X</td> <td>Already developed but not yet being exploited.</td> </tr> <tr> <td>X</td> <td>being exploited (ready for being exploited, will be included in the following contract services)</td> </tr> </table>		Under development	X	Already developed but not yet being exploited.	X	being exploited (ready for being exploited, will be included in the following contract services)				
		Under development									
	X	Already developed but not yet being exploited.									
X	being exploited (ready for being exploited, will be included in the following contract services)										
<p> Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <ul style="list-style-type: none"> <li>By end of 2022, will be included in the common analysis template</li> </ul>											
Exploitation collaboration with external partners	<p> Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p>No</p>										
	<table border="1" style="width: 100%;"> <tr> <td style="width: 30px;">X</td> <td>Internal use</td> </tr> </table>	X	Internal use								
X	Internal use										

Preliminary exploitation vision		Further research needed
		Enabling technology (for subsequent product, service, etc.)
	X	Training (internally)
		Open distribution
		Establishment of industry standard
	x	Direct sales / Consultancy service
		Licensing the innovation to a 3 <sup>rd</sup> party
		IP sale
Foreground exploitation strategy	Ready to be exploited, used as a new standard	
In case of commercialisation, target market	 Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.  <i>Same geographical area – Italy, private market + public market (tenders...) + future European projects including EEI assessment</i>	
Market maturity	The market targeted by this innovation is ...	
		The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
		Market creating: The market is not yet existing but the innovation has clear potential to create a new market
		Emerging: There is a growing demand and few offerings are available
	X	Mature: The market is already supplied with many products of the type proposed
Market dynamics	Is the market ...	
		In decline
	X	Holding steady
		Growing
Market competition	How strong is competition in the target market?	
		Patchy, no major players
		Established competition but none with a proposition like the one under investigation
	X	Several major players with strong competencies, infrastructure and offerings

	(KPMG, PWC, EY, Deloitte) + advisory companies offering similar services			
<b>Preliminary roadmap or milestones of activities</b>	<p> Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</p> <ul style="list-style-type: none"> <li>- Not be promoted for itself</li> <li>- Consulting services are taylor made, no conference, advertising</li> <li>- Good track record of services done by the past</li> <li>- Commercial activities to acquire new customers, one-to-one</li> <li>- Referral – One client satisfy can introduce the company to a new client. Very important in you sector</li> </ul>			
<b>Possible limitations/risks in exploitation</b>	<p> Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p>			
	<i>Risk description</i>	<i>Classification (T/FE/R/MC/SE)</i>	<i>Likelihood (high/medium/low)</i>	
	Technical risks with the lack of data. Works very well with lot of data	T	Medium	Severe
	Model is sensible to unforeseen events (high price variation)	FE	Medium	Moderate
<b>Mitigation measures for identified limitations/risks</b>	<p> Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.</p>			
	<i>Risk description</i>	<i>Mitigation actions (reduce likelihood of occurrence)</i>	<i>Contingency actions (reduce severity of impact)</i>	
	Technical risks with the lack of data.	Very strong interaction with the technical advisor of the project form the very beginning (speak the same language) Literature research; papers..		

	Model is sensible to unforeseen events (high price variation)	Add a disclaimer	
<b>Cost structure</b>	<p>What are the most important costs inherent in our business model?</p> <p>Which key resources are most expensive?</p> <p> Which key activities are most expensive?</p> <p><i>Personal employees (training, services..)</i></p> <p><i>The model will not need to be updated (in the coming years)</i></p>		
<b>Revenue streams</b>	<p>For what value are your customers really willing to pay?</p> <p>For what do they currently pay?</p> <p>How are they currently paying?</p> <p> How would they prefer to pay?</p> <p>How much does each Revenue Stream contribute to overall revenues?</p> <p><i>Included, no extra to have this feature. Added value to the deliverables.</i></p> <p><i>Differentiator with the competitors.</i></p>		
<b>Source of external funding required</b>	No		
Y1 Y2 Y3 Y4 Y5	<b>Mid-term (project end + 5y) exploitation vision</b> 		
<b>Objective(s) of foreground exploitation</b>	<p> Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</p> <p><i>Integration in the multi-benefit analysis is important in all project cost benefit analysis, on-going effort, recently integrated (buying shares of) open-impact (spinoff of Rome university working on impact assessment)</i></p>		
<b>Foreground exploitation strategy</b>	<p> Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</p> <p><i>Complete the set of competences integrating the multi-benefits (Open-Impact shares purchase)</i></p>		
<b>Preliminary roadmap/ milestones of activities</b>	<p>Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</p> <p><i>Integrate the financial risk modes internally (to the standard template of the company)</i></p> <p><i>Apply in other EU funded projects</i></p>		

Related Intellectual Property Rights	
Market competition	<i>Tick all possible protection forms of the entire/parts of the ER that you might want to explore.</i>
	<input type="checkbox"/> Patent
	<input type="checkbox"/> Industrial design rights
	<input type="checkbox"/> Copyright
	<input type="checkbox"/> Trademark
	<input checked="" type="checkbox"/> Trade secret (Business secret)
	<input type="checkbox"/> Database rights
	<input type="checkbox"/> Other (specify): Commissioning know-how
Protection strategy details	<p><i>Explain your protection strategy in more detail here:</i></p> <p><i>Not to share models with third parties.</i></p> <p><i>Use excel files developed internally (application in the energy sector + applications of the methodology is possible in other sectors).</i></p> <p><i>Only give extract to the customers (pioneer users should be invited to test the model via the platform, it avoids giving the spreadsheet away)</i></p>
Understanding of prior Art/Fto relevant to ER (only for technical ERs)	<p><i>Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</i></p> <p>NA</p>
Required funding for protection	<p><i>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</i></p> <p>NA</p>

## Annex D ER3 questionnaire

ER N°	ER03	Technical risk evaluation methodology	LAST UPDATE
			24/05/2022
ER leader		EURAC	
Owner(s) / Developer(s)		Is there one clear "owner" of the innovation or multiple owners?	
		<input checked="" type="checkbox"/>	One clear "owner"
		<input type="checkbox"/>	Multiple "owners"
		List all owners / developers	
		<ul style="list-style-type: none"> <li>• Associated partners: POLIMI</li> <li>• Owners :</li> </ul>	
Key resources and background declaration for "shared ER"		 What Key Resources do your value proposition require? Explain <b>which background from whom has been used for the production</b> of the jointly developed ER (potentially check the Consortium agreement for former input) Databases from renovation projects developed in the past (EURAC) Energy simulation methodologies and know-how (EURAC-POLIMI) Numerical modeling expertise (EURAC) Professional network – expert based interviews (EURAC)	
Management Ideas for "shared ER"		 Outline your first ideas of <b>how the ER exploitation of the jointly developed ER could be managed</b> (for example market splitting, licensing among partners, JV setup etc) Further development in research projects, link EEnvest results (ER0, ER3...) into some EU project proposal and other EU funded projects (H2020, HE, LIFE). Linked with a digital logbook project, taking technical info and more (data quality, BIM...) from the DLB. Exploitation via the exploitation of ER1 (licensing, consulting services) to external consultants or clients (banks, investors, technical consultants). Licensing to simulation software (EE) providers as a plug-in module	
Output		<input type="checkbox"/>	Significantly improved product
		<input type="checkbox"/>	Significantly improved service (except consulting services)
		<input checked="" type="checkbox"/>	Significantly improved <sup>[08]</sup> process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method

	<input checked="" type="checkbox"/>	Consulting services (EURAC activity)
		New product
		New service (except consulting services)
		New process
		New marketing method
		New organisational method
		Other (please specify) : Technical consultant to real estate developer
<b>Description of the result</b>		Support owners or designers (research projects) in terms of assessing the additional technical risk in terms of energy renovation.
<b>Illustration (s)</b>		
<b>Unique selling point</b>		<ul style="list-style-type: none"> <li>• Grounded on technical experience of EURAC, huge database of simulation work</li> <li>• Grounded on market based evidence (interviews with experts)</li> <li>• Value proposition is easy to understand and use</li> <li>• Can be expanded to implement a larger list of risks, modular, additional risk could be considered</li> <li>• Statistical but adapted to fully driven approach which is the trend</li> </ul>
<b>Targeted Customers / Market Segment</b>		<p><i>For whom are you creating value?</i>  <i>Who are your most important customers?</i>          (EURAC is non-profit) users are organizations able to contribute to EURAC research.</p> <p>ER3 is creating value for the partners (e.g. SINLOC would exploit ER1 and ER2 thanks to ER3).          The customers could be the persons driving a more complete analysis and integrating ER3 into the analysis. They would do such analysis for : real estate developers, Building owners (risk to renovate their own building), Designer or construction companies (general contractors).</p>
<b>Customer relationships</b>		<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them?</i>  <i>Which ones have you established?</i>  <i>How are they integrated with the rest of your business model?</i>  <i>How costly are they?</i>          (EURAC is non-profit)</p> <p>ER3 is too close to research to provide a consulting service.          Consulting activity is not EURAC main activities, revenue should only cover the costs.</p> <p>Building owners : we are a trusted consultant for single owners, in the future we can try to offer this targeted service to small owners for a different price          Build new relationships with real estate developers and investors, we currently do not have them. Designer or construction companies: we are a</p>

	trusted consultant, we can promote this service when doing other consulting.									
<b>Channels</b>	<p>Through which channels do your customer segments want to be reached?  How are you reaching them now?  How are your channels integrated?  Which ones work best?  Which ones are most cost-efficient?  How are we integrating them with customer routines?</p> <p>Current channels are mainly direct personal contacts</p>									
<b>Value proposition</b>	<p>What value do you deliver to the customer?  Which one of your customer's problems are you helping to solve?  What bundles of products and services are we offering to each Customer Segment?  Which customer needs are we satisfying?</p> <ol style="list-style-type: none"> <li>Value for the technical people: they can tune their technical choice based on their goal and considering technical risk in addition to the economic aspects.</li> <li>Value: based on the design choice, you see a certain split of the risk: damage VS performance gap. Impact of each technical risk on the financial result might be of interest.</li> </ol>									
<b>State of development at present date</b>	<ul style="list-style-type: none"> <li>To date (June 2022) the model is complete in its theoretical aspects, all simulation runs have been performed between EURAC, POLIMI and SINLOC to validate numerical output. Effect of the mitigation on the probability and the impact and cross effect have been tested (cross effect = changing the window → damage to the insulation).</li> </ul>									
<b>Performed trials and achieved results at present date</b>	<ul style="list-style-type: none"> <li>To date (June 2022) the model has been tested on the EInvest database, 2 real cases + artificially built cases, empirical approach.</li> <li>Important step would be to have data from insurances and manufacturers (buying the data?) to make the results more robust and fine grained (high quality versus low quality product for instance). Magnitude of impact of damage and energy gap would be better estimated. Additional cases studies are needed.</li> </ul>									
<b>Current level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td style="background-color: #c6e0b4;">6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
<b>Expected level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td style="background-color: #c6e0b4;">6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
Y1 Y2 Y3 Y4 Y5	<b>Short-term (project end + 2y) exploitation vision, strategy and actions</b>									
<b>Objective(s) of foreground exploitation</b>	<p>Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years after project closing (this should include a quantification to be measurable)</b></p> <p>Exploitation via another complementary tool (financial risk model for instance)</p> <p>Participate in research projects bringing in this competitive advantage</p>									

<b>Expected time for marketability</b>	<i>Is the innovation developed within the project:</i>
	<input type="checkbox"/> Under development
	<input checked="" type="checkbox"/> Already developed but not yet being exploited
	<input type="checkbox"/> being exploited
	Estimate a realistic <b>readiness timeline of the ER after project closing</b> <ul style="list-style-type: none"> <li>ER03 will be ready for exploitation at project closing</li> </ul>
<b>Exploitation collaboration with external partners</b>	<p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p>Someone who could use the technical risk info to translate it into financial risk for instance. SINLOC, someone is contact with, providing consulting services to customers.</p>
<b>Preliminary exploitation vision</b>	<input checked="" type="checkbox"/> Internal use
	<input checked="" type="checkbox"/> Further research needed
	<input type="checkbox"/> Enabling technology (for subsequent product, service, etc.)
	<input checked="" type="checkbox"/> Training
	<input type="checkbox"/> Open distribution
	<input type="checkbox"/> Establishment of industry standard
	<input checked="" type="checkbox"/> Direct sales / Consultancy service (not the major exploitation path)
	<input checked="" type="checkbox"/> Licensing the innovation to a 3 <sup>rd</sup> party
	<input type="checkbox"/> IP sale
	<input type="checkbox"/> Joint Venture
	<input type="checkbox"/> Launch a start-up or spin-off
<input type="checkbox"/> Other → Please specify	
<b>Foreground exploitation strategy</b>	<p>Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <ul style="list-style-type: none"> <li>ER03 will be further developed during EInvest, including more technical risk assessment. So, further research and model internal use are foreseen to validate the current status of development. Investigate path linking digitalisation (DLB) with the technical risks.</li> <li>At project closure, ER3 can be offered to consulting companies who deliver to clients</li> </ul>

<p><b>In case of commercialisation, target market</b></p>	<p>Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, <sup>[OB]</sup>application/user circle and your estimated size of the market.</p> <p>During the first 2 years after project end the reference geographic area will be in those markets covered during EEnvest project: Italy and Spain as main countries, then France, UK, Belgium.</p> <p>Estimated market size is the one covered by the mentioned countries</p>								
<p><b>Market maturity</b></p>	<p>The market targeted by this innovation is ...</p> <table border="1" data-bbox="523 674 1401 1014"> <tr> <td data-bbox="523 674 528 763"></td> <td data-bbox="528 674 1401 763">The market is not yet existing and it is not yet clear that the innovation has potential to create a new market</td> </tr> <tr> <td data-bbox="523 763 528 853"></td> <td data-bbox="528 763 1401 853">Market creating: The market is not yet existing but the innovation has clear potential to create a new market</td> </tr> <tr> <td data-bbox="523 853 528 920">X</td> <td data-bbox="528 853 1401 920">Emerging: There is a growing demand and few offerings are available</td> </tr> <tr> <td data-bbox="523 920 528 1014"></td> <td data-bbox="528 920 1401 1014">Mature: The market is already supplied with many products of the type proposed</td> </tr> </table>		The market is not yet existing and it is not yet clear that the innovation has potential to create a new market		Market creating: The market is not yet existing but the innovation has clear potential to create a new market	X	Emerging: There is a growing demand and few offerings are available		Mature: The market is already supplied with many products of the type proposed
	The market is not yet existing and it is not yet clear that the innovation has potential to create a new market								
	Market creating: The market is not yet existing but the innovation has clear potential to create a new market								
X	Emerging: There is a growing demand and few offerings are available								
	Mature: The market is already supplied with many products of the type proposed								
<p><b>Market dynamics</b></p>	<p>Is the market ...</p> <table border="1" data-bbox="523 1077 1401 1261"> <tr> <td data-bbox="523 1077 528 1133"></td> <td data-bbox="528 1077 1401 1133">In decline</td> </tr> <tr> <td data-bbox="523 1133 528 1200"></td> <td data-bbox="528 1133 1401 1200">Holding steady</td> </tr> <tr> <td data-bbox="523 1200 528 1261">X</td> <td data-bbox="528 1200 1401 1261">Growing</td> </tr> </table>		In decline		Holding steady	X	Growing		
	In decline								
	Holding steady								
X	Growing								
<p><b>Market competition</b></p>	<p>How strong is competition in the target market?</p> <table border="1" data-bbox="523 1323 1401 1541"> <tr> <td data-bbox="523 1323 528 1379"></td> <td data-bbox="528 1323 1401 1379">Patchy, no major players</td> </tr> <tr> <td data-bbox="523 1379 528 1469">X</td> <td data-bbox="528 1379 1401 1469">Established competition but none with a proposition like the one under investigation</td> </tr> <tr> <td data-bbox="523 1469 528 1541"></td> <td data-bbox="528 1469 1401 1541">Several major players with strong competencies, infrastructure and offerings</td> </tr> </table>		Patchy, no major players	X	Established competition but none with a proposition like the one under investigation		Several major players with strong competencies, infrastructure and offerings		
	Patchy, no major players								
X	Established competition but none with a proposition like the one under investigation								
	Several major players with strong competencies, infrastructure and offerings								
<p><b>Preliminary roadmap or milestones of activities</b></p>	<p>Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</p> <p>-</p>								
<p><b>Possible limitations/risks in exploitation</b></p>	<p>Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes, etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p>								

	<i>Risk description</i>	<i>Classification (T/FE/R/MC/SE)</i>	<i>Likelihood (high/medium/low)</i>	<i>Impact (severe, moderate, minimal)</i>
	Low market penetration	MC	low	severe
	Tool does not reach TRL 8	T	low	severe
	Technical risks developed do not consider new technologies	T		
	Standardisation	T		
<b>Mitigation measures for identified limitations/risks</b>	<i>Initial ideas on how to compensate for these limitations/risks in the exploitation of the ER.</i>			
	<i>Risk description</i>	<i>Mitigation actions (reduce likelihood of occurrence)</i>		<i>Contingency actions (reduce severity of impact)</i>
	Low market penetration	Spread awareness through dissemination and communication actions		Build a portfolio of assessed project to show around
	Tool does not reach TRL 8	Continuous check of progress status		Build small sections of the model (single component) then grow
	Technical risks developed do not consider new technologies	Monitor new technologies and the update the approach and the database if needed		Regular technology monitoring
	Standardisation	Rely on common APIs, data structure, names, no too tailored / homemade.		Strat from now using APIs, data structure, names no too tailored / homemade.
<b>Cost structure</b>	<p><i>What are the most important costs inherent in our business model?</i></p> <p><i>Which key resources are most expensive?</i></p> <p><i>Which key activities are most expensive?</i></p> <p><i>(Eurac non-profit) The current business model only bears personnel costs. As the model is complete, personnel costs for consultancy will be relatively low</i></p>			
<b>Revenue streams</b>	<i>For what value are your customers really willing to pay?</i>			

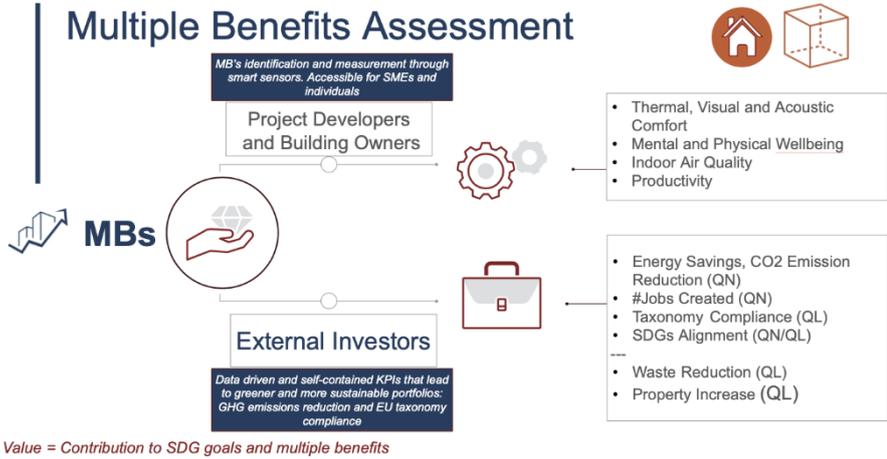
	<p><i>For what do they currently pay?</i></p> <p><i>How are they currently paying?</i></p> <p><i>How would they prefer to pay?</i></p> <p><i>How much does each Revenue Stream contribute to overall revenues?</i></p> <p><i>Licensing to consulting companies.</i></p>
<b>Source of external funding required</b>	Not required, but possibly addressing participation in further research projects.
Y1 Y2 Y3 Y4 Y5	<b>Mid-term (project end + 5y) exploitation vision</b>
<b>Objective(s) of foreground exploitation</b>	<p><i>Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</i></p> <p><i>Research projects including ER3 are funded. ER3 is further tested, standardized. Release (open science) / publish the model and database.</i></p>
<b>Foreground exploitation strategy</b>	<p><i>Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</i></p> <p><i>Include ER3 in research project proposals.</i></p>
<b>Preliminary roadmap/ milestones of activities</b>	<p><i>Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</i></p> <p><i>EURAC will reference the work each time the audience will be relevant. Count on relevant partners, local organizations for which EURAC provides study results based on additional use cases.</i></p> <p><i>Get in touch with consulting companies contacts, research team, private partners to have some case studies to show successful applications</i></p>
<b>Related Intellectual Property Rights</b>	
<b>Market competition</b>	<input type="checkbox"/> Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore.</b>
	<input type="checkbox"/> Patent
	<input type="checkbox"/> Industrial design rights
	<input checked="" type="checkbox"/> Copyright
	<input type="checkbox"/> Trademark
	<input type="checkbox"/> Trade secret
	<input type="checkbox"/> Database rights
<input type="checkbox"/> Other (specify): Commissioning know-how	

---

<b>Protection strategy details</b>	<p><i>Explain your protection strategy in more detail here:</i></p> <p>Publication of methodology, later of database and model.</p> <p>Open science, publication will contribute to the scientific know-how</p>
<b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b>	<p><i>Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</i></p> <p>NA</p>
<b>Required funding for protection</b>	<p><i>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</i></p> <p>NA</p>

## Annex E ER4 questionnaire

ER N°	ER04	Methodology for assessing energy and non-energy related benefits	LAST UPDATE
			30/05/2022
ER leader		GNE	
Owner(s) / Developer(s)		<i>Is there one clear "owner" of the innovation or multiple owners?</i>	
		<input checked="" type="checkbox"/>	One clear "owner"
		<input type="checkbox"/>	Multiple "owners"
		<i>List all owners / developers</i> <ul style="list-style-type: none"> <li>• Associated partners: ENERGINVEST, EURAC</li> <li>• Owners :</li> </ul>	
Key resources and background declaration for "shared ER"		 <i>What Key Resources do your value proposition require?</i> Explain <b>which background from whom has been used for the production of the jointly developed ER</b> (potentially check the Consortium agreement for former input) <ul style="list-style-type: none"> <li>• ENERGINVEST – Experience of the growing MB market</li> <li>• EURAC – energy benefit quantification</li> <li>• GNE – expertise and know-how related to non-energy impact/benefits</li> </ul>	
Management Ideas for "shared ER"		 <i>Outline your first ideas of how the ER exploitation of the jointly developed ER could be managed</i> (for example market splitting, licensing among partners, JV setup etc) <p>Jointly, each brick is exploited on its own. GNE leads the exploitation of Brick 2 (ER4).</p>	
Output		<input type="checkbox"/>	Significantly improved product
		<input type="checkbox"/>	Significantly improved service (except consulting services)
		<input checked="" type="checkbox"/>	Significantly improved process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method
		<input checked="" type="checkbox"/>	Consulting services
		<input type="checkbox"/>	New product
		<input type="checkbox"/>	New service (except consulting services)
		<input type="checkbox"/>	New process
		<input type="checkbox"/>	New marketing method

	<p>New organisational method</p> <p>Other (please specify) :</p>
<p><b>Description of the result</b></p>	<p>Methodology/Process could be <a href="#">consulting services</a> to implement this methodology. in the residential/commercial markets. Specifically, the methodology serves to unveil and make operational the MBs hidden value using a data-driven approach.</p>
<p><b>Illustration (s)</b></p>	 <p><b>Multiple Benefits Assessment</b></p> <p>MB's identification and measurement through smart sensors. Accessible for SMEs and individuals</p> <p>Project Developers and Building Owners</p> <p>External Investors</p> <p>Data driven and self-contained KPIs that lead to greener and more sustainable portfolios: GHG emissions reduction and EU taxonomy compliance</p> <p>Value = Contribution to SDG goals and multiple benefits</p> <ul style="list-style-type: none"> <li>• Thermal, Visual and Acoustic Comfort</li> <li>• Mental and Physical Wellbeing</li> <li>• Indoor Air Quality</li> <li>• Productivity</li> <li>• Energy Savings, CO2 Emission Reduction (QN)</li> <li>• #Jobs Created (QN)</li> <li>• Taxonomy Compliance (QL)</li> <li>• SDGs Alignment (QN/QL)</li> <li>• Waste Reduction (QL)</li> <li>• Property Increase (QL)</li> </ul>
<p><b>Unique selling point</b></p>	<ul style="list-style-type: none"> <li>• Providing to the homeowner/building owner/ project promoter a way to have a multi-benefit assessment of energy renovation project.</li> <li>• Provide to investors with easy KPIs to evaluate energy efficiency investment</li> <li>• Provide general standardisation of environmental criteria and EU taxonomy compliance</li> <li>• Full picture of EE investment impacts</li> </ul>
<p><b>Targeted Customers / Market Segment</b></p>	<p><i>For whom are you creating value?</i>  <i>Who are your most important customers?</i>      Same customers as EENVEST as a whole      Homeowners / Building owners / Project promoters / External investors</p>
<p><b>Customer relationships</b></p>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them?</i>  <i>Which ones have you established?</i>  <i>How are they integrated with the rest of your business model?</i>  <i>How costly are they?</i></p>
<p><b>Channels</b></p>	<p><i>Through which channels do your customer segments want to be reached?</i>  <i>How are you reaching them now?</i>      Digital marketing and customized service      Network, existing and future partnerships      Pro-active approach to reach new customers in the relevant sectors      Promotion, advertisement/marketing  <i>How are your channels integrated?</i>  <i>Which ones work best?</i>      Network is the one working the best.  <i>Which ones are most cost-efficient?</i>      Network  <i>How are we integrating them with customer routines?</i></p>

