

Long-term planning and digitalisation as key enablers for successful energy renovations

Tuesday, September 20, 2022

9:00 - 10:30 CET

Online



Introduction



Clémence Arto
Autodesk – EuroACE Member

EuroACE – Energy Efficient Buildings

- The European Alliance of Companies for Energy Efficiency in Buildings
- Formed in 1998 by Europe's leading companies involved with the manufacture, distribution and installation of energy saving goods and services
- A business association working together with the European institutions to help Europe move towards an efficient use of energy in buildings (new and renovated)



EuroACE – Energy Efficient Buildings

Our members provide the products, equipment, and services that go together to provide energy efficient buildings for the peoples of the EU



EuroACE – Energy Efficient Buildings

The Energy Performance of Buildings Directive (EPBD) is a huge opportunity to deliver and accelerate on energy efficiency of buildings in Europe.

Moderator



Clémence Arto, Autodesk (Member of EuroACE)

Speakers



MEP Seán Kelly
(EPP, IE)



Daniela Bachner,
CINEA



Hakim Lahlou,
Banque des Territoires



Roel Vermeiren,
Flemish Energy & Climate Agency



Alice Corovessi,
INZEB



Video Statement



MEP Séan Kelly
EPP, Ireland
EPBD Shadow Rapporteur

Digitalisation and data in the service of energy renovation



Daniela Bachner
Project Adviser LIFE Energy,
CINEA



EUSEW 2022 – Extended programme

Long-term planning & digitalisation as key enablers for successful energy renovation

Brussels, 20 September 2022

Daniela Bachner, Project Adviser,

CINEA, LIFE-CET

Revision proposal of the EPBD (Dec. 2021)



- Enhanced long-term renovation strategies, to be renamed national Building Renovation Plans
- Application of minimum energy performance standards to existing buildings and existing building units;
- Increased reliability, quality and digitalisation of Energy Performance Certificates; with energy performance classes to be based on common criteria
- A definition of deep renovation and the introduction of building renovation passports
- New Article on Data Exchange between MS (Article 14)



Building data???

- What?
- Why?
- How?

What is building data good for?



Building Owners & Operators

- + Monitoring, M&V
- + Benchmarking
- + Decision support tool
- + Recommendations



Financial Institutions

- + Evaluation and monitoring of projects
- + Benchmarking
- + Reporting basis: ESG, Taxonomy

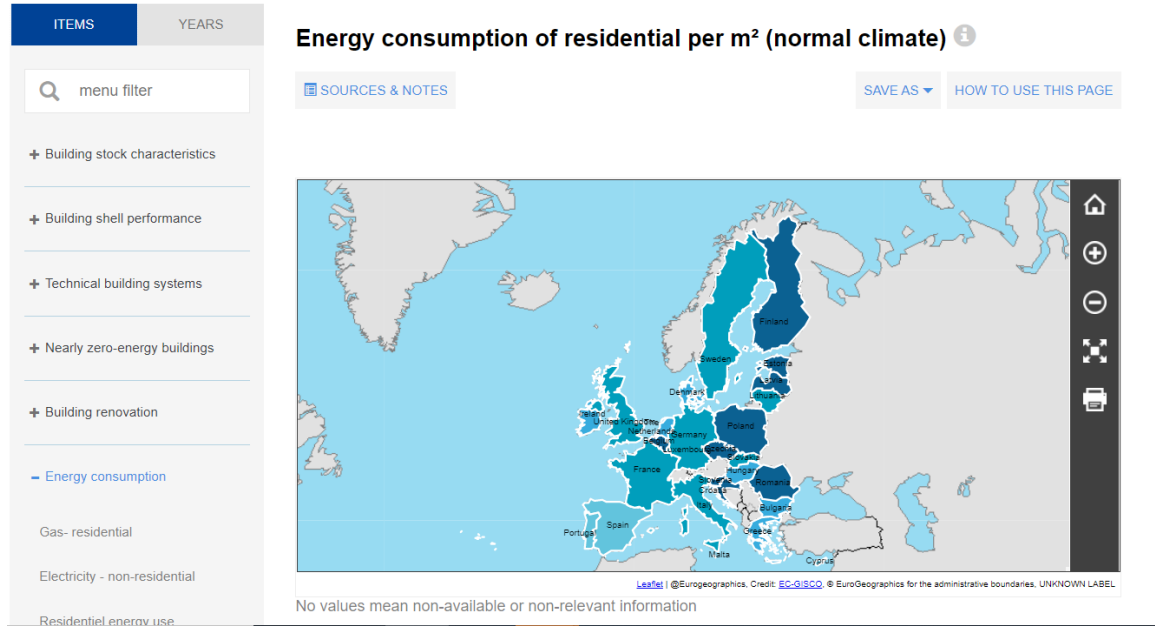


Policy makers

- + Performance tracking
- + Achievement of targets
- + Data base for policy and programme development

EU Building Stock Observatory

EU Buildings Datamapper



- Energy performance of buildings across Europe
- 250 indicators, 74k data points
- All EU MS
- Various data sources
- Revamp in 2023 (previous version 2016 – 2022)

BuiltHub project

- Enhance data to inform building related policies and decision making
- Development of a data collection roadmap and data hub (web-platform)
- Engage stakeholders to build a data-exchanging community



**Better data for
EU buildings.**

Working for more sustainable and meaningful data flow for a cost-effective and rapid building stock decarbonisation

LIFE CET Call 2022: Supporting the decarbonisation of buildings and H&C

- Towards a zero-emission building stock: strengthening the enabling framework for deep renovation (**LIFE-2022-CET-DEEPRENO**)
- Energy performance and Smart Readiness of buildings – making the instruments work (**LIFE-2022-CET-BUILDPERFORM**)
- Accelerating deployment and affordability of heat pumps through collective purchase actions and procurement (**LIFE-2022-CET-HEATPUMPS**)
- Integration of low-grade renewable energy or waste heat in high temperature district heating (**LIFE-2022-CET-DH**)

Keep in touch with us



30 years of bringing green ideas to LIFE



https://cinea.ec.europa.eu/life_en



[LIFE Programme](#)



[@LIFEprogramme](#)
[@CleanEnergy_EU](#)



[LIFE Programme](#)
[LIFE Programme](#)



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[LIFE Newsletter](#)
[Clean Energy Newsletter](#)

Thank you



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Slide xx: [element concerned](#), source: e.g. [Fotolia.com](#); Slide xx: [element concerned](#), source: e.g. [iStock.com](#)

Prioréno: A French Public low-tech for good dedicated to facilitating local decision of renovation



Hakim Lahlou
Innovation Director,
Banque des Territoires, Caisse
des Dépôts Group

PRIORENO

A FRENCH PUBLIC LOW-TECH FOR GOOD
DEDICATED TO FACILITATING LOCAL DECISION OF RENOVATION



Why

?

Climate urgency and
Energy independence



Lack of knowledge
of the building stock



Engineering expertise
cost



Brakes to local decision



Who?



BANQUE des
TERRITOIRES



Liberté • Égalité • Fraternité
RÉPUBLIQUE FRANÇAISE

French State



MINISTÈRE
DE LA COHÉSION
DES TERRITOIRES
ET DES RELATIONS
AVEC LES COLLECTIVITÉS
TERRITORIALES

*Liberté
Égalité
Fraternité*



MINISTÈRE
CHARGÉ
DU LOGEMENT

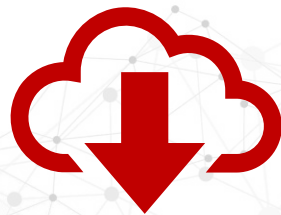
*Liberté
Égalité
Fraternité*

ENEDIS

GRDF

GAZ RÉSEAU
DISTRIBUTION FRANCE

How does it work?



Data device

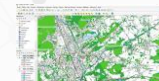


2000 Gb of geographical datas

Artificial Intelligence



Deep learning

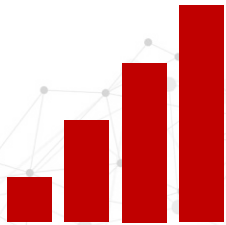




BANQUE des
TERRITOIRES



For what results?



Automation



Real-time data



100% free



Robust results : ex of Grasse city : exact same top 10 schools than a 120k€ / 10 months engineering study cofinanced

Next steps



Today, after 2 months : 1600 candidate cities, 8M of m², 4,500 buildings

In october : open to all !

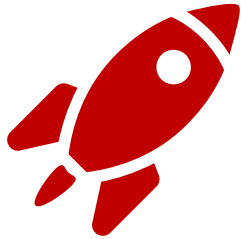


Integration of new energy supplies to cover 100% of France (today : 95%)

Launch this month of the studies about the Futur Prioréno dedicated to french social housing !

Public Policy evaluation

**Conclusion : Will Prioreno help
elected officials to make their
renovation decision ?**



The Woningpas digital building passport supporting the renovation of homes in Flanders



Roel Vermeiren

Renovation Strategy Consultant,
Flemish Energy and Climate
Agency (LIFE project BE REEL!)

Long-term planning and digitalisation as key enablers for successful energy renovations

The Flemish Building passport

Tuesday, September 20, 2022

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Energietstraat 38
Zonnepanelen
Woningpas andere woning

- Mijn woningpas
- Gebouw, indeling, ligging
- Energie
- Isolatie & beglazing
- Installaties
- Bodem
- vergunning
- Ongeving
- Renovatielwerken
- Attesten & documenten
- Premies
- In orde te brengen bij
- Deel mijn woningpas

Woning [Meer info](#)

Bekijk de gegevens van uw **Eengezinswoning**. Het gebouw is een **Open bebouwing** van bouwjaar **2012**.



Status

<p>Woningveiligheid vastgesteld in 2012</p> <p>Ernstige gebreken Meer</p>	<p>Energie vastgesteld in 2012</p> <p>Voldoende Meer</p>	<p>Isolatie vastgesteld in 2012</p> <p>Matig Meer</p>
<p>Installaties vastgesteld in 2012</p> <p>Allen gekurd Meer</p>	<p>Bodem vastgesteld in 2012</p> <p>Opgenomen in register Meer</p>	<p>Zonnepotentieel vastgesteld in 2012</p> <p>Bruikbaar Meer</p>

De woning is van bouwjaar 1947 met de laatste aanpassingen in 2012

Uw energetische renovatielwerken

Er zijn 5 energie renovatielwerken gekend sinds uw laatste EPC.



Let op! Dit icoon geeft aan dat de informatie vanuit de overheid mogelijk niet meer actueel is. Dit omdat een renovatielwerk door de eigenaar of via een premieaanvraag werd toegevoegd.

Toepassingen



Test uw woningkwaliteit
Reeds 324.000 Vlamingen vulden de test in.
Doe de test



Omgeving
Bekijk een groot verscheidenheid aan kaarten in uw omgeving.
[Meer kaarten](#)



Test uw energielabel
Test hier uw energielabel voor uw woning en vergelijk met anderen.
Vergelijk uw EPC score

Overview

- ▶ Why a building passport?
- ▶ Challenge
- ▶ Roadmap
- ▶ A look at woningpas

Why?

Minimize administrative burdens during life events: building, renovation, buying for citizens.

“Integration of certificates”

Give owner & buyer a view and advice on relevant building aspects.

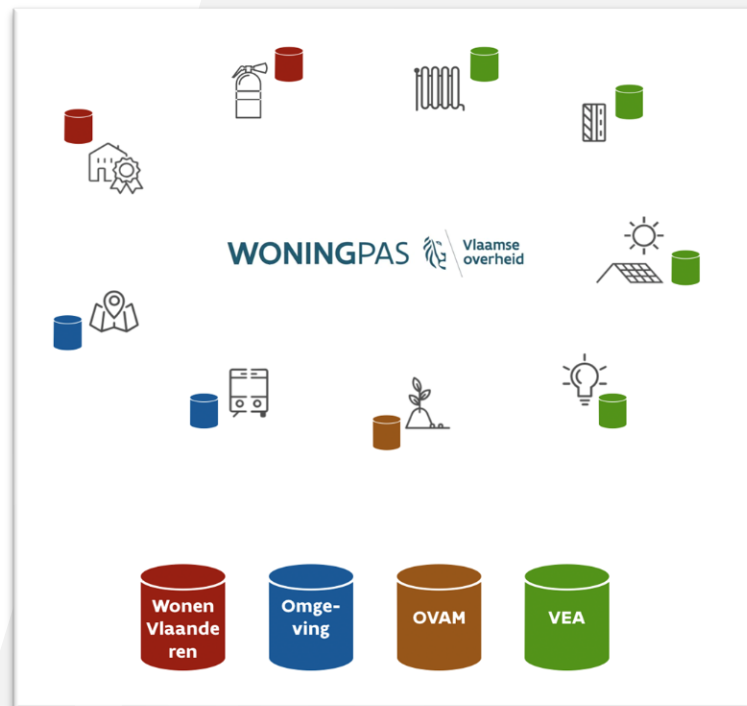
“LTRS: upgrade renovation grade and dwelling quality”

Co-creation: Flemish Energy and Climate Agency, Department Environment, Housing Department, Waste Department



Challenge?

- A free digital passport, automatically compiled for the home owner who can share it with others
- Information about different topics in one platform
 - ✓ *User Experience- design*
- Sharing government data from various sources
- Not creating an overall database (GDPR issues!)
 - ✓ Extracting information from sources at the time of login





Energiestraat 38
ZOMERBEEK
Woningpas andere woning

- Mijn woningpas
 - Gebouw, indeling, ligging
 - Energie
 - Isolatie & beglazing
 - Installaties
 - Bodem
 - vergunning
- Omgeving
- Renovatiewerken
- Attesten & documenten
- Premies
- In orde te brengen bij
- Deel mijn woningpas

Woning [Meer info](#)

Bekijk de gegevens van uw **Eéngesinswoning**. Het gebouw is een **Open bebouwing** van bouwjaar **2012**.

Status

<p>Woningovervalfeit Vastgesteld in 2012</p> <p>Eerstige gebreken Meer</p>	<p>Energie vastgesteld in 2012</p> <p>Voldoende Meer</p>	<p>Isolatie Vastgesteld in 2012</p> <p>Matig Meer</p>
<p>Installaties Vastgesteld in 2012</p> <p>Allen gekeurd Meer</p>	<p>Bodem vastgesteld in 2012</p> <p>Opgenomen in register Meer</p>	<p>Zonnepotentieel Vastgesteld in 2012</p> <p>Bruikbaar Meer</p>

De woning is van bouwjaar **1947** met de laatste aanpassingen in **2012**.

Uw energetische renovatiewerken

Er zijn 5 energie renovatiewerken gekend sinds uw laatste EPC.

Haarig energielabel

Jaar	Label	Maatregelen
2012	E	
2013 - 2015	Dakisolatie & vloerisolatie	
2016	Warmtepomp	
2016	Zon panelen	
2017	ventilatie	

Vlaamse doelstelling

A 2050

[Meer info](#)

Toegewege door Fluxus Toegewege door eigenaar

Let op! Dit icoon geeft aan dat de informatie vanuit de overheid mogelijk niet meer actueel is. Dit omdat een renovatiewerk door de eigenaar of via een premieaanvraag werd toegevoegd.

Toepassingen

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Reeds 324.000 Vlamingen vulden de test in.

[Doe de test](#)

Omgeving

Bekijk een grote verscheidenheid aan kaarten in uw omgeving.

[Meer kaarten](#)

Test uw energielabel

Test hier uw energielabel voor uw woning en vergelijk met anderen.

[Vergelijk uw EPC score](#)

Roadmap

- ▶ 2018: launch woningpas Light
- ▶ 2019: medium-version
- ▶ 2020-2021: recent development
- ▶ 2022-2023: plans

Roadmap

- General building information
- Energy
- Isolation
- Installations
- Solar potential
- Information on the soil
- Attestations
- Maps of the surroundings

2018 - 2019

“medium”

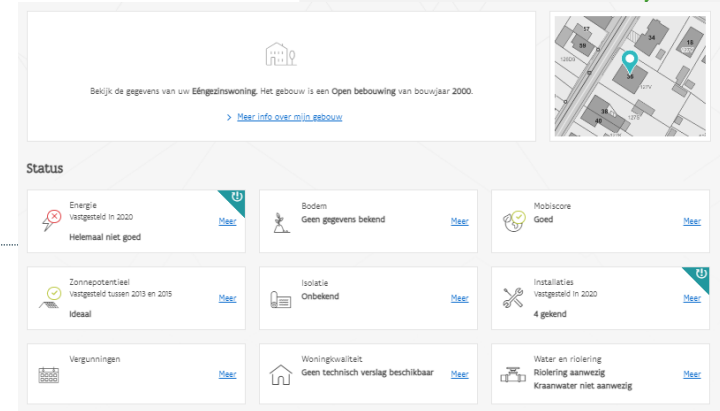
November 2019

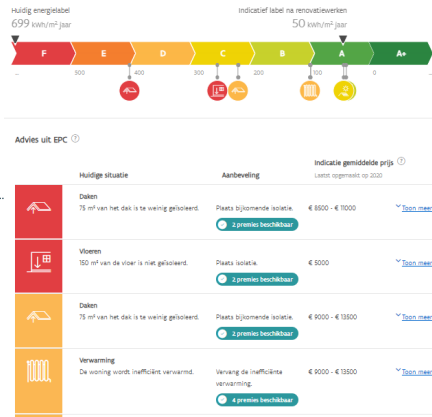
- Building permits
- Feedback

“light”

Juni 2019

- New dashboard
- Mobile friendly
- Mobiscore





Uw energie renovatiewerken

U hebt 4 energie renovatiewerken gedaan sinds uw laatste EPC certificaat



Let op! Deze informatie is door uzelf ingevoerd, deze is alleen informatief en wordt niet als officieel beschouwd

2020

January 2020

- Grants
- Label on E-level

December 2020

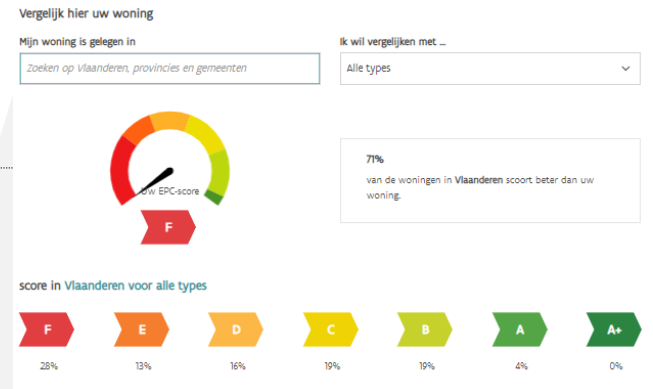
- Adding renovation works
- Premiums for renovation works Fluvius

April 2020

- Soil certificates
- Sharing with third persons

November 2020

- Check your energy-label - tool





Test uw woningkwaliteit

Reeds 324.000 Vlamingen vulden de test in.

[Doe de test](#)

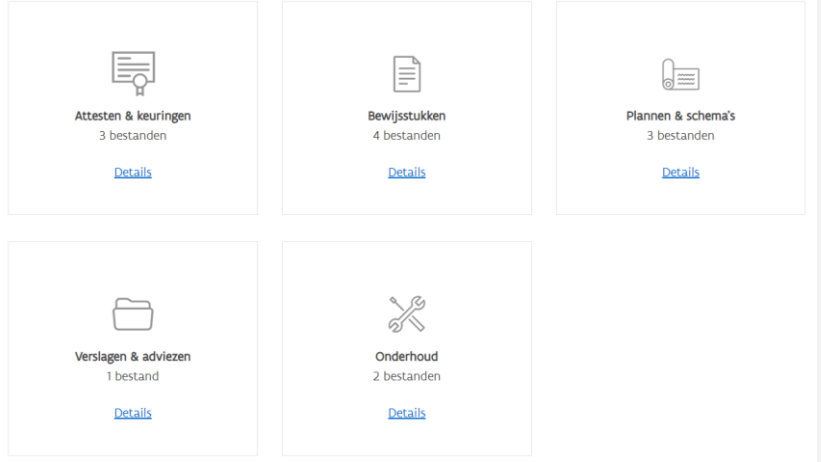
February 2021

- Check-tool dwelling quality
- Data dwelling quality

2021

June 2021

- Digital safe (plans, documents, ...)

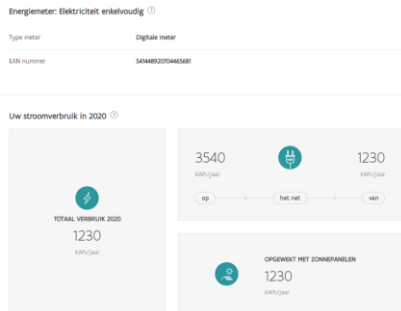


March 2021

- Inspection water installation
- Sewers



New partners



January 2022

- Woningpas for companies

June 2022

- Woningpas public sharing
- Updated advice EPC

December 2022 - 2023

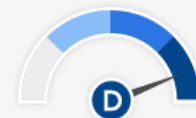
- Digital inspection of gas
- Flood sensitivity scores
- Durable heating (heat pumps, heating nets, ...)
- Inspections of central heating systems

March 2022

- Energy-meters and consumption
- Solar panels
- Water
- Parcels without dwelling

September 2022

- Attestation on asbestos
- Notifications
- Adding all renovation works
- Green-blue-label



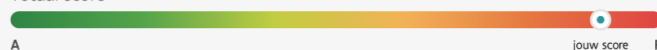
Woning score

Middelgrote overstromingskans

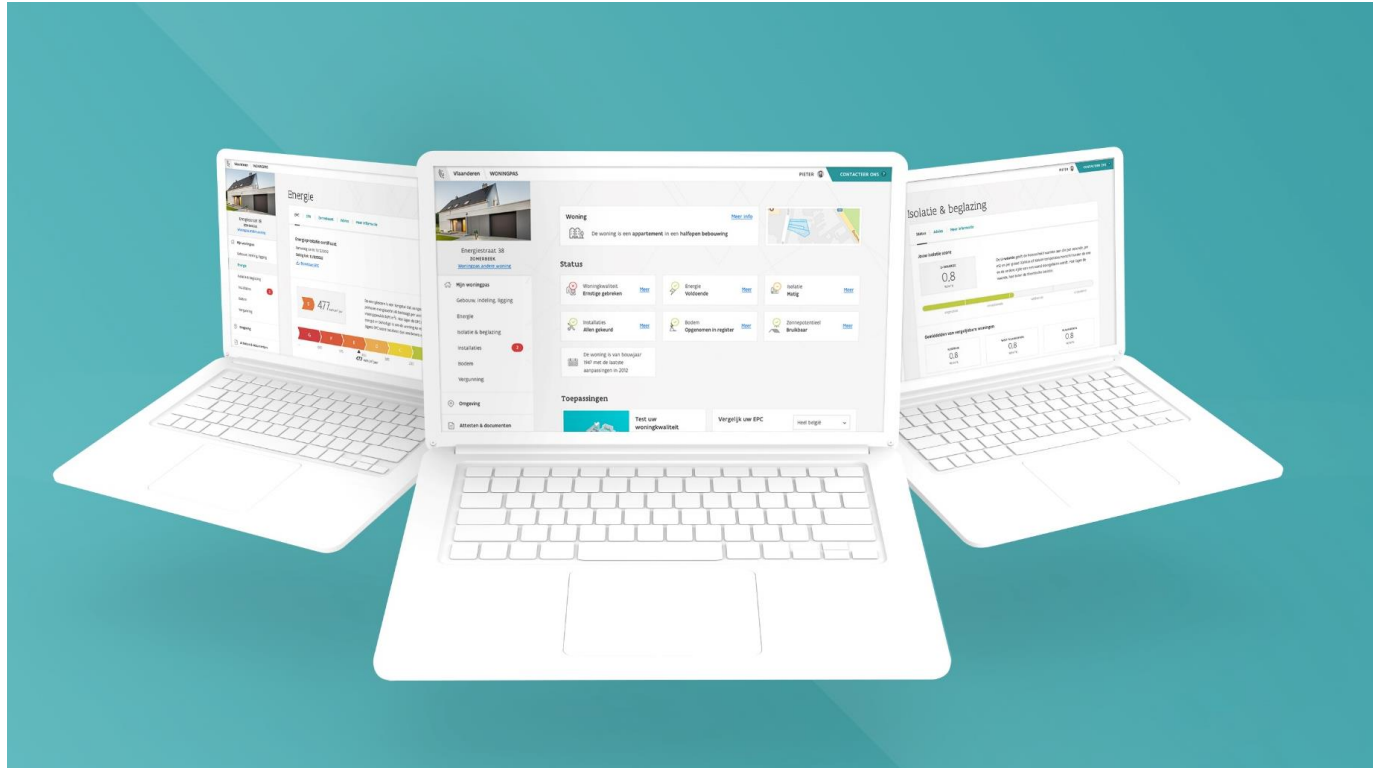
[Details score berekening](#)

Uw algemene scores Toegevoegd door eigenaar

Totaal score



A look at woningpas



A look at woningpas

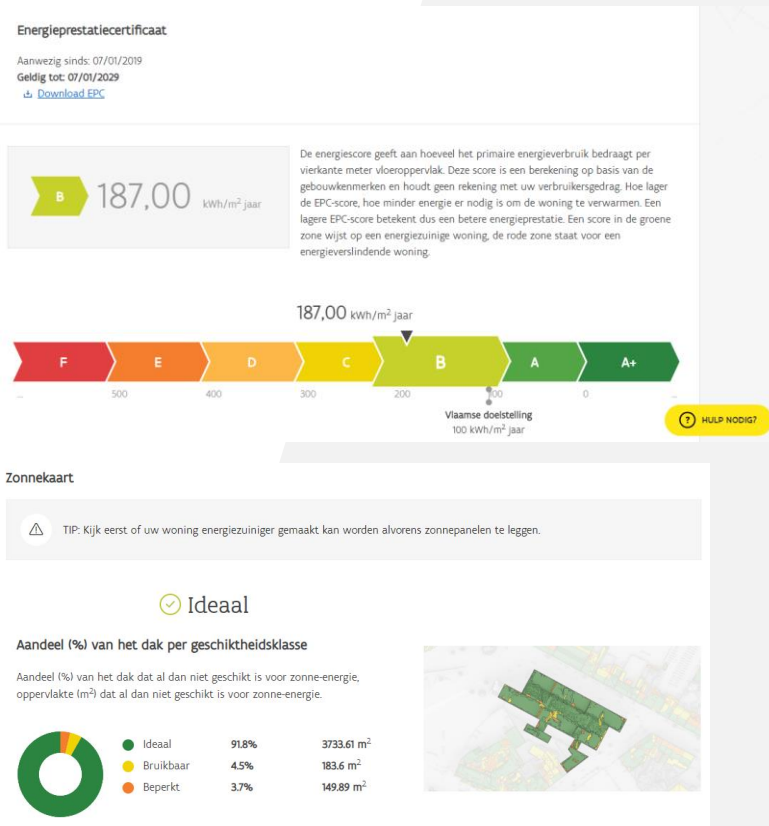
1. Relevant data & advice

- ✓ Known by the government
- ✓ Dwelling/parcel/surroundings

Sensibilisation

Long term paths

Free digital passport of the house



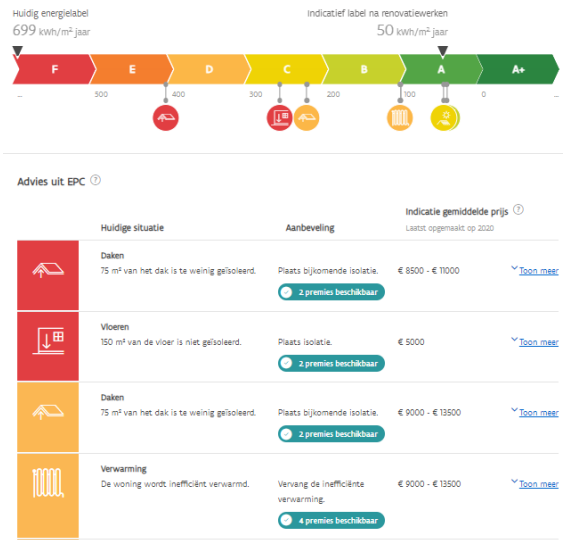
A look at woningpas

2. Relevant certificates and grants

Overview

Rights and obligations

Digital safe



Documenten & attesten

Download overzicht

Toegevoegd door overheid 2 • Toegevoegd door eigenaar 2

Mijn woningpas

- Gebouw, indeling, ligging
- Energie
- Isolatie & beglazing
- Installaties
- Inhoud
- Verpunning

Omgeving

Renovatiewerken

Attesten & documenten

Toegevoegd door overheid

Premies

Deel mijn woningpas

Uploads van de overheid

Sorteer op: bijna vervallen

Energieprestatiecertificaat
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Present prelium vel justo a semper. Etiam eget varius libero, et ultrices. Geldig tot: 05/03/2017 [Details](#)

Energieprestatiecertificaat GO
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Present prelium vel justo a semper. Etiam eget varius libero, et ultrices. Geldig tot: 05/03/2017 [Details](#)

Conformiteitsattest
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Present prelium vel justo a semper. Etiam eget varius libero, et ultrices. Geldig tot: 05/03/2017 [Details](#)

Bodemattest
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Present prelium vel justo a semper. Etiam eget varius libero, et ultrices. Afgeleverd op: 05/03/2017 [Details](#)

EPB-aangifte
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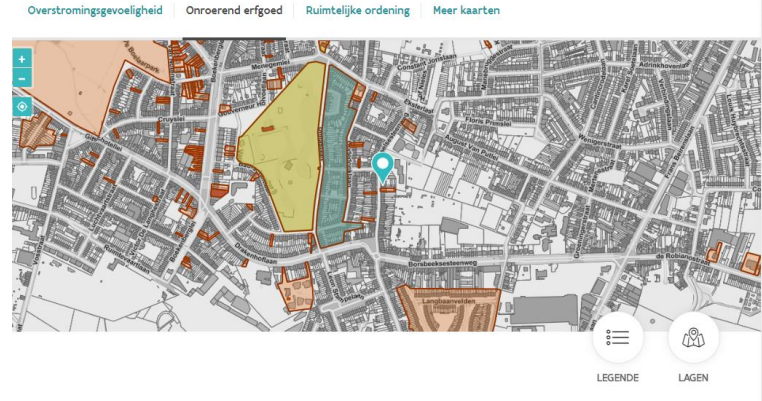
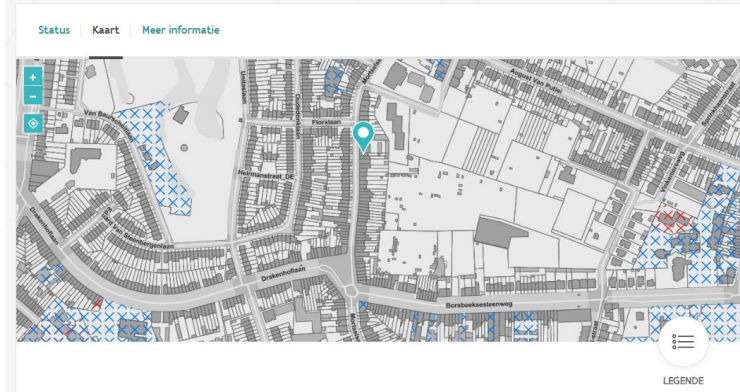
Keuring privéwaterafvoer
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Present prelium vel justo a semper. Etiam eget varius libero, et ultrices. Gekend op: 05/03/2017 **Status: Conform met wettelijke voorschriften** [Details](#)

Keuring waterinstallaties
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Present prelium vel justo a semper. Etiam eget varius libero, et ultrices. Gekend op: 05/03/2017 **Status: Niet conform voor aansluiting verwarming verlaten** [Details](#)

A look at woningpas

3. Maps of the surroundings

Bodem



Explore the demo

https://woningpas.vlaanderen.be/c/portal/profile/preview_user

- Credentials:
 - user: **demo**
 - pass: **WqB5iwDdcVjYT!ch**

The screenshot displays the 'Woningpas' user profile dashboard for a user named 'PETTER'. The dashboard is organized into several sections:

- Woning:** Overview of the property, including a photo and a map. Text: 'Bekijk de gegevens van uw Énergiezuivering, het gebouw is een Open bebouwing van bouwjaar 2012.'
- Status:** A grid of six status cards for different energy components:
 - Woningwaarde: Waardeerd in 2012. Status: Eenmalig gebruikt.
 - Energie: Waardeerd in 2012. Status: Volledig.
 - Isolatie: Waardeerd in 2012. Status: Matig.
 - Installaties: Waardeerd in 2012. Status: Alen gekend.
 - Roeden: Waardeerd in 2012. Status: Opgenomen in register.
 - Zonnepanelen: Waardeerd in 2012. Status: Bruikbaar.
- Uw energetische renovatiewerken:** A timeline showing energy renovation works from 2012 to 2020. It notes that 5 works are registered since the last EPC. A legend indicates works followed by Fluvis (orange) and Eigenaar (blue).
- Let op:** A warning icon and text: 'Let op! Dit icoon geeft aan dat de informatie vanuit de overheid mogelijk niet meer actueel is. Dit omdat een renovatiewerk door de eigenaar of via een premieaanvraag werd toegevoegd.'
- Toepassingen:** Two application cards:
 - Test uw woningwaarde:** 'Bekijk een grote verscheidenheid aan kaarten in uw omgeving. Meer kaarten' (with a map icon).
 - Test uw energielabel:** 'Test hier uw energielabel voor uw woning en vergelijk met anderen. Vergelijk uw EPC score' (with a gauge icon).

QUESTIONS?



Building Renovation Passports

The iBRoad & iBRoad2EPC Projects



Alice Corovessi
Managing Director,
INZEB (iBRoad / iBRoad2EPC projects)

BUILDING RENOVATIONS PASSPORTS The iBRoad & iBRoad2EPC Projects

Alice Corovessi, INZEB



ac@inzeb.org



www.inzeb.org

initialising energy balance towards zero



- / Building Renovation Passports (BRPs) - Getting Familiar
- / BRPs and EPBD
- / The iBRoad Project heritage
- / The iBRoad2EPC project - The evolution of iBRoad

A 'Building Renovation Passport - BRP' is a document that provides a tailored roadmap for the renovation of a specific building in several steps that will significantly improve its energy performance.

[\[EC-2021-EPBD-draft-legislative-proposal_Articles-and-Annexes_2021_10_12\]](#)

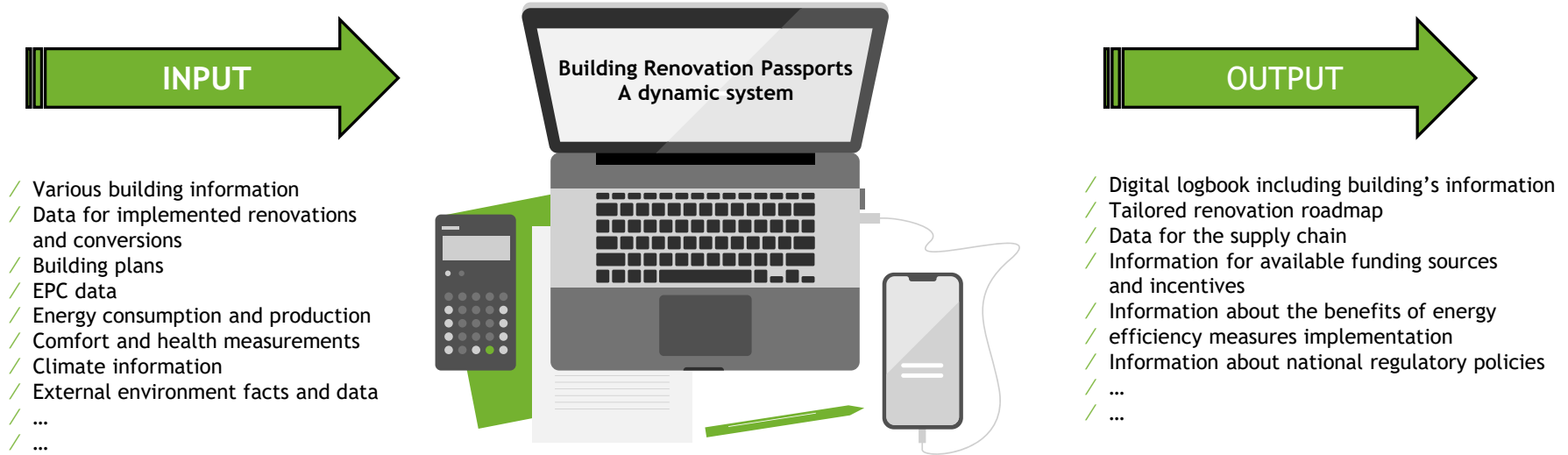
A BRP outlines a long-term (up to 15 or 20 years) step-by-step renovation roadmap for a specific Building.

The document results from an on-site energy audit while meeting specific quality criteria and indicators.

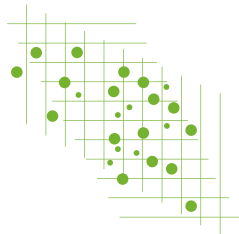
The renovation roadmap can be combined with a repository of building information - a digital logbook which may include info as building plans, maintenance processes, various renovation works, energy consumption and production, EPC data, etc.



/ Building Renovation Passports (BRPs) - Getting Familiar



BENEFITS FOR VARIOUS SECTORS



National Governments

BRP enable higher volumes of retrofit projects, supporting the national targets set for climate, energy efficiency and fuel poverty mitigation.



Technical Professionals

BRP platforms can create commercial opportunities for energy and retrofit professionals. BRPs provide baseline information for the buildings, thus saving time and informing future works.



Real Estate Agents

Understand the correlation between property values and energy efficient and sustainable buildings. BRPs can improve customer engagement and can 'advise' on how to achieve sales with high property value.



Financial Institutions

New opportunities for customer Engagement and launch of financial products tailored to the needs of individual properