Accelerating Energy renovation solution for Zero Energy buildings and Neighbourhoods

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Project Coordinator

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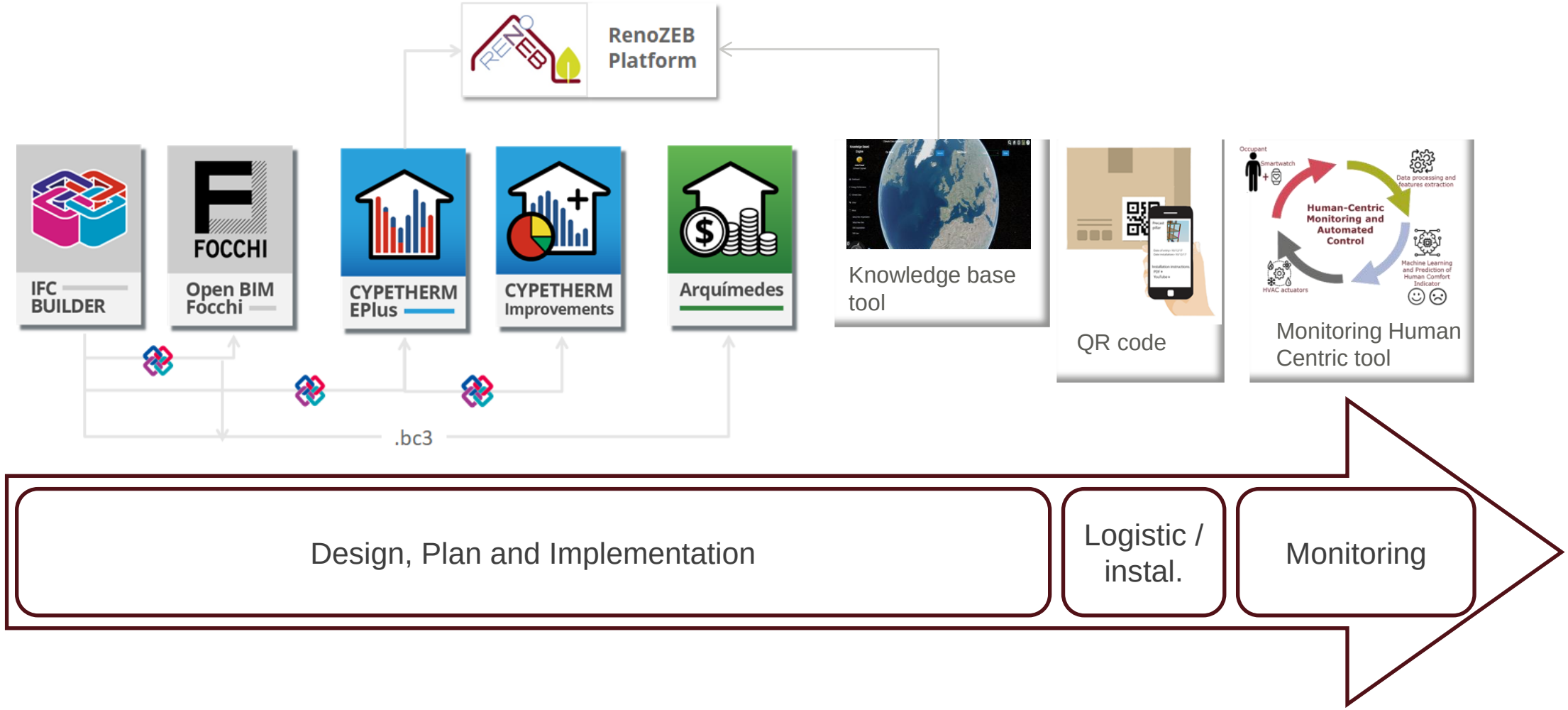
General overview

- Call: H2020-EEB-2017
- 52 months: October 2017 – Jan 2022
- 19 European partners
- 2 demonstration buildings + 3 virtual demonstration buildings

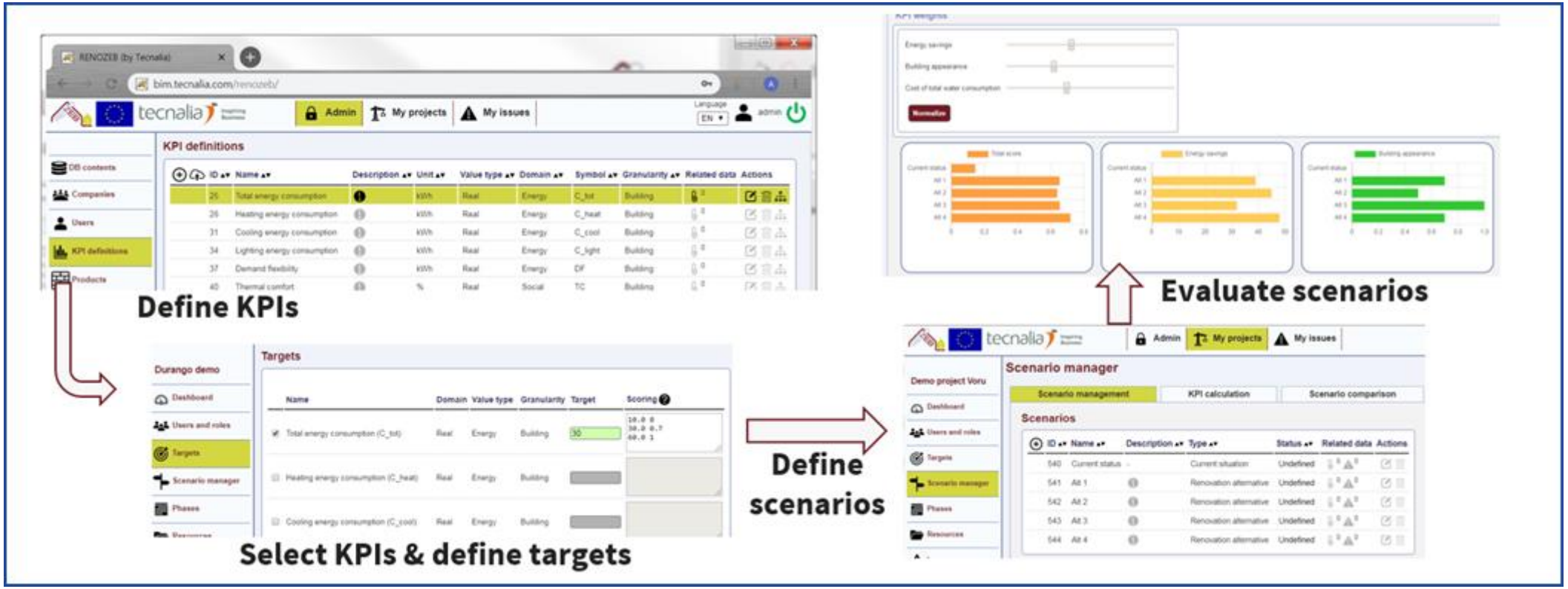
Technology Results

BIM Cloud Platform and Software tools Solutions

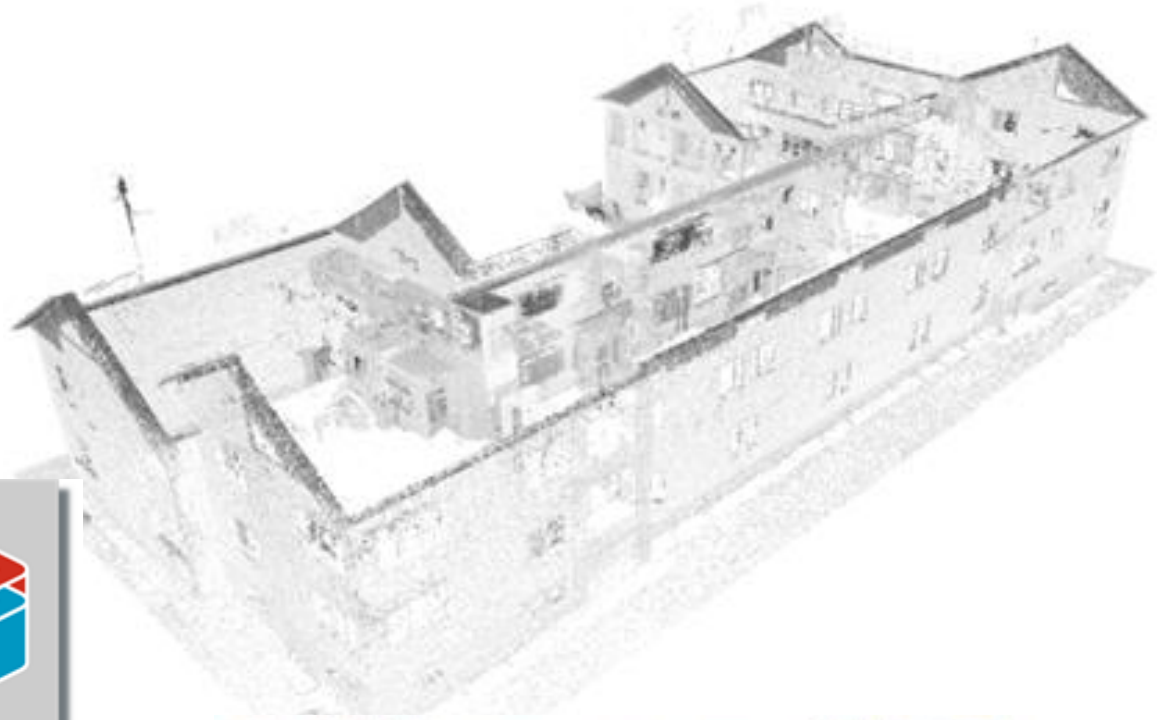


RenoZEB Platform Solutions

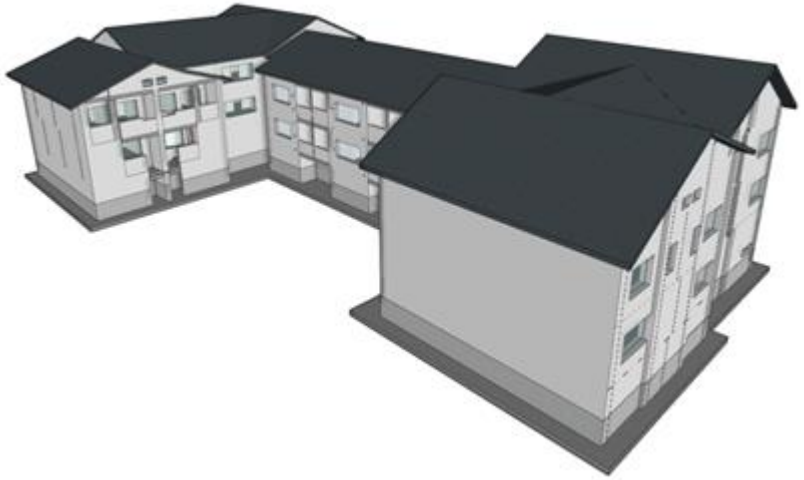
- nD Collaborative Environment
- KPI management
- IFC viewers
- BIM Model Generation Tool
- Smart logistic and construction management tool



BIM software tools Solutions



IFC BUILDER

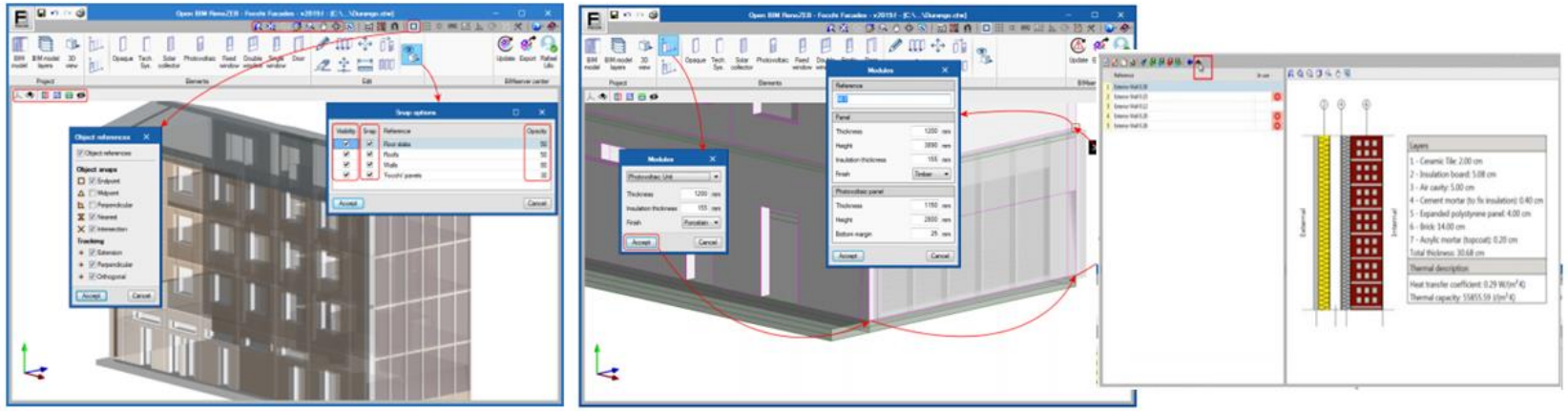


BIM software tools Solutions

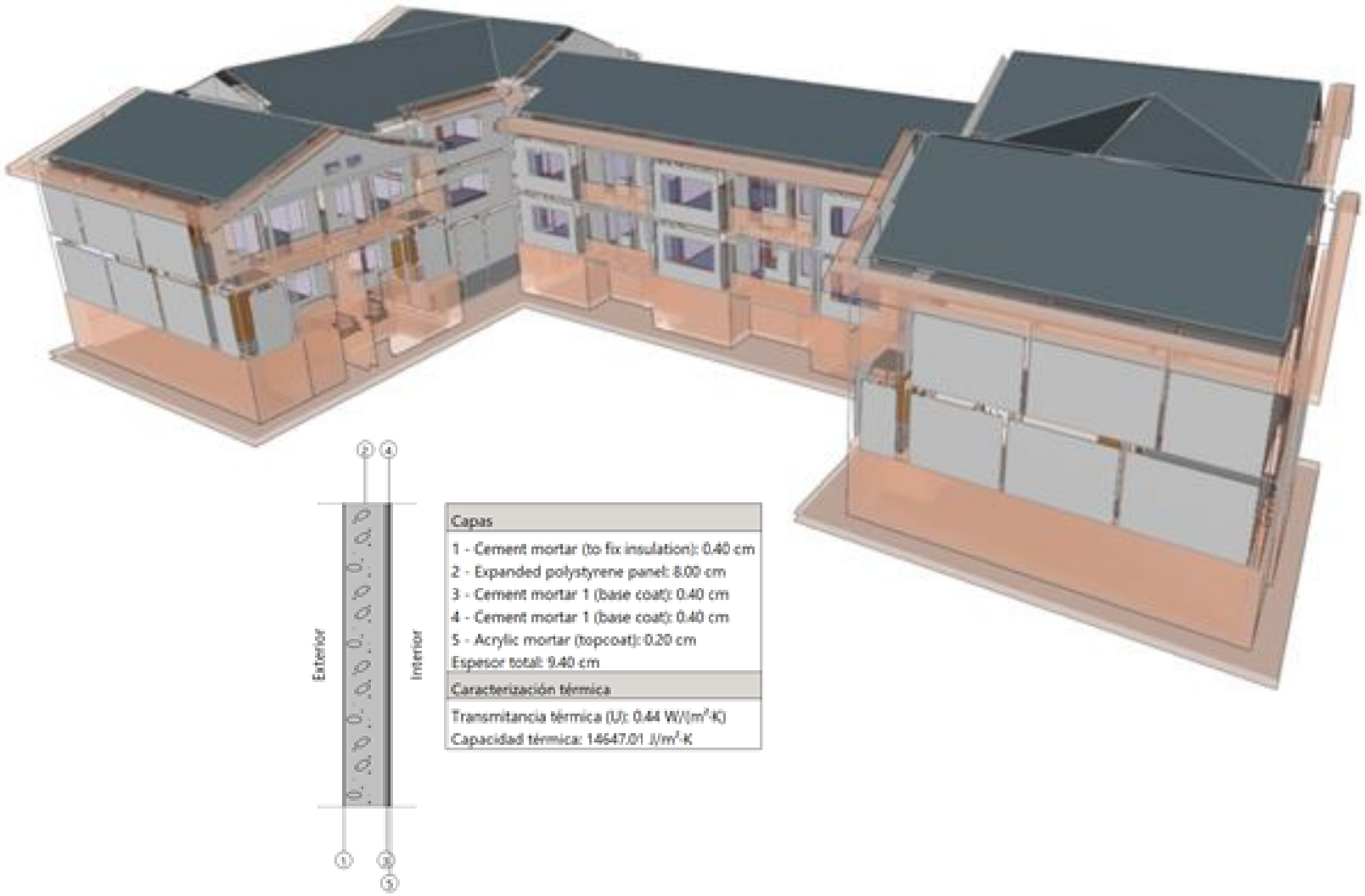
FOCCHI

Open BIM Focchi

Open BIM RenoZEB – RenoZEB Facades

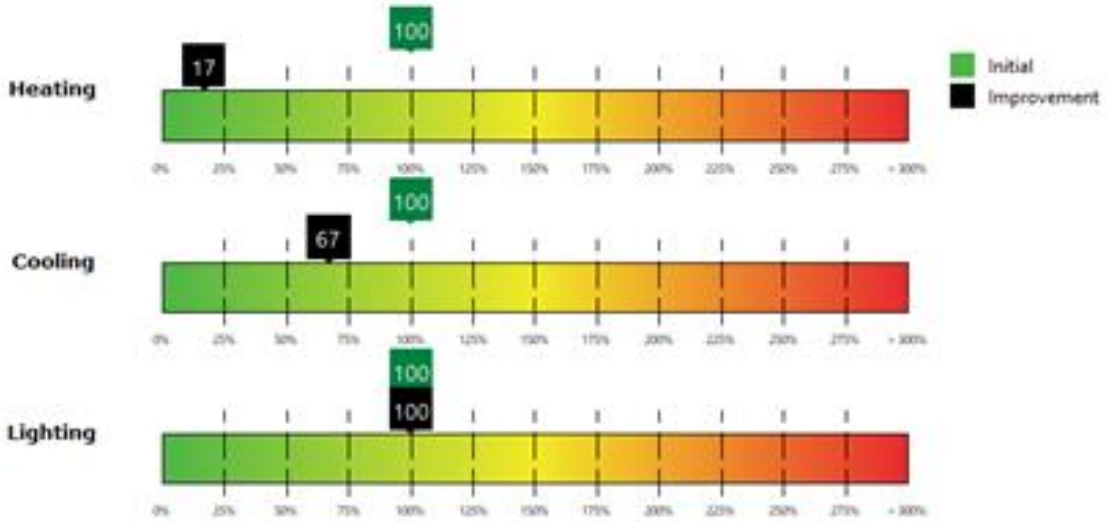


BIM software tools Solutions



CYPETHERM EPlus

BIM software tools Solutions



Surface(Initial): 441.10 m²
Surface(Improvement): 441.10 m²

Annual energy savings								
Installations	Annual consumption of non-renewable primary energy					Annual energy cost		
	Initial		Improvement		Difference	Initial	Improvement	Difference
	kWh/m²·year	%	kWh/m²·year	%	kWh/m²·year	€/m²·year	€/m²·year	€/m²·year
Heating	18.45	20.47	3.11	5.01	15.34	1.51	0.27	1.23
Cooling	38.60	42.83	25.90	41.72	12.70	3.36	2.25	1.11
Lighting	33.07	36.70	33.07	53.27	0.00	2.88	2.88	0.00
Total	**90.12**	**100.00**	**62.08**	**100.00**	**28.04**	**7.74**	**5.40**	**2.34**

CYPETHERM Improvements

BIM software tools Solutions

Gantt chart

Medición

Gantt chart

(Complete 31/10/2019 - 16/11/2019)

Activity	Start	End	28 Oct '19	4 Nov '19	11 Nov '19
			Mo Tu We Th Fr Sa Su	Mo Tu We Th Fr Sa Su	Mo Tu We Th Fr Sa Su
Medición	31/10/19	16/11/19			
1. Retrofitting Façades	31/10/19	16/11/19			
1.1. Opaque Unit	31/10/19	06/11/19			
1.2. Window and Door Unit	06/11/19	09/11/19			
1.3. Photovoltaic Unit	11/11/19	13/11/19			
1.4. Solar Collector Unit	13/11/19	16/11/19			

Payment plan

Weekly payment	50.530,40 €	171.703,38 €	65.093,89 €
Accumulated payments	50.530,40 €	222.233,78 €	287.327,67 €

use of CYPE

2. BILL OF QUANTITIES

Partial bill of quantities nº 1 Retrofitting Façades

Nº	Ut	Description		Quantities	Basic price	Amount
1.1	M2	Opaque Unit				
			Total m2 :	315,815	320,00	**101.060,80**
1.2	M2	Window and Door Unit				
			Total m2 :	314,735	385,00	**121.172,98**
1.3	M2	Photovoltaic Unit				
			Total m2 :	89,833	370,00	**33.238,21**
1.4	M2	Solar Collector Unit				
			Total m2 :	88,468	360,00	**31.855,68**
		Total Partial bill of quantities nº 1 Retrofitting Façades :				**287.327,67**

CYPE

Arquímedes

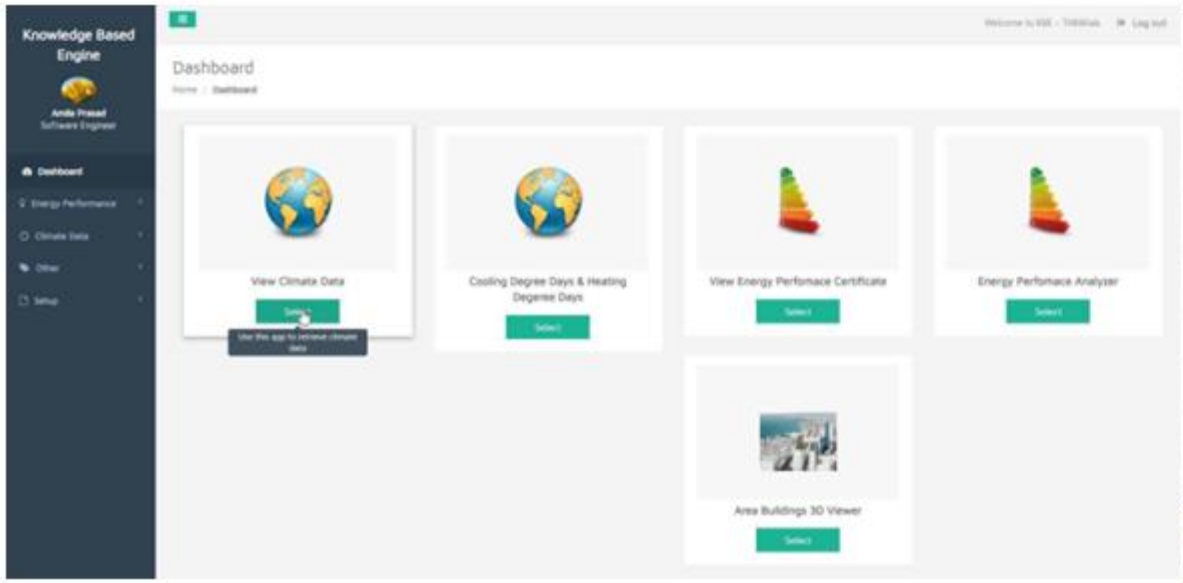
Smart logistic and management tool

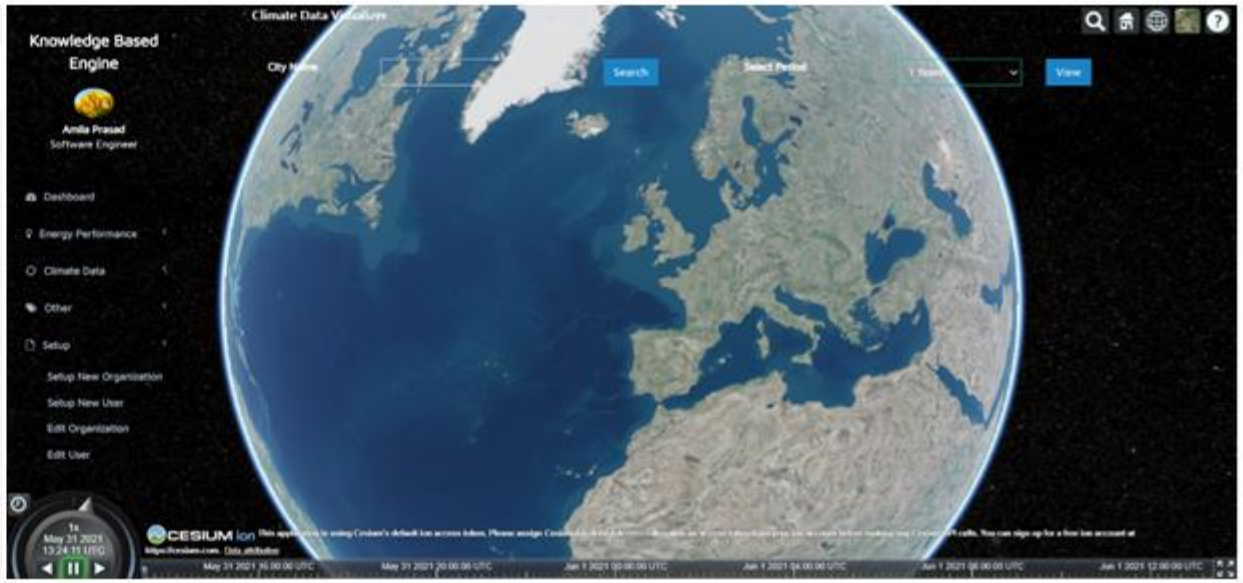
SCAN THE CODE

SCAN THE CODE

Knowledge Based tool Solutions

Knowledge-Based tool





Project Cooperation Benefits

Renovation Phase / Business model scope: PLANNING

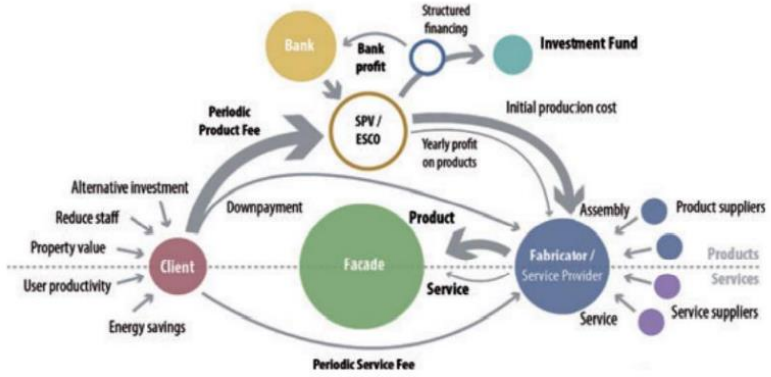
Results	
Tangible	**Intangible**
BIM Modeler	New Methodology for the assessment of the property value after renovation
RenoZEB e-catalogue	Value framework, economic models for retrofitting operations
Data collection and building modelling management tool	Renovation process decision-making guidelines
Preparation phase of intervention to renovation ALL PARTNERS	
develop a configurator for RenoZEB deep renovation	
Thermal and Acoustic software adapted to renovation	
RenoZEB Collaboration Platform	

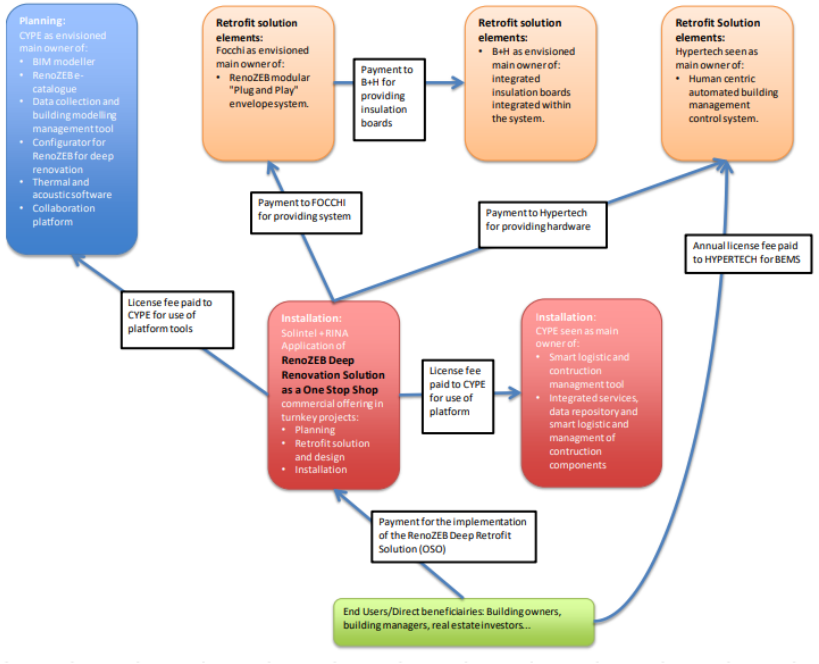
Project Cooperation Benefits

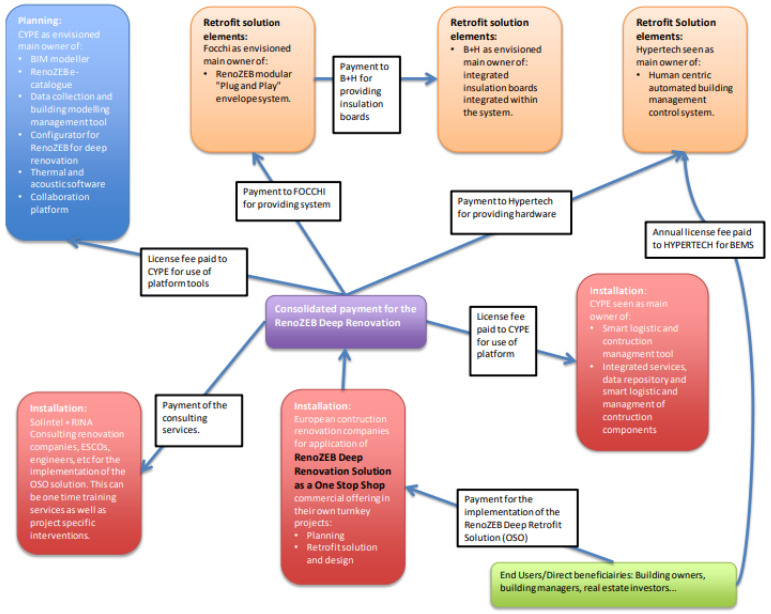
Design/Retrofit Solution	Smart IoT façade mod'le tecnalia, Fraunhofer	Methodology for deep-retrofit of NZEB and districts tecnalia, Solintel, HIT Hypertech Innovations, Symelec
	RenoZEB modular "plug and play" system for nZEB integral renovat tecnalia, Fraunhofer, Symelec, Beck-Heun	Renovation process decision-making guidelines tecnalia, Solintel, Symelec, HIT Hypertech Innovations
	Facade with integrated sensors	training materials related to facade components ALL PARTNERS
	Integration of the façade renewable generation systems in the buil tecnalia, Fraunhofer, Symelec, Beck-Heun	Training materials related to the energy system components ALL PARTNERS
	Human-Centric Automated Building Energy Management System (B cype, tecnalia, Fraunhofer, CSTB, HIT Hypertech Innovations	Experimental feedback on RenoZEB technological solutions Fraunhofer, Beck-Heun
Installation	Smart Logistic and Construction Management Tool cype	
	Integrated services, data repository and smart logistic and management of construction components cype, tecnalia, Solintel, Symelec, HIT Hypertech Innovations	

Impact on Business model

- **Turnkey projects** (B2C or “B2 end-user”);
- **Renovation as a Service (RaaS) approach:** solution available to other renovation companies (B2B channel: consultancy, direct sale of the systems and licenses);
- **One stop shop (OSS) value proposition** covering the Planning, Design and Installation elements of the renovation process.







Scalability and multiply effects

- RenoZEB modular ‘plug and play system

Involving	Into
ARCHITECTS	Decision making and designing phase
FACILITY MANAGERS	Operations and service
REAL ESTATES	Decision-making

Technology Price	Advantage
• Plug&play technologies have the highest price • It includes all the competitor technologies in one product	Reduction of the actors and time-consuming for the construction site

- Private Investment
- Public financial support (grunts, VAT reduction, etc.)
- Regulation
- Sector assotiation involvement

Scalability and multiply effects

- RenoZEB human-centric automated building Energy Management System

Involving	Into
Client/Tenant/Building Owner	Decision making and designing phase, final use

Technology Price	Advantage
• Average price VS competitors	Offer automated comfort-based controls while enhancing energy efficiency and reducing energy costs

- Private Investment
- Public financial support (grunts, VAT reduction, etc.)
- Regulation supporting Business models

Scalability and multiply effects

- RenoZEB Collaborative Platform

Involving	Into
OWNER/CLIENT	Early decision-making, design and installation
PROJECT MANAGER	Design phase

Technology Price	Advantage
• More expensive than the competitors	Offers some functionalities related to decision-making in renovation projects

- Private Investment
- Regulation supporting Business models
- Public financial support (grunts, VAT reduction, etc.)
- End user trust

Scalability and multiply effects

- RenoZEB software Tools

Involving	Into
ARCHITECTS	Decision making and designing phase
ENGINEERS	Decision making and designing phase
CONTRACTORS	Renovation process
MANUFACTURERS	Manufacturing phase

Technology Price	Advantage
• Higher price than competitors • Includes the overall software for renovation	It gives to stakeholders a complete and integrated BIM solution for the renovation project

- Private Investment
- Public financial support (grunts, VAT reduction, etc.)
- Regulation supporting Business models
- Sector assotiation lobby

Thank you for your attention

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