<b>Value proposition</b>	<p>What value do you deliver to the customer? Which one of your customer's problems are you helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p>We deliver and communicate the full impact of an energy efficiency renovation.</p>									
<b>State of development at present date</b>	<ul style="list-style-type: none"> <li>70% done</li> <li>Mainly pendant on T4.4 and platform inclusion.</li> </ul>									
<b>Performed trials and achieved results at present date</b>	<ul style="list-style-type: none"> <li>1 pilot during the project and 3 internal projects</li> </ul>									
<b>Current level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td style="background-color: #90ee90;">7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
<b>Expected level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td style="background-color: #0070c0;">7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
Y1 Y2 Y3 Y4 Y5	<b>Short-term (project end + 2y) exploitation vision, strategy and actions</b>									
<b>Objective(s) of foreground exploitation</b>	 Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years after project closing</b> (this <u>should include a quantification to be measurable</u> ) <p>To unveil all impacts of a single renovation project thus making MBs operational.</p>									
<b>Expected time for marketability</b>	<p>Is the innovation developed within the project:</p> <table border="1" style="width: 100%;"> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Under development</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Already developed but not yet being exploited</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>being exploited</td> </tr> </table> <p> Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <ul style="list-style-type: none"> <li></li> </ul>	<input checked="" type="checkbox"/>	Under development	<input type="checkbox"/>	Already developed but not yet being exploited	<input checked="" type="checkbox"/>	being exploited			
<input checked="" type="checkbox"/>	Under development									
<input type="checkbox"/>	Already developed but not yet being exploited									
<input checked="" type="checkbox"/>	being exploited									
<b>Exploitation collaboration with external partners</b>	<p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing.</p>									

	<p><i>Which key resources are you acquiring from these partners? Which key activities do they perform?</i></p> <p>No need of external partnership to continue the research. Part related to non-energy benefit is completed, further validation are ongoing in WP6.</p>	
Preliminary exploitation vision	<input checked="" type="checkbox"/>	Internal use
		Further research needed
		Enabling technology (for subsequent product, service, etc.)
		Training
		Open distribution
	<input checked="" type="checkbox"/>	Establishment of industry standard
	<input checked="" type="checkbox"/>	Direct sales / Consultancy service
		Licensing the innovation to a 3 <sup>rd</sup> party
		IP sale
		Joint Venture
		Launch a start-up or spin-off
	Other → Please specify	
Foreground exploitation strategy	<p><i>Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</i></p> <p>For sure the methodology developed (know-how) will be further explored and considered market exploitation.</p> <p>In many consulting services, the ER4 derivatives will be integrated, financial services upgraded.</p>	
In case of commercialisation, target market	<p><i>Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</i></p> <p>Residential market in Spain, especially in GNE's on-going Programs such as HolaDomus Barcelona and Opengela.</p>	
Market maturity	The market targeted by this innovation is ...	
		The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	<input checked="" type="checkbox"/>	Market creating: The market is not yet existing but the innovation has clear potential to create a new market

		Emerging: There is a growing demand and few offerings are available			
		Mature: The market is already supplied with many products of the type proposed			
<b>Market dynamics</b>	<i>Is the market ...</i>				
		In decline			
		Holding steady			
	X	Growing			
<b>Market competition</b>	<i>How strong is competition in the target market?</i>				
		Patchy, no major players			
	X	Established competition but none with a proposition like the one under investigation ( <a href="#">consultancy have similar offers</a> )			
		Several major players with strong competencies, infrastructure and offerings			
<b>Preliminary roadmap or milestones of activities</b>	<i>Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</i>				
<b>Possible limitations/risks in exploitation</b>	 <i>Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</i>				
		<b>Risk description</b>	<b>Classification (T/FE/R/MC/SE)</b>	<b>Likelihood (high/medium/low)</b>	<b>Impact (severe, moderate, minimal)</b>
		Not sure to achieve a complete multi-benefit methodology	T	Low	Severe
<b>Mitigation measures for identified limitations/risks</b>	 <i>Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.</i>				
		<b>Risk description</b>	<b>Mitigation actions (reduce likelihood of occurrence)</b>	<b>Contingency actions (reduce severity of impact)</b>	

	Not sure to achieve a complete multi-benefit methodology		
<b>Cost structure</b>	<p><i>What are the most important costs inherent in our business model?</i></p> <p><i>Which key resources are most expensive?</i></p> <p><i>Which key activities are most expensive?</i></p>		
<b>Revenue streams</b>	<p><i>For what value are your customers really willing to pay?</i></p> <p><i>For what do they currently pay?</i></p> <p><i>How are they currently paying?</i></p> <p><i>How would they prefer to pay?</i></p> <p><i>How much does each Revenue Stream contribute to overall revenues?</i></p>		
<b>Source of external funding required</b>	Probably not		
Y1 Y2 Y3 Y4 Y5	<b>Mid-term (project end + 5y) exploitation vision</b>		
<b>Objective(s) of foreground exploitation</b>	<p>Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</p> <p>Consulting services</p> <p>Digital platform to automatise the process.</p> <p>Health assessment and certificate attached to the property</p>		
<b>Foreground exploitation strategy</b>	<p> Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</p> <p>Leverage on GNE's market traction through our renovation Programs</p>		
<b>Preliminary roadmap/ milestones of activities</b>	<p> Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for</p>		

	partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)
<b>Related Intellectual Property Rights</b> 	
<b>Market competition</b>	<i>Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b>.</i>
	<input type="checkbox"/> Patent
	<input type="checkbox"/> Industrial design rights
	<input checked="" type="checkbox"/> Copyright
	<input type="checkbox"/> Trademark
	<input type="checkbox"/> Trade secret
	<input type="checkbox"/> Database rights
	<input type="checkbox"/> Other (specify): Commissioning know-how
<b>Protection strategy details</b>	 <i>Explain <b>your protection strategy in more detail</b> here:</i> <p>GNE will protect the MB methodology by copyright.</p> <p>GNE &amp; ECrowd have signed an agreement to join forces developing MB in sustainable crowdfunded investments.</p>
<b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b>	 <i>Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</i> <p>NA</p>
<b>Required funding for protection</b>	 <i>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</i> <p>NA</p>

## Annex F ER5 questionnaire

ER N°	ER05	EInvest IT engine	LAST UPDATE
			16/06/2022
ER leader		IES	
Owner(s) / Developer(s)		Is there one clear "owner" of the innovation or multiple owners?	
		<input checked="" type="checkbox"/>	One clear "owner"
		<input type="checkbox"/>	Multiple "owners"
		List all owners / developers	
		<ul style="list-style-type: none"> <li>Associated partners: NO</li> <li>Owners :</li> </ul>	
Key resources and background declaration for "shared ER"		 What Key Resources do your value proposition require? Explain <b>which background from whom has been used for the production</b> of the jointly developed ER (potentially check the Consortium agreement for former input) The Integrated Environmental Solutions Ltd. (IES) ICL suite of tools for sustainable buildings and communities including the Collaboration Cloud, tool for 2D/3D Data Visualisation Risk calculation models (Excel working prototypes) provided by SINLOC and EURAC	
Management Ideas for "shared ER"		 Outline your first ideas of <b>how the ER exploitation of the jointly developed ER could be managed</b> (for example market splitting, licensing among partners, JV setup etc)	
Output		<input checked="" type="checkbox"/>	Significantly improved product
		<input checked="" type="checkbox"/>	Significantly improved service (except consulting services)
		<input checked="" type="checkbox"/>	Significantly improved process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method
		<input checked="" type="checkbox"/>	Consulting services
		<input type="checkbox"/>	New product
		<input checked="" type="checkbox"/>	New service (except consulting services)
		<input checked="" type="checkbox"/>	New process
		<input type="checkbox"/>	New marketing method

	<p>New organisational method</p> <p>Other (please specify) :</p>
<p><b>Description of the result</b></p>	<ol style="list-style-type: none"> <li>1) A web app that calculates risks and generates EInvest report that communicates with other software components via API</li> <li>2) Front-end improvements in existing commercial tool called CIM, including the capability to execute calculations</li> <li>3) A web app that validates reports using open source blockchain validation tool</li> </ol> <p>Jointly all the above consist of the EInvest search &amp; match platform</p>
<p><b>Illustration (s)</b></p>	<p><a href="https://framer.com/share/EInvest-Investor-Portal--eRF1MR6z8RYeqJS8Xy6Y/qZY150PS5?fullscreen=1">https://framer.com/share/EInvest-Investor-Portal--eRF1MR6z8RYeqJS8Xy6Y/qZY150PS5?fullscreen=1</a></p> <p><a href="https://framer.com/share/EInvest-Building-Owner-Portal--mauR4eFgGo6kZAtSVLSA/qZY150PS5?fullscreen=1">https://framer.com/share/EInvest-Building-Owner-Portal--mauR4eFgGo6kZAtSVLSA/qZY150PS5?fullscreen=1</a></p> <p>The diagram illustrates the data flow and system components. At the top, 'Data Visualisation' is shown as a dashed box encompassing 'Collaboration cloud', 'Data Storage', and 'Calculations'. 'Collaboration cloud' (represented by a laptop icon) connects via API to 'Data Storage' (Microsoft Azure Blob Storage, represented by a cloud icon). 'Data Storage' connects via API to 'Calculations' (EENVEST Risk Assessment and Report Generator Script, represented by a funnel icon). Below this, 'Ethereum' (represented by a chain icon) connects via Blockchain Validation to 'Blockcerts' (represented by a circular refresh icon). 'Blockcerts' connects via Blockchain Validation to an 'Investor' (represented by a person icon). A 'Project Promoter' (represented by a person icon) is shown at the bottom left, with a dashed arrow labeled 'Data Collection' and 'Data Visualisation' pointing to the 'Collaboration cloud'. A legend at the bottom left indicates that solid arrows represent 'Automated' processes and dashed arrows represent 'Manual' processes.</p>
<p><b>Unique selling point</b></p>	<ol style="list-style-type: none"> <li>1) The web app translates the technical and financial data of a building into KPIs and technical risks in a few seconds, using monte carlo simulations</li> <li>2) Ability to execute any type of calculation for any time of geolocated custom object in a portfolio</li> <li>3) Any type of certificate can be blockchain verified using open source blockcerts tool</li> </ol> <p>All features are fully hosted and running on the cloud, including technical and financial risk calculations and blockchain validation. The calculation models and</p>

	<p>results generated by the tools are validated using distributed ledger technology. The user is able to generate a blockchain validated report to enable mutual trust.</p>
<p><b>Targeted Customers / Market Segment</b></p>	<p><i>For whom are you creating value? Who are your most important customers?</i></p> <p><i>Buildings are a key part of financial institutions portfolios, but in many cases, green buildings only make up a small proportion. Also, those that own and manage portfolios of buildings need investment in order to bring them up to the standards necessary to meet net-zero and ESG targets.</i></p> <p><i>Real estate investors/owners are also realizing, now more than ever, that social and environmental factors have a huge impact on the value of their properties. And, also that they buildings are inherently exposed to high climate risk.</i></p> <p> <i>Therefore, the app we are providing connects investors with those wishing to improve the green credentials and performance of their buildings needing funding.</i></p> <p><i><b>Developers and investors:</b> who finance, develop and manage our built assets.</i></p> <p><i><b>Owners and occupiers:</b> who buy, lease, sell and occupy our buildings and spaces. Including Public Sector.</i></p> <p><i><b>Policy makers:</b> major asset owners, managing public procurement and setting targets and regulation for buildings, infrastructure and urban areas.</i></p>
<p><b>Customer relationships</b></p>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them? Which ones have you established? How are they integrated with the rest of your business model? How costly are they?</i></p> <p></p> <p><i>We are offering ER05 as new features in existing products.</i></p>
<p><b>Channels</b></p>	<p><i>Through which channels do your customer segments want to be reached? How are you reaching them now? How are your channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</i></p> <p></p> <p><i>IES currently employs a full suite of integrated marketing channels to reach customers.</i></p>
<p><b>Value proposition</b></p>	<p><i>What value do you deliver to the customer? Which one of your customer's problems are you helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</i></p>

	<p><i>Real Estate is a major asset class accounting for 10% of global GDP. However, it is one which is inherently exposed to high climate risk, with the potential risk value for global commercial real estate assets estimated at USD \$5 trillion.</i></p> <p><i>The International Finance Corporation (IFC) has identified US\$24.7 trillion of green building opportunities in emerging market cities in the next 11 years. The private sector will have to provide around 70-80% of the required finance as the sum is too large for the public sector to cover. With increases in value, rental potential and higher occupancy rates, to reduced running costs, and healthier more productive internal conditions, preferential mortgage rates and reduced climate risks, green building is the future of the real estate investment business.</i></p> <p><i>The importance of integrating environmental, social and governance and climate risks into investment decisions is threefold:</i></p> <ul style="list-style-type: none"> <li>• <i>the business case – to deliver long-term financial returns;</i></li> <li>• <i>in satisfying pension funds/insurance companies that their fiduciary risk from climate change is being addressed; and</i></li> <li>• <i>growing demand from occupiers for not only sustainability but also health and wellbeing aspects as well.</i></li> </ul> <p><i>However, it has been hard or impossible to separate the impact of sustainability features from the general specification of the building.</i></p> <p>The EEnvest platform helps customers as follows:</p> <ul style="list-style-type: none"> <li>• Building owners, by finding third party financiers to pay for building renovation</li> <li>• Investors who search for new investment opportunities in the energy efficiency sector, by quantifying projects’ technical risks and controlling their financial impacts</li> <li>• Intermediaries like ESCOs, associations and assessors, by trusting to a third party the evaluation of the EE project outcomes</li> <li>• Promoting energy efficiency investments by making them attractive to potential investors through maximised user experience, easy quantification of risks, trust in genuine results, secure web app accessed via their browser</li> <li>• Quick and easy to use GUI to perform calculations of risks without engineering background needed</li> </ul>																			
<b>State of development at present date</b>	<ul style="list-style-type: none"> <li>• Fully developed (Minimum Viable Product)</li> </ul>																			
<b>Performed trials and achieved results at present date</b>	<ul style="list-style-type: none"> <li>• Yes</li> </ul>																			
<b>Current level of development for the result (TRL)</b>	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%; text-align: center;">Research</td> <td colspan="5"></td> <td style="width: 25%; text-align: center;">Market</td> <td colspan="3"></td> </tr> <tr> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> <td style="text-align: center;">3</td> <td style="text-align: center;">4</td> <td style="text-align: center;">5</td> <td style="text-align: center;">6</td> <td style="text-align: center;">7</td> <td style="text-align: center;">8</td> <td style="text-align: center;">9</td> </tr> </table>	Research						Market				1	2	3	4	5	6	7	8	9
Research						Market														
1	2	3	4	5	6	7	8	9												

Expected level of development for the result (TRL)	Research Market										
	<table border="1"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9			
<table border="1"> <tr> <td>Y1</td><td>Y2</td><td>Y3</td><td>Y4</td><td>Y5</td> </tr> <tr> <td></td><td></td><td></td><td></td><td></td> </tr> </table>	Y1	Y2	Y3	Y4	Y5						Short-term (project end + 2y) exploitation vision, strategy and actions
Y1	Y2	Y3	Y4	Y5							
Objective(s) of foreground exploitation	<p> Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years</b> after project closing (<u>this should include a quantification to be measurable</u>)</p> <p>IES will exploit the functionalities developed for the EEnvest platform as part of their existing and future software tools.</p> <p>In particular, the web app for data validation based on blockchain will be added to other IES software solutions, especially in the field of smart and community grid planning and management, building performance assessment in operation and Measurement &amp; Verification.</p> <p>This will enable the company to provide new services and more attractive tools to support ESCOs and smart grid actors. Besides this, the exploitation path will also include revenue for royalties coming from the licensing of the EEnvest platform itself.</p> <p>Increase sales in CIM by 20%</p>										
Expected time for marketability	Is the innovation developed within the project:										
	<input type="checkbox"/> Under development										
	<input checked="" type="checkbox"/> Already developed but not yet being exploited										
	<input type="checkbox"/> being exploited										
Exploitation collaboration with external partners	<p> Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <ul style="list-style-type: none"> <li>•</li> </ul> <p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p></p> <ul style="list-style-type: none"> <li>- R2M and their exploitation channels</li> <li>- Management Consultancies, advising both large corporations and real estate investors, such as Deloitte and Ernst Young on decarbonisation strategies. They have the trusted name needed to reach the target markets, and would be a key route to market.</li> </ul>										

Preliminary exploitation vision	X	Internal use
	X	Further research needed
	X	Enabling technology (for subsequent product, service, etc.)
		Training
		Open distribution
		Establishment of industry standard
		Direct sales / Consultancy service
	X	Licensing the innovation to a 3 <sup>rd</sup> party
		IP sale
		Joint Venture
		Launch a start-up or spin-off
	Other → Please specify	
Foreground exploitation strategy		<p>Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <ul style="list-style-type: none"> <li>•</li> </ul>
In case of commercialisation, target market		<p>Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</p> <p>Building Energy Efficiency Retrofit Market in UK and Ireland:</p> <ul style="list-style-type: none"> <li>- UK retrofit industry must grow 10X to address 23% of UK emissions. To address the £360 billion investment gap to decarbonise the UK's building stock requires innovative thinking on the funding models, business practices and policies that will drive retrofitting at scale.</li> <li>- Colliers estimates the potential cost of retrofitting existing buildings to comply with ESG requirements to be in the region of €7 trillion in Europe. This retrofitting cost challenge needs to be spread over the next 25 years if we are to aim to hit Net Zero, but to put this in context, it equates to the typical annual volume of investment activity in Europe – around €300 billion.</li> <li>- The Europe energy retrofit systems market is projected to record a CAGR of 4.41% during the forecast period, 2022-2030, and is predicted to reach a revenue of \$91.55 billion by 2030.</li> </ul> <p>Focusing on:</p> <p><b>Developers and investors:</b> who finance, develop and manage our built assets.</p> <p><b>Owners and occupiers:</b> who buy, lease, sell and occupy our buildings and spaces. Including Public sector.</p>

	<i>Policy makers: major asset owners, managing public procurement and setting targets and regulation for buildings, infrastructure and urban areas.</i>
<b>Market maturity</b>	<i>The market targeted by this innovation is ...</i>
	<input type="checkbox"/> The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	<input type="checkbox"/> Market creating: The market is not yet existing but the innovation has clear potential to create a new market
	<input checked="" type="checkbox"/> Emerging: There is a growing demand and few offerings are available
	<input type="checkbox"/> Mature: The market is already supplied with many products of the type proposed
<b>Market dynamics</b>	<i>Is the market ...</i>
	<input type="checkbox"/> In decline
	<input type="checkbox"/> Holding steady
	<input checked="" type="checkbox"/> Growing
<b>Market competition</b>	<i>How strong is competition in the target market?</i>
	<input type="checkbox"/> Patchy, no major players
	<input checked="" type="checkbox"/> Established competition but none with a proposition like the one under investigation
	<input type="checkbox"/> Several major players with strong competencies, infrastructure and offerings
<b>Preliminary roadmap or milestones of activities</b>	<p> <b>Specify which (commercialisation) actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</p> <p>Create a product roadmap, understand if the ER aligns with the strategic targets of the company</p> <p>If yes to the above, plan software developments that will take the MVP to a CVP</p>
<b>Possible limitations/risks in exploitation</b>	<p> Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p> <p>This would need extensive research which is beyond the project scope</p>

	<b>Risk description</b>	<b>Classification</b> (T/FE/R/MC/SE)	<b>Likelihood</b> (high/medium/low)	<b>Impact</b> (severe, moderate, minimal)
	TRL not reached at the end of the project; needs more development			
	Lack of resources			
	Financial Institutions developing their own frameworks/tools to assess risk.	MC	med	severe
<b>Mitigation measures for identified limitations/risks</b>	 <i>Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.</i> This would need extensive research which is beyond the project scope			
	<b>Risk description</b>	<b>Mitigation actions</b> (reduce likelihood of occurrence)	<b>Contingency actions</b> (reduce severity of impact)	
	TRL not reached at the end of the project; needs more development			
	Lack of resources			
<b>Cost structure</b>	<i>What are the most important costs inherent in our business model?</i> <ul style="list-style-type: none"> <li>- App Development</li> <li>- SaaS Delivery Platform Development</li> <li>- Marketing</li> <li>- Sales</li> </ul>			
	 <i>Which key resources are most expensive?</i> <ul style="list-style-type: none"> <li>- Developer Salaries/Time</li> </ul> <i>Which key activities are most expensive?</i> <ul style="list-style-type: none"> <li>- App Development</li> <li>- SaaS Delivery Platform Development</li> </ul>			
<b>Revenue streams</b>	<i>For what value are your customers really willing to pay?</i> <i>For what do they currently pay?</i>  <i>How are they currently paying?</i> <i>How would they prefer to pay?</i> <i>How much does each Revenue Stream contribute to overall revenues?</i> This would need extensive research which is beyond the project scope			

Source of external funding required	Follow-up in a new Horizon Europe proposal?	
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <span>Y1</span> <span>Y2</span> <span>Y3</span> <span>Y4</span> <span>Y5</span> </div> <div style="margin-right: 10px;"> </div> </div> <b>Mid-term (project end + 5y) exploitation vision</b>		
Objective(s) of foreground exploitation	<p> Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</p> <p>Commercial decisions will be made after the 2 year initial phase</p>	
Foreground exploitation strategy	<p> Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</p> <p>Commercial decisions will be made after the 2 year initial phase</p>	
Preliminary roadmap/ milestones of activities	<p> Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</p> <p>Commercial decisions will be made after the 2 year initial phase</p>	
<b>Related Intellectual Property Rights</b>		
Market competition	<p>Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b>.</p>	
		Patent
		Industrial design rights
	<input checked="" type="checkbox"/>	Copyright
		Trademark
		Trade secret
		Database rights
Protection strategy details	<p> Explain <b>your protection strategy in more detail</b> here:</p> <p>Licensing to 3rd party: for instance, Licence to EEnvest platform main exploiting partner (R2M) or partners interested in exploiting the platform. This Licence will frame the technical support of the platform.</p>	
	Understanding of prior Art/Fto relevant to ER (only for technical ERs)	<p> Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</p>

---

	NA
<b>Required funding for protection</b>	 Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)
	NA

## Annex G ER6 questionnaire

ER N°	ER06	EInvest data input sheet and investment evaluation report		LAST UPDATE
				06/06/2022
ER leader		POLIMI		
Owner(s) / Developer(s)		Is there one clear "owner" of the innovation or multiple owners?		
		<input type="checkbox"/>	One clear "owner"	
		<input checked="" type="checkbox"/>	Multiple "owners"	
		List all owners / developers		
		<ul style="list-style-type: none"> <li>Associated partners: EURAC, IES</li> <li>Owners : EURAC, IES, POLIMI</li> </ul>		
Key resources and background declaration for "shared ER"		 What Key Resources do your value proposition require? Explain <b>which background from whom has been used for the production of the jointly developed ER</b> (potentially check the Consortium agreement for former input) Standardized data formats (POLIMI) Hosting platform + blockchain data encryption (IES)		
Management Ideas for "shared ER"		 Outline your first ideas of <b>how the ER exploitation of the jointly developed ER could be managed</b> (for example market splitting, licensing among partners, JV setup etc) Licensing among partners		
Output		<input type="checkbox"/>	Significantly improved product	
		<input type="checkbox"/>	Significantly improved service (except consulting services)	
		<input type="checkbox"/>	Significantly improved process	
		<input type="checkbox"/>	Significantly improved marketing method	
		<input type="checkbox"/>	Significantly improved organisational method	
		<input checked="" type="checkbox"/>	Consulting services	
		<input checked="" type="checkbox"/>	New product	
		<input type="checkbox"/>	New service (except consulting services)	
		<input checked="" type="checkbox"/>	New process	
		<input type="checkbox"/>	New marketing method	
		<input type="checkbox"/>	New organisational method	
<input type="checkbox"/>	Other (please specify) :			

<b>Description of the result</b>	<p>A method for collecting and processing the data needed for risks analysis</p> <p>-&gt; consultant service (by POLIMI)</p>								
<b>Illustration (s)</b>	<table border="1"> <thead> <tr> <th data-bbox="486 338 770 398">INPUTS</th> <th data-bbox="770 338 914 398">CALCULATION PROCESS</th> <th data-bbox="914 338 1214 398">OUTPUTS</th> <th data-bbox="1214 338 1390 398">REPORT</th> </tr> </thead> <tbody> <tr> <td data-bbox="486 398 770 913"> </td> <td data-bbox="770 398 914 913"> </td> <td data-bbox="914 398 1214 913"> <ul style="list-style-type: none"> <li>•• T_0.1 - Damage</li> <li>•• T_0.2 - Performance gap</li> <li>•• F_0.1 - Payback time</li> <li>•• F_0.2 - Maturity</li> <li>•• F_0.3 - Internal Rate of Return</li> <li>•• F_0.4 - Net Present Value on Investment</li> <li>•• F_0.5 - Debt-Service Coverage Ratio</li> <li>•• M_0.1 - CO<sub>2</sub> eq. emission reduction</li> <li>•• M_0.2 - Predicted energy savings</li> <li>•• M_0.3 - Number of jobs created</li> <li>•• M_0.4 - EU Taxonomy compliance</li> <li>•• M_0.5 - Property value increase</li> <li>•• M_0.6 - Link to Sustainable Development Goals (SDGs)</li> </ul> </td> <td data-bbox="1214 398 1390 913"> </td> </tr> </tbody> </table>	INPUTS	CALCULATION PROCESS	OUTPUTS	REPORT			<ul style="list-style-type: none"> <li>•• T_0.1 - Damage</li> <li>•• T_0.2 - Performance gap</li> <li>•• F_0.1 - Payback time</li> <li>•• F_0.2 - Maturity</li> <li>•• F_0.3 - Internal Rate of Return</li> <li>•• F_0.4 - Net Present Value on Investment</li> <li>•• F_0.5 - Debt-Service Coverage Ratio</li> <li>•• M_0.1 - CO<sub>2</sub> eq. emission reduction</li> <li>•• M_0.2 - Predicted energy savings</li> <li>•• M_0.3 - Number of jobs created</li> <li>•• M_0.4 - EU Taxonomy compliance</li> <li>•• M_0.5 - Property value increase</li> <li>•• M_0.6 - Link to Sustainable Development Goals (SDGs)</li> </ul>	
INPUTS	CALCULATION PROCESS	OUTPUTS	REPORT						
		<ul style="list-style-type: none"> <li>•• T_0.1 - Damage</li> <li>•• T_0.2 - Performance gap</li> <li>•• F_0.1 - Payback time</li> <li>•• F_0.2 - Maturity</li> <li>•• F_0.3 - Internal Rate of Return</li> <li>•• F_0.4 - Net Present Value on Investment</li> <li>•• F_0.5 - Debt-Service Coverage Ratio</li> <li>•• M_0.1 - CO<sub>2</sub> eq. emission reduction</li> <li>•• M_0.2 - Predicted energy savings</li> <li>•• M_0.3 - Number of jobs created</li> <li>•• M_0.4 - EU Taxonomy compliance</li> <li>•• M_0.5 - Property value increase</li> <li>•• M_0.6 - Link to Sustainable Development Goals (SDGs)</li> </ul>							
<b>Unique selling point</b>	<p>Faster, benefit for the experience of a research project, already tested and verified</p>								
<b>Targeted Customers / Market Segment</b>	<p><i>For whom are you creating value? Who are your most important customers?</i></p> <p> <i>Construction sector in Italy (general constructor), investors companies (POLIMI have already connection), building owners and big companies with large portfolio (they have to select each year each project that needs to be renovated)</i></p>								
<b>Customer relationships</b>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them? Which ones have you established? How are they integrated with the rest of your business model? How costly are they?</i></p> <p><i>POLIMI has contacts with large investor companies such as COIMA SGR</i></p>								
<b>Channels</b>	<p><i>Through which channels do your customer segments want to be reached? How are you reaching them now? How are your channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</i></p> <p><i>POLIMI website and social media account</i></p>								
<b>Value proposition</b>	<p><i>What value do you deliver to the customer? Which one of your customer's problems are you helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</i></p> <p><i>Investor companies: decreasing risk of investment Construction companies: decreasing the technological risk of renovation</i></p>								

State of development at present date	<ul style="list-style-type: none"> <li>Advanced</li> </ul>														
Performed trials and achieved results at present date	<ul style="list-style-type: none"> <li>Yes, with demo cases</li> </ul>														
Current level of development for the result (TRL)	Research						Market								
	1	2	3	4	5	6	7	8	9						
Expected level of development for the result (TRL)	Research						Market								
	1	2	3	4	5	6	7	8	9						
Y1 Y2 Y3 Y4 Y5	<b>Short-term (project end + 2y) exploitation vision, strategy and actions</b>														
Objective(s) of foreground exploitation	<p> Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years</b> after project closing (this <u>should include a quantification to be measurable</u>)</p> <p>Overall methodology defined by the end of the project, could be sold with consulting services</p>														
Expected time for marketability	<p><i>Is the innovation developed within the project:</i></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30px;"></td> <td>Under development</td> </tr> <tr> <td style="text-align: center;"><b>X</b></td> <td>Already developed but not yet being exploited</td> </tr> <tr> <td></td> <td>being exploited</td> </tr> </table> <p> Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <ul style="list-style-type: none"> <li>End of 2022</li> </ul>										Under development	<b>X</b>	Already developed but not yet being exploited		being exploited
	Under development														
<b>X</b>	Already developed but not yet being exploited														
	being exploited														
Exploitation collaboration with <u>external partners</u>	<p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p>Yes / partner with informatic background</p>														
Preliminary exploitation vision	<b>X</b>	Internal use													
	<b>X</b>	Further research needed													
		Enabling technology (for subsequent product, service, etc.)													
		Training													
		Open distribution													
		Establishment of industry standard													
	<b>X</b>	Direct sales / Consultancy service													
	<b>X</b>	Licensing the innovation to a 3 <sup>rd</sup> party													

	IP sale
	Joint Venture
	Launch a start-up or spin-off
	Other → Please specify
<b>Foreground exploitation strategy</b>	<p> Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <p>To build a clear and robust data structure (input-output) to be developed on the platform at present state and implementable in the future</p>
<b>In case of commercialisation, target market</b>	<p> Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</p> <p>Italy would be targeted first, mainly because of POLIMI connections</p>
<b>Market maturity</b>	The market targeted by this innovation is ...
	The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	Market creating: The market is not yet existing but the innovation has clear potential to create a new market
	<input checked="" type="checkbox"/> Emerging: There is a growing demand and few offerings are available
	Mature: The market is already supplied with many products of the type proposed
<b>Market dynamics</b>	Is the market ...
	In decline
	Holding steady
	<input checked="" type="checkbox"/> Growing
<b>Market competition</b>	How strong is competition in the target market?
	<input checked="" type="checkbox"/> Patchy, no major players
	Established competition but none with a proposition like the one under investigation
	Several major players with strong competencies, infrastructure and offerings
<b>Preliminary roadmap or milestones of activities</b>	Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).

	Organisation of promotion events would help boosting the EInvest platform services and innovativity			
Possible limitations/risks in exploitation	 Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b> .			
	<i>Risk description</i>	<i>Classification (T/FE/R/MC/SE)</i>	<i>Likelihood (high/medium/low)</i>	<i>Impact (severe, moderate, minimal)</i>
	Time-consuming input-output data structuring	T	High	moderate
	Data availability	T	Medium	severe
Mitigation measures for identified limitations/risks	 Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.			
	<i>Risk description</i>	<i>Mitigation actions (reduce likelihood of occurrence)</i>	<i>Contingency actions (reduce severity of impact)</i>	
	Time-consuming input-output data structuring	If there is a digital twin of the building		
	Data availability	Clear standard During the development of the methodology be aware/vigilant of the availability of data		
Cost structure	<p>What are the most important costs inherent in our business model?</p> <p>Which key resources are most expensive?</p> <p>Which key activities are most expensive?</p> <p>Developing the interface</p>			
Revenue streams	<p>For what value are your customers really willing to pay?</p> <p>For what do they currently pay?</p> <p>How are they currently paying?</p>			

	<p><i>How would they prefer to pay?</i></p> <p><i>How much does each Revenue Stream contribute to overall revenues?</i></p>
Source of external funding required	Yes
Y1 Y2 Y3 Y4 Y5	<b>Mid-term (project end + 5y) exploitation vision</b>
Objective(s) of foreground exploitation	<p>Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</p> <p>POLIMI could apply the EEnvest process and methodology to work on renovations on local schools.</p>
Foreground exploitation strategy	<p>Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</p> <p>To implement the clear and robust data structure (input-output) to be developed on the platform.</p>
Preliminary roadmap/ milestones of activities	<p> Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</p> <p>Organisation of exploitation events would help boosting the EEnvest platform services and innovation</p> <p>The EEnvest methodology and approach could be spread and exploited also within the university and academic field in general</p>
<b>Related Intellectual Property Rights</b>	
Market competition	Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b> .
	<input type="checkbox"/> Patent
	<input type="checkbox"/> Industrial design rights
	<input checked="" type="checkbox"/> Copyright
	<input checked="" type="checkbox"/> Trademark
	<input type="checkbox"/> Trade secret
	<input checked="" type="checkbox"/> Database rights
<input type="checkbox"/> Other (specify): Commissioning know-how	

<b>Protection strategy details</b>	 <p><i>Explain <b>your protection strategy in more detail</b> here:</i></p> <p>POLIMI can transfer this result to the BCode Spin off for the exploitation of the result, this company is in a better position to guarantee its commercialization through the provision of services.</p>
<b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b>	<p><i>Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</i></p> <p>-</p>
<b>Required funding for protection</b>	<p><i>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</i></p> <p>-</p>

## Annex H ER7 questionnaire

ER N°	ER07	Consulting service based on EEnvest platform benchmark tool	LAST UPDATE
			15/06/2022
ER leader		ENERGINVEST	
Owner(s) / Developer(s)		Is there one clear "owner" of the innovation or multiple owners?	
		<input type="checkbox"/>	One clear "owner"
		<input checked="" type="checkbox"/>	Multiple "owners"
		List all owners / developers IES, EURAC, SINLOC, GNE, POLIMI, ENERGINVEST	
Key resources and background declaration for "shared ER"		 What Key Resources does your value proposition require? Know-how from EURAC, SINLOC, POLIMI and GNE is required to develop the methodologies and models to process and assess the required input data to allow benchmarking the relevant KPI of different DER project alternatives and the provision of the EEnvest Risk Assessment reports. Know-how from IES is required to build the EEnvest platform that identifies, assesses and calculates technical and financial risks and provides multiple-benefit information related to the energy efficiency projects uploaded to this EEnvest platform. The interface is built on the ICIM platform which is an IES product.	
Management Ideas for "shared ER"		 Outline your first ideas of <b>how the ER exploitation of the jointly developed ER could be managed</b> (for example market splitting, licensing among partners, JV setup etc) The active partners having performed research, provided methodologies or actively contributed or having provided consulting to the methodologies and or models should have a free licence to use the platform and upload and benchmark EE projects.	
Output		<input type="checkbox"/>	Significantly improved product
		<input checked="" type="checkbox"/>	Significantly improved service (except consulting services)
		<input type="checkbox"/>	Significantly improved process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method
		<input checked="" type="checkbox"/>	Consulting services
		<input type="checkbox"/>	New product
		<input type="checkbox"/>	New service (except consulting services)
		<input type="checkbox"/>	New process
<input type="checkbox"/>	New marketing method		

	<input type="checkbox"/> New organisational method <input type="checkbox"/> Other (please specify) :
<b>Description of the result</b>	<p>Today Energinvest is coaching their customers through the whole process of their building energy renovation project, from A to Z. The services include some financing counselling though this is still not a very well explored area yet.</p> <p>Thanks to the EEnvest Platform and its capability of benchmarking relevant KPI, based on the EEnvest Evaluation methodology, of different energy efficiency projects uploaded to this EEnvest Platform, it will be possible for Energinvest to add an additional layer of services to the customer. Energinvest will thus be able to expand its portfolio of services to include KPI and results related to technical risks aspects, financial risk performance and multiple benefits performance and have these benchmarked with other projects.</p> <p>These additional services will be particularly interesting when counselling customers during their search for financing. The Risk evaluation performed by the Platform, allows project owners (Energinvest’s customers) to put emphasis on those aspects of their energy efficiency project that are objectivised and can be of interest to financiers (e.g, financial performance risk, EU Taxonomy compliance, SDG focus,...), hence increasing their change to obtain financing of their EE project.</p>
<b>Illustration (s)</b>	
<b>Unique selling point</b>	<p>Energinvest can provide an all-in solution (A to Z coaching) of the energy efficiency project including objective data on the risks associated with the EE projects.</p>
<b>Targeted Customers / Market Segment</b>	<p><i>For whom are you creating value?</i>  <i>Who are your most important customers?</i></p> <p>Value is being created for building owners in the Private sector, commercial buildings, SMEs.</p> <p>Some of the current customers could be interested by the new service offering, though most of the current customers are public entities, and the public sector is not the main target of the service offering.</p>
<b>Customer relationships</b>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them?</i>  <i>Which ones have you established?</i>  <i>How are they integrated with the rest of your business model?</i>  <i>How costly are they?</i></p> <p>The customer relationship, through the expanded service offering, will be managed by Energinvest with no other parties involved. Energinvest will build the know-how to use the EEnvest Platform as an expert and will provide the Platform features, capabilities and services directly to the customer.</p>

<b>Channels</b>	<p><i>Through which channels do your customer segments want to be reached?</i>  <i>How are you reaching them now?</i>  <i>How are your channels integrated?</i>  <i>Which ones work best?</i>  <i>Which ones are most cost-efficient?</i>  <i>How are we integrating them with customer routines?</i></p> <p>Energinvest envisages the development of a portal to deliver its expanded service offering through a Direct sales channel.</p>										
<b>Value proposition</b>	<p><i>What value do you deliver to the customer?</i>  <i>Which one of your customer's problems are you helping to solve?</i>  <i>What bundles of products and services are we offering to each Customer Segment?</i>  <i>Which customer needs are we satisfying?</i></p> <p>Proposing a one-stop-shop offer  Assess the risks of their Energy Efficiency investment  Mitigating the customer's uncertainties and lack of trust surrounding the risks (technical, financial, performance,..) of their EE investment  Enhancing the perspective of finding finance for their projects</p>										
<b>State of development at present date</b>	At the end of the project the EEnvest Platform will not be ready for commercialisation. The TRL is currently being estimated at 7 or 8. It is not sure that the benchmarking capability will have been developed at project end.										
<b>Performed trials and achieved results at present date</b>	None.										
<b>Current level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td style="background-color: #008000; color: white;">7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9			
<b>Expected level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td style="background-color: #008000; color: white;">7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9	
1	2	3	4	5	6	7	8	9			
<table border="1" style="display: inline-table; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Y1</td><td style="padding: 2px;">Y2</td><td style="padding: 2px;">Y3</td><td style="padding: 2px;">Y4</td><td style="padding: 2px;">Y5</td> </tr> <tr> <td style="text-align: center;">■</td><td style="text-align: center;">■</td><td style="text-align: center;">■</td><td style="text-align: center;">■</td><td style="text-align: center;">■</td> </tr> </table>	Y1	Y2	Y3	Y4	Y5	■	■	■	■	■	<b>Short-term (project end + 2y) exploitation vision, strategy and actions</b>
Y1	Y2	Y3	Y4	Y5							
■	■	■	■	■							
<b>Objective(s) of foreground exploitation</b>	<p> Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years</b> after project closing (<u>this should include a quantification to be measurable</u>)</p> <p>Enhanced service offering will only be possible if the EEnvest Platform reaches TRL9. A post-EEnvest project development is needed to bring from the EEnvest Platform from TRL 7 to TRL 9. This can be done by the currently involved partners though the vast majority of the development relates to IT development. This relates to improvement of user experience and add functionalities necessary to perform benchmarking of projects</p>										
<b>Expected time for marketability</b>	<p><i>Is the innovation developed within the project:</i></p> <table border="1" style="width: 100%;"> <tr> <td style="text-align: center; width: 30px;"><b>X</b></td> <td>Under development</td> </tr> </table>	<b>X</b>	Under development								
<b>X</b>	Under development										

		Already developed but not yet being exploited
		being exploited
		<p>Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <p>No timeline can be given as it all depends on the capabilities of the partners to continue the development of the EEnvest Platform, specifically IES.</p>
<b>Exploitation collaboration with external partners</b>		<p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p> If the IT development required to perform the benchmarking of the EE project has been performed than there are no external partners needed. If the benchmarking functionality of the Platform is not being further developed after the project end it could be done by an external IT-developer outside the EEnvest consortium. It will depend on the willingness of IES to provide access to the current development.</p>
<b>Preliminary exploitation vision</b>	<input checked="" type="checkbox"/>	Internal use
	<input checked="" type="checkbox"/>	Further research needed
	<input checked="" type="checkbox"/>	Enabling technology (for subsequent product, service, etc.) <a href="#">platform</a>
	<input checked="" type="checkbox"/>	Training
	<input type="checkbox"/>	Open distribution
	<input type="checkbox"/>	Establishment of industry standard
	<input checked="" type="checkbox"/>	Direct sales / Consultancy service
	<input type="checkbox"/>	Licensing the innovation to a 3 <sup>rd</sup> party
	<input type="checkbox"/>	IP sale
	<input type="checkbox"/>	Joint Venture
	<input type="checkbox"/>	Launch a start-up or spin-off
<input type="checkbox"/>	Other → Please specify	
<b>Foreground exploitation strategy</b>		<p>Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <p>Conduct interviews with ESCOs to understand the possible interest of their customers (private project owners) in the benchmarking capabilities and de-risking capabilities of the EEnvest Platform.</p>
<b>In case of commercialisation, target market</b>		<p>Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give</p>

	<p><i>details about the geographic area, application/user circle and your estimated size of the market.</i></p> <p>As the platform will not be ready at the end of the project and as it is unsure if the benchmarking and full KPI reporting functionality will be available during the first 2 years after project end it is not possible to estimate the size of the market. Given the specific effort and knowledge required to input the requested data into the platform only projects above 1.000.000€ in the private sector (office buildings market, SMEs) will probably have the budget to pay for these additional services. The market potential could be 1 or 2 projects for the Belgium market during the first year of commercialisation of the EEnvest platform and then ramping up to 5 to 10 projects per year afterwards if also neighbourhood countries France, The Netherlands, Germany and Luxemburg are considered.</p>
<b>Market maturity</b>	<i>The market targeted by this innovation is ...</i>
	<input type="checkbox"/> The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	<input checked="" type="checkbox"/> Market creating: The market is not yet existing but the innovation has clear potential to create a new market
	<input type="checkbox"/> Emerging: There is a growing demand and few offerings are available
	<input type="checkbox"/> Mature: The market is already supplied with many products of the type proposed
<b>Market dynamics</b>	<i>Is the market ...</i>
	<input type="checkbox"/> In decline
	<input type="checkbox"/> Holding steady
	<input checked="" type="checkbox"/> Growing
<b>Market competition</b>	<i>How strong is competition in the target market?</i>
	<input checked="" type="checkbox"/> Patchy, no major players
	<input type="checkbox"/> Established competition but none with a proposition like the one under investigation
	<input type="checkbox"/> Several major players with strong competencies, infrastructure and offerings
<b>Preliminary roadmap or milestones of activities</b>	<p> <i>Specify which (commercialisation) actions for the ER exploitation you want to take in the first 2 years after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</i></p> <p>Active participation to a conference in Belgium with ESCOs, the Belesco Energy Services and Financing days. The conference takes place each 4 years and it is expected that the next one will be in 2023. The EEnvest Platform will also be presented and promoted on the Energinvest website.</p>
	<p> <i>Identify which limitations and risks could occur in this first 2-year phase of ER exploitation and classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE) (ex. a</i></p>

Possible limitations/risks in exploitation	<p>potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p>			
	<b>Risk description</b>	<b>Classification (T/FE/R/MC/SE)</b>	<b>Likelihood (high/medium/low)</b>	<b>Impact (severe, moderate, minimal)</b>
	The customers perceive the services as too much of a black box	T / MC	Low	Moderate
	The business case does not convince, customers don't see the value for money	MC	Medium	Severe
	EInvest Platform not ready for commercialisation	T, FE,MC	High	Severe
Mitigation measures for identified limitations/risks	<p> Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.</p>			
	<b>Risk description</b>	<b>Mitigation actions (reduce likelihood of occurrence)</b>	<b>Contingency actions (reduce severity of impact)</b>	
	The customers perceive the services as too much of a black box	Provide training Transparency Insight on the calculation		
	The business case does not convince, customers don't see the value for money	Market study - Know better the needs of the client. Pay as you go model (reduce the cost on day one)	Integrated in the platform, in the business model of the platform – more global value proposition	
Cost structure	<p>What are the most important costs inherent in our business model?</p> <p>Which key resources are most expensive?</p> <p>Which key activities are most expensive?</p>			

	<p>Platform operating costs and platform maintenance costs. Version updates to keep up with market development and needs. Cost for providing the blockchain feature.</p>
Revenue streams	<p><i>For what value are your customers really willing to pay?</i></p> <p><i>For what do they currently pay?</i></p> <p><i>How are they currently paying?</i></p> <p><i>How would they prefer to pay?</i></p> <p><i>How much does each Revenue Stream contribute to overall revenues?</i></p> <p>Customers would pay on an “As you Go” basis. This would be part of the enhanced service offering, packaged in the All-in-one service offering for the A to Z facilitation of their energy efficiency project.</p>
Source of external funding required	<p>Energinvest is not developing anything from the EInvest Platform, so if the EInvest Platform is available then very limited external funding would be required.</p>
Y1 Y2 Y3 Y4 Y5	<p><b>Mid-term (project end + 5y) exploitation vision</b></p>
Objective(s) of foreground exploitation	<p><i>Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</i></p> <p>Support the extension of the features, functionalities of the EInvest Platform to make it also accessible to smaller size projects of less than € 250.000 and if possible also to the residential market (Projects below €100.000).</p>
Foreground exploitation strategy	<p><i>Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</i></p> <p>Partner up with Home Owner Federations or associations such as UIPI (EInvest Partner) International Union of Property Owners or other EInvest partners (R2M, EURAC, SINLOC) to investigate how the EInvest Platform can be adapted to be offered to the residential and small businesses market.</p>
Preliminary roadmap/ milestones of activities	<p><i>Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</i></p> <p>There is no specific roadmap yet as the Platform has only reached minimum viable product level and it is not clear if it would get to commercialisation.</p>

Related Intellectual Property Rights 	
Market competition	Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b> .
	Patent
	Industrial design rights
	Copyright
	Trademark
	Trade secret
	Database rights
	Other (specify): Commissioning know-how
Protection strategy details	<p><b>Explain your protection strategy in more detail here:</b></p> <p>Transfer agreement or licence agreement (if different partners want to exploit the platform)</p> <p>ENERGINVEST wants to exploit the benchmark option of the EEnvest platform → If R2M is exploitation manager (meaning that it has the right to exploit after signing an agreement with the EEnvest Platform co-owners) → R2M will have the possibility to licence to other EEnvest partners for free and under payment to external partners. ENERGINVEST will have the right to exploit the platform through services but not to Licence the platform.</p>
Understanding of prior Art/Fto relevant to ER (only for technical ERs)	 Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER  N/A
Required funding for protection	<p>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</p> N/A

## Annex I ER8 questionnaire

ER N°	ER08	Project Quality Self Assessment Tool	LAST UPDATE
			15/06/2022
ER leader		ENERGINVEST	
Owner(s) / Developer(s)		<i>Is there one clear "owner" of the innovation or multiple owners?</i>	
		<input checked="" type="checkbox"/>	One clear "owner"
		<input type="checkbox"/>	Multiple "owners"
		<i>List all owners / developers</i>	
		ENERGINVEST	
Key resources and background declaration for "shared ER"		 <i>What Key Resources do your value proposition require?</i> Explain <b>which background from whom has been used for the production of the jointly developed ER</b> (potentially check the Consortium agreement for former input)  PQSAT has been developed by Energinvest as an Excel tool and would need knowhow from IES to have this ER integrated in the EEnvest Platform.	
Management Ideas for "shared ER"		 <i>Outline your first ideas of how the ER exploitation of the jointly developed ER could be managed</i> (for example market splitting, licensing among partners, JV setup etc)  PQSAT has real value when it can be integrated into the EEnvest Platform as it provides an indication of the quality of the set-up of the Energy Efficiency project uploaded to the EEnvest Platform. It provides assurance to investors on the self-assessed quality of the EE project set-up, enhancing the risk evaluation capability of the EEnvest Platform. The active partners having performed research, provided methodologies or actively contributed or having provided consulting to the methodologies and or models of the EEnvest Methodology should have a free licence to use the entire platform, including PQSAT.	
Output		<input type="checkbox"/>	Significantly improved product
		<input checked="" type="checkbox"/>	Significantly improved service (except consulting services)
		<input type="checkbox"/>	Significantly improved process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method
		<input checked="" type="checkbox"/>	Consulting services
		<input type="checkbox"/>	New product

	<input type="checkbox"/> New service (except consulting services) <input type="checkbox"/> New process <input type="checkbox"/> New marketing method <input type="checkbox"/> New organisational method <input type="checkbox"/> Other (please specify) :
<b>Description of the result</b>	<p>Today Energinvest is coaching their customers through the whole process of their building energy renovation project, from A to Z. The services include some financing counselling though this is still not a very well explored area yet.</p> <p>PQSAT is intended to provide a self-assessed assurance of the quality of the EE project set-up of the projects uploaded to the EEnvest Platform and as such enhances the risk evaluation capability of the EEnvest Platform, making it interesting to investors. PQSAT can be particularly interesting when counselling customers during their search for financing. Energinvest will thus be able to expand its portfolio of services to include PQSAT and the interpretation of PQSAT to support customers to anticipate flaws in the set-up of their project, take corrective actions and increase their change to obtain financing of their EE project through the EEnvest platform.</p>
<b>Illustration (s)</b>	
<b>Unique selling point</b>	<p>Energinvest can provide an all-in solution (A to Z coaching) of the energy efficiency project including a Project Quality Self-Assessment tool and objective data on the risks associated with the EE projects.</p>
<b>Targeted Customers / Market Segment</b>	<p><i>For whom are you creating value?</i>  <i>Who are your most important customers?</i>  Value is being created for building owners in the Private sector, commercial buildings, SMEs.</p> <p>Some of the current customers could be interested by the new service offering, though most of the current customers are public entities, and the public sector is not the main target of the service offering.</p>
<b>Customer relationships</b>	<p><i>What type of relationship does each of your Customer Segments expect us to establish and maintain with them?</i>  <i>Which ones have you established?</i>  <i>How are they integrated with the rest of your business model?</i>  <i>How costly are they?</i></p> <p>The customer relationship, through the expanded service offering, will be managed by Energinvest with no other parties involved. Energinvest will build the know-how to use the EEnvest Platform as an expert and will provide the Platform features, capabilities and services directly to the customer.</p>
<b>Channels</b>	<p><i>Through which channels do your customer segments want to be reached?</i>  <i>How are you reaching them now?</i>  <i>How are your channels integrated?</i>  <i>Which ones work best?</i>  <i>Which ones are most cost-efficient?</i>  <i>How are we integrating them with customer routines?</i></p>

	Energinvest envisages the development of a portal to deliver its expanded service offering through a Direct sales channel.									
<b>Value proposition</b>	<p>What value do you deliver to the customer?  Which one of your customer's problems are you helping to solve?  What bundles of products and services are we offering to each Customer Segment?  Which customer needs are we satisfying?  Proposing a one-stop-shop offer  Assess the risks of their Energy Efficiency investment  Mitigating the customer's uncertainties and lack of trust surrounding the risks (technical, financial, performance,..) of their EE investment  Enhancing the perspective of finding finance for their projects</p>									
<b>State of development at present date</b>	Excel based PQSAT has been fully developed									
<b>Performed trials and achieved results at present date</b>	PQSAT has been applied and tested on the Italian demo-case building and the Spanish demo-case building which are the pilots of the EEnvest project. The results are published in D6.1. The Excel based PQSAT needs to be integrated into the EEnvest Platform.									
<b>Current level of development for the result (TRL)</b>	Research <span style="float: right;">Market</span> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td style="background-color: green;">8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
<b>Expected level of development for the result (TRL)</b>	Research <span style="float: right;">Market</span> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td style="background-color: green;">8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
Y1 Y2 Y3 Y4 Y5	<b>Short-term (project end + 2y) exploitation vision, strategy and actions</b>									
<b>Objective(s) of foreground exploitation</b>	<p>Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years after project closing (this should include a quantification to be measurable)</b></p> <p>Enhanced service offering will only be possible if the EEnvest Platform reaches TRL9. A post-EEnvest project development is needed to bring from the EEnvest Platform from TRL 7 to TRL 9, including the PQSAT. This can be done by the currently involved partners though the vast majority of the development relates to IT development.</p>									
<b>Expected time for marketability</b>	<p>Is the innovation developed within the project:</p> <table border="1" style="width: 100%;"> <tr> <td style="width: 30px;"></td> <td>Under development</td> </tr> <tr> <td style="text-align: center;"><b>X</b></td> <td>Already developed but not yet being exploited</td> </tr> <tr> <td></td> <td>being exploited</td> </tr> </table> <p>Estimate a realistic <b>readiness timeline of the ER after project closing</b></p> <p>No timeline can be given as it all depends on the capabilities of the partners to continue the development of the EEnvest Platform, specifically IES.</p>		Under development	<b>X</b>	Already developed but not yet being exploited		being exploited			
	Under development									
<b>X</b>	Already developed but not yet being exploited									
	being exploited									

<p><b>Exploitation collaboration with external partners</b></p>	<p>Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?</p> <p>If the IT development required to integrate PQSAT in the Platform has been performed then there are no external partners needed. If the PQSAT is not being further integrated after the project end it could be done by an external IT-developer outside the EEnvest consortium. It will depend on the willingness of IES to provide access to the current development.</p>																								
<p><b>Preliminary exploitation vision</b></p>	<table border="1"> <tr> <td data-bbox="481 598 523 647">X</td> <td data-bbox="523 598 1401 647">Internal use</td> </tr> <tr> <td data-bbox="481 647 523 712"></td> <td data-bbox="523 647 1401 712">Further research needed</td> </tr> <tr> <td data-bbox="481 712 523 777">X</td> <td data-bbox="523 712 1401 777">Enabling technology (for subsequent product, service, etc.) platform</td> </tr> <tr> <td data-bbox="481 777 523 842">X</td> <td data-bbox="523 777 1401 842">Training</td> </tr> <tr> <td data-bbox="481 842 523 907"></td> <td data-bbox="523 842 1401 907">Open distribution</td> </tr> <tr> <td data-bbox="481 907 523 972"></td> <td data-bbox="523 907 1401 972">Establishment of industry standard</td> </tr> <tr> <td data-bbox="481 972 523 1037">X</td> <td data-bbox="523 972 1401 1037">Direct sales / Consultancy service</td> </tr> <tr> <td data-bbox="481 1037 523 1102"></td> <td data-bbox="523 1037 1401 1102">Licensing the innovation to a 3<sup>rd</sup> party</td> </tr> <tr> <td data-bbox="481 1102 523 1167"></td> <td data-bbox="523 1102 1401 1167">IP sale</td> </tr> <tr> <td data-bbox="481 1167 523 1232"></td> <td data-bbox="523 1167 1401 1232">Joint Venture</td> </tr> <tr> <td data-bbox="481 1232 523 1296"></td> <td data-bbox="523 1232 1401 1296">Launch a start-up or spin-off</td> </tr> <tr> <td data-bbox="481 1296 523 1361"></td> <td data-bbox="523 1296 1401 1361">Other → Please specify</td> </tr> </table>	X	Internal use		Further research needed	X	Enabling technology (for subsequent product, service, etc.) platform	X	Training		Open distribution		Establishment of industry standard	X	Direct sales / Consultancy service		Licensing the innovation to a 3 <sup>rd</sup> party		IP sale		Joint Venture		Launch a start-up or spin-off		Other → Please specify
X	Internal use																								
	Further research needed																								
X	Enabling technology (for subsequent product, service, etc.) platform																								
X	Training																								
	Open distribution																								
	Establishment of industry standard																								
X	Direct sales / Consultancy service																								
	Licensing the innovation to a 3 <sup>rd</sup> party																								
	IP sale																								
	Joint Venture																								
	Launch a start-up or spin-off																								
	Other → Please specify																								
<p><b>Foreground exploitation strategy</b></p>	<p>Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <p>Conduct interviews with ESCOs to understand the possible interest of their customers (private project owners) in the PQSAT and the enhanced de-risking capabilities of the EEnvest Platform.</p>																								
<p><b>In case of occurrence, target market</b></p>	<p>Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</p> <p>As the platform will not be ready at the end of the project and as it is unsure if the benchmarking, full KPI reporting functionality and integration of the PQSAT in the Platform will be available during the first 2 years after project end it is not possible to estimate the size of the market for the PQSAT service. The PQSAT will be offered together with the enhanced service offering resulting from ER 7 as an all-in package. Given the specific effort and knowledge required to input the requested data into the EEnvest Platform only projects above 1.000.000€ in the private sector (office buildings and/or SMEs) will probably have the budget to pay for these additional services. The market potential could be 1 or 2 projects for the Belgium market during the first year of commercialisation of the EEnvest platform</p>																								

	and then ramping up to 5 to 10 projects per year afterwards if also neighbourhood countries France, The Netherlands, Germany and Luxemburg are considered.
Market maturity	<i>The market targeted by this innovation is ...</i>
	<input type="checkbox"/> The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	<input checked="" type="checkbox"/> Market creating: The market is not yet existing but the innovation has clear potential to create a new market
	<input type="checkbox"/> Emerging: There is a growing demand and few offerings are available
	<input type="checkbox"/> Mature: The market is already supplied with many products of the type proposed
Market dynamics	<i>Is the market ...</i>
	<input type="checkbox"/> In decline
	<input type="checkbox"/> Holding steady
	<input checked="" type="checkbox"/> Growing
Market competition	<i>How strong is competition in the target market?</i>
	<input checked="" type="checkbox"/> Patchy, no major players
	<input type="checkbox"/> Established competition but none with a proposition like the one under investigation
	<input type="checkbox"/> Several major players with strong competencies, infrastructure and offerings
Preliminary roadmap or milestones of activities	<p><i>Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. Which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</i></p> <p>Active participation to a conference in Belgium with ESCOs, the Belesco Energy Services and Financing days. The conference takes place each 4 years and it is expected that the next one will be in 2023. The EEnvest Platform and the PQSAT will also be presented and promoted on the Energinvest website.</p>
Possible limitations/risks in exploitation	<p><i>Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory I, market-commercial (MC) or social-environmental (SE)</b> (ex. A potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</i></p>

	<b>Risk description</b>	<b>Classification (T/FE/R/MC/SE)</b>	<b>Likelihood (high/medium/low)</b>	<b>Impact (severe, moderate, minimal)</b>
	The investors perceive the services as too much of the black box	T / MC	Low	Moderate
	The business case does not convince, customers don't see the value for money	MC	Medium	Severe
	EInvest Platform not ready for commercialisation	T, FE,MC	High	Severe
<b>Mitigation measures for identified limitations/risks</b>	<i>Initial ideas on how to compensate for these limitations/risks in the exploitation of the ER.</i>			
	<b>Risk description</b>	<b>Mitigation actions (reduce likelihood of occurrence)</b>		<b>Contingency actions (reduce severity of impact)</b>
	The investors perceive the services as too much of the black box	Provide training Transparency Insight on the scoring methodology of PQSAT		
	The business case does not convince, customers don't see the value for money	Know better the needs of the client Pay as you go model (reduce the cost on day one)		Integrated in the platform, in the business model of the platform – more global value proposition
<b>Cost structure</b>	<p><i>What are the most important costs inherent in our business model?</i></p> <p><i>Which key resources are most expensive?</i></p> <p><i>Which key activities are most expensive?</i></p> <p>Platform operating costs and platform maintenance costs. Version updates to keep up with market development and needs. Cost for providing the blockchain feature.</p>			
	<b>Revenue streams</b>	<p><i>For what value are your customers really willing to pay?</i></p> <p><i>For what do they currently pay?</i></p>		

	<p><i>How are they currently paying?</i></p> <p><i>How would they prefer to pay?</i></p> <p><i>How much does each Revenue Stream contribute to overall revenues?</i></p> <p>Customers would pay on an “As you Go” basis, on a per use basis. This would be part, together with ER7, of the enhanced service offering, packaged in the All-in-one service offering for the A to Z facilitation of their energy efficiency project.</p>
<b>Source of external funding required</b>	Energinvest is not developing anything from the EEnvest Platform, so if the EEnvest Platform is available then very limited external funding would be required.
Y1 Y2 Y3 Y4 Y5	<b>Mid-term (project end + 5y) exploitation vision</b>
<b>Objective(s) of foreground exploitation</b>	<p><i>Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</i></p> <p>Support the extension of the features, functionalities of the EEnvest Platform to make it also accessible to smaller size projects of less than € 250.000 and if possible also to the residential market (Projects below €100.000).</p>
<b>Foreground exploitation strategy</b>	<p><i>Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</i></p> <p>Partner up with Home Owner Federations or associations such as UIPI (EEnvest Partner) International Union of Property Owners or other EEnvest partners (R2M, EURAC, SINLOC) to investigate how the EEnvest Platform including the integrated PQSAT can be adapted to be offered to the residential and small businesses market.</p>
<b>Preliminary roadmap/ milestones of activities</b>	<p><i>Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</i></p> <p>There is no specific roadmap yet as the Platform has only reached minimum viable product level and it is not clear if it would get to commercialisation.</p>
<b>Related Intellectual Property Rights</b>	
<b>Market competition</b>	<i>Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore</b>.</i>
	Patent
	Industrial design rights

	<input checked="" type="checkbox"/>	Copyright
	<input type="checkbox"/>	Trademark
	<input type="checkbox"/>	Trade secret
	<input type="checkbox"/>	Database rights
	<input type="checkbox"/>	Other (specify): Commissioning know-how
<b>Protection strategy details</b>		<p><i>Explain <b>your protection strategy in more detail</b> here:</i></p> <p>ENERGINVEST will protect the PQSAT methodology by copyright.</p>
<b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b>		<p><i>Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</i></p> <p>N/A</p>
<b>Required funding for protection</b>		<p><i>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</i></p> <p>N/A</p>

## Annex J ER9 questionnaire

ER N°	ER09	Multiple Criteria decision Analysis (MCDA)	LAST UPDATE
			--/--/20--
ER leader		GNE	
Owner(s) / Developer(s)		<i>Is there one clear "owner" of the innovation or multiple owners?</i>	
		<input checked="" type="checkbox"/>	One clear "owner"
		<input type="checkbox"/>	Multiple "owners"
		<i>List all owners / developers</i> <ul style="list-style-type: none"> <li>• Associated partners: SINLOC, ENERGINVEST</li> <li>• Owners : GNE</li> </ul>	
Key resources and background declaration for "shared ER"		 <i>What Key Resources do your value proposition require?</i>  Explain <b>which background from whom has been used for the production of the jointly developed ER (potentially check the Consortium agreement for former input)</b>  The MCDA tool has built up upon internal knowledge of GNE Finance, extensive research, including interviews, questionnaires and interactions with relevant stakeholders to design the tool aligned with EEnvest objectives. Technical contribution for the excel sheets of the tool were provided by SINLOC partners and ENERGINVEST with quality feedback and the coordinator involvement.	
Management Ideas for "shared ER"		 <i>Outline your first ideas of how the ER exploitation of the jointly developed ER could be managed (for example market splitting, licensing among partners, JV setup etc)</i>  Exploitation of the MCDA tool can be managed jointly among partners beyond the project mostly as further research and development of the tool and according to the access rights for exploitation as stated in the Consortium agreement.	
Output		<input type="checkbox"/>	Significantly improved product
		<input type="checkbox"/>	Significantly improved service (except consulting services)
		<input type="checkbox"/>	Significantly improved process
		<input type="checkbox"/>	Significantly improved marketing method
		<input type="checkbox"/>	Significantly improved organisational method
		<input type="checkbox"/>	Consulting services
		<input checked="" type="checkbox"/>	New product

	<input type="checkbox"/> New service (except consulting services) <input checked="" type="checkbox"/> New process <input type="checkbox"/> New marketing method <input type="checkbox"/> New organisational method <input type="checkbox"/> Other (please specify) :
<b>Description of the result</b>	<p>Technical, Financial, and Multi-Benefits assessments are calculated and used as inputs for the MCDA for benchmarking different investment alternatives. The MCDA follows a step-by-step basis. A first step refers to selecting the different investment alternatives that are of interest to the user, as well as selecting the criteria (i.e., KPIs) that will be used to study the investment alternatives. With the final multi-Criteria score values, the projects can be ranked and the preferred projects for the investor are shown. As a result, the investor is now able to choose the preferred project according to the MCDA analysis</p>
<b>Illustration (s)</b>	<p style="text-align: center;"><b>The MCDA methodology</b></p> <pre> graph TD     subgraph Stage1 [Stage 1   Decision context]         A[Alternatives] --&gt; A1[Select the different alternatives that will be compared]         C[Criteria] --&gt; C1[Select criteria and the corresponding indicators to compare the selected alternatives]         A1 --- C1     end     subgraph Stage2 [Stage 2   Analysis]         S[Standardization of scores] --&gt; S1[Compute the values into scores with the same scale in a standardization performance matrix]         W[Weighting] --&gt; W1[Assign weights to the scores of the selected criteria]         MS[Multi-Criteria scoring] --&gt; MS1[Multiply the standardized scores with the assigned weights to retrieve a Multi-Criteria score for each alternative]         S1 --- W1 --- MS1     end     subgraph Stage3 [Stage 3   Decision]         R[Ranking] --&gt; R1[Ranking of the final Multi-Criteria scores for each alternative]         DM[Decision making] --&gt; DM1[Decide to choose the most suited alternative]         R1 --- DM1     end     Stage1 --&gt; Stage2     Stage2 --&gt; Stage3 </pre>
<b>Unique selling point</b>	

<b>Targeted Customers / Market Segment</b>	<p>For whom are you creating value? Who are your most important customers?</p> <p> Investors, project promoters</p>									
<b>Customer relationships</b>	<p>What type of relationship does each of your Customer Segments expect us to establish and maintain with them? Which ones have you established? How are they integrated with the rest of your business model? How costly are they?</p> <p> The tool as far has been used only within the project scope and dynamics, customer relationships have not been established yet for MCDA tool outside the project frame. However, the presentation of the tool during the project workshops have shown major interest from different actors and sectors.</p>									
<b>Channels</b>	<p>Through which channels do your customer segments want to be reached? How are you reaching them now? How are your channels integrated? Which ones work best? Which ones are most cost-efficient? How are we integrating them with customer routines?</p> <p> The main channel to reach potential customers is GNE internal network and stakeholders' networks, as well as leveraging all new contacts gathered during the project time frame and interactions.</p>									
<b>Value proposition</b>	<p>What value do you deliver to the customer? Which one of your customer's problems are you helping to solve? What bundles of products and services are we offering to each Customer Segment? Which customer needs are we satisfying?</p> <p> The Multiple Criteria Decision Analysis (MCDA) is a Decision-making support tool, enabling benchmark functionality for investors and project promoters. The potential customers' needs are matched by supporting the decision-making process and DER projects evaluation as complex and often difficult to assess and compare. The Tool results key in simplifying this complexity and provide clear and investor-friendly parameters to evaluate DER projects.</p>									
<b>State of development at present date</b>	<p>MDCA tool state as developed and presented in WP4</p>									
<b>Performed trials and achieved results at present date</b>	<ul style="list-style-type: none"> <li>As from WP4, 5 and 6</li> </ul>									
<b>Current level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td style="background-color: #d9e1f2;">2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		
<b>Expected level of development for the result (TRL)</b>	<p>Research <span style="float: right;">Market</span></p> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td style="background-color: #d9ead3;">6</td><td>7</td><td>8</td><td>9</td> </tr> </table>	1	2	3	4	5	6	7	8	9
1	2	3	4	5	6	7	8	9		

Y1 Y2 Y3 Y4 Y5		Short-term (project end + 2y) exploitation vision, strategy and actions	
Objective(s) of foreground exploitation	 Please explain your <b>goal(s)</b> with respect to the <b>ER exploitation for the first 2 years</b> after project closing (this <u>should include a quantification to be measurable</u> )		
	Exploitation goal for the first two years includes further research and development of the tool, reaching a testing audience/customer target of >100 users.		
Expected time for marketability	Is the innovation developed within the project:		
	<input checked="" type="checkbox"/>	Under development	
	<input type="checkbox"/>	Already developed but not yet being exploited	
	<input type="checkbox"/>	being exploited	
	 Estimate a realistic <b>readiness timeline of the ER after project closing</b>		
	3-4 years to be fully developed, tested and exploited as part of business model		
Exploitation collaboration with external partners	Give an overview which <b>external partners might be necessary</b> for you to be successful in the <b>ER exploitation</b> in the first 2 years after project closing. Which key resources are you acquiring from these partners? Which key activities do they perform?		
Preliminary exploitation vision	<input checked="" type="checkbox"/>	Internal use	
	<input checked="" type="checkbox"/>	Further research needed	
	<input checked="" type="checkbox"/>	Enabling technology (for subsequent product, service, etc.) <b>platform</b>	
	<input type="checkbox"/>	Training	
	<input type="checkbox"/>	Open distribution	
	<input type="checkbox"/>	Establishment of industry standard	
	<input type="checkbox"/>	Direct sales / Consultancy service	
	<input type="checkbox"/>	Licensing the innovation to a 3 <sup>rd</sup> party	
	<input type="checkbox"/>	IP sale	
	<input type="checkbox"/>	Joint Venture	
<input type="checkbox"/>	Launch a start-up or spin-off		

	Other → Please specify
<b>Foreground exploitation strategy</b>	<p> Explain your <b>strategy</b> with respect to the foreground exploitation in a few bullet points (i.e. what do you have in mind to reach your above stated objective).</p> <p>First of all, the exploitation strategy intends to capitalize the knowledge developed throughout the lifespan of the project and to bring value generated to both market, and society. The expected commercial exploitation strategy consists in identify the market dynamics and needs, assess the full potential of the MCDA tool to further develop the tool into a product.</p>
<b>In case of commercialisation, target market</b>	<p> Define which <b>market you want to serve in the first 2 years</b> after project closing if you are planning on exploiting the ER commercially. In particular, give details about the geographic area, application/user circle and your estimated size of the market.</p> <p>Target market would be primary investors who are interested in sustainable activities to add to their portfolios in alignment with ESG criteria, as well as EU taxonomy-aligned projects. The tool allows an evaluation of DER projects based on financial performance as well as multi benefit assessment. The MCDA tool would be a good product for investors as well as for project promoters to evaluate different renovation projects, based on financial requirements as well as benefits for the tenants/owners.</p>
<b>Market maturity</b>	<i>The market targeted by this innovation is ...</i>
	<input type="checkbox"/> The market is not yet existing and it is not yet clear that the innovation has potential to create a new market
	<input type="checkbox"/> Market creating: The market is not yet existing but the innovation has clear potential to create a new market
	<input checked="" type="checkbox"/> Emerging: There is a growing demand and few offerings are available
	<input type="checkbox"/> Mature: The market is already supplied with many products of the type proposed
<b>Market dynamics</b>	<i>Is the market ...</i>
	<input type="checkbox"/> In decline
	<input type="checkbox"/> Holding steady
	<input checked="" type="checkbox"/> Growing
<b>Market competition</b>	<i>How strong is competition in the target market?</i>
	<input type="checkbox"/> Patchy, no major players
	<input checked="" type="checkbox"/> Established competition but none with a proposition like the one under investigation
	<input type="checkbox"/> Several major players with strong competencies, infrastructure and offerings

<p><b>Preliminary roadmap or milestones of activities</b></p>	<p> Specify which (commercialisation) <b>actions for the ER exploitation you want to take in the first 2 years</b> after project closing (ex. which development/marketing/sales actions such as the production of a particular packaging/communication material/ advertisement campaign, organisation of promotion events, training of resellers etc.).</p> <p>- Conf in Belgium with ESCOs, takes place each 4 years. &gt;&gt; next one 2022 Energy services and financing days</p>			
<p><b>Possible limitations/risks in exploitation</b></p>	<p> Identify which <b>limitations and risks</b> could occur in this first 2-year phase of ER exploitation and <b>classify their nature in technical (T), financial-economical (FE), regulatory (R), market-commercial (MC) or social-environmental (SE)</b> (ex. a potentially cheaper technological alternative you identified as threatening, currently missing resources in staffing and specific knowledge needed, potential changes of governmental subsidiary schemes etc), <b>assess their likelihood in high (65-100%), medium (35-65%) or low (0-35%)</b> and their respective impact in <b>severe, moderate, minimal</b>.</p>			
	<p><i>Risk description</i></p>	<p><i>Classification (T/FE/R/MC/SE)</i></p>	<p><i>Likelihood (high/medium/low)</i></p>	<p><i>Impact (severe, moderate, minimal)</i></p>
	<p>Low market response</p>	<p>MC</p>	<p>medium</p>	<p>severe</p>
	<p>Technical difficulties to set up the tool</p>	<p>T</p>	<p>low</p>	<p>moderate</p>
<p><b>Mitigation measures for identified limitations/risks</b></p>	<p> Initial ideas on how to compensate for these <b>limitations/risks in the exploitation</b> of the ER.</p>			
	<p><i>Risk description</i></p>	<p><i>Mitigation actions (reduce likelihood of occurrence)</i></p>	<p><i>Contingency actions (reduce severity of impact)</i></p>	
	<p>Low market response Technical difficulties to set up the tool</p>	<p>Market analysis and technical assistance for the set-up</p>	<p>To ensure a good reception of the market, a in depth analysis of the market placement need to be ensured</p>	
<p><b>Cost structure</b></p>	<p> What are the most important costs inherent in our business model?</p> <p>Which key resources are most expensive?</p> <p>Which key activities are most expensive?</p> <p>Personnel costs have been at the base of key activities</p>			

<p><b>Revenue streams</b></p>	<p><i>For what value are your customers really willing to pay?</i></p> <p><i>MCDA tool added value to market as easy investor friendly tool to evaluate in an agile way different investment opportunities in DER projects.</i></p> <p><i>For what do they currently pay?</i></p> <p>Consultancy is mostly used at the moment on the market for the same value</p> <p>How are they currently paying? n/a</p> <p>How would they prefer to pay? n/a</p> <p>How much does each Revenue Stream contribute to overall revenues?</p> <p>n/a</p>
<p><b>Source of external funding required</b></p>	
<p>Y1 Y2 Y3 Y4 Y5 <b>Mid-term (project end + 5y) exploitation vision</b></p>	
<p><b>Objective(s) of foreground exploitation</b></p>	<p> <i>Explain your <b>goal(s) of the ER exploitation for the following 3 years</b> after the 2-year initial phase (this should include a quantification to be measurable)</i></p> <p>After 3 years of the project end, the MCDA tool is expected to be fully developed as a market-ready product on the market. Expectation to reach &gt;500 user and national and European investor markets</p>
<p><b>Foreground exploitation strategy</b></p>	<p> <i>Explain your <b>strategy</b> with respect to the <b>mid-term foreground exploitation</b> in a few bullet points (i.e. what do you have in mind to reach your above stated objective):</i></p> <ul style="list-style-type: none"> <li>• Market research and analysis for trends dynamics</li> <li>• Further development of the technicality of the tool</li> <li>• Reaching more test users to provide qualitative feedback based on performance</li> </ul>
<p><b>Preliminary roadmap/ milestones of activities</b></p>	<p> <i>Name a few <b>actions for the ER exploitation you want to take in the following 3 years</b> (for example due to geographical expansion plans the search for partnerships or setup of commercial offices abroad, broadening of the target market via more applications, etc.)</i></p> <ul style="list-style-type: none"> <li>• Broadening target audience</li> <li>• Reaching different European markets</li> <li>• Experimenting new applications</li> </ul>
<p><b>Related Intellectual Property Rights</b> </p>	
<p><b>Market competition</b></p>	<p><i>Tick <b>all possible protection forms</b> of the entire/parts of the ER that <b>you might want to explore.</b></i></p>

	<input checked="" type="checkbox"/>	Patent
	<input type="checkbox"/>	Industrial design rights
	<input type="checkbox"/>	Copyright
	<input type="checkbox"/>	Trademark
	<input type="checkbox"/>	Trade secret
	<input checked="" type="checkbox"/>	Database rights
	<input type="checkbox"/>	Other (specify): Commissioning know-how
<b>Protection strategy details</b>	 <i>Explain your protection strategy in more detail here</i>	Once fully developed and before market introduction, the product will be protected first of all as a database right and possibly a patent, depending on the final product characteristics.
<b>Understanding of prior Art/Fto relevant to ER (only for technical ERs)</b>	 <i>Give information about any relevant prior art or freedom to operate that you are aware of with respect to the ER</i>	The tool has been developed based on similar database but with innovative and new functionalities, plus know how of the market needs. No prior tool that could overlap with the MCDA tool developed has been identify.
<b>Required funding for protection</b>	 <i>Give an understanding of the related fees that are inherent with your possible options of IP protection (registration, translation, legal costs etc)</i>	Not explored yet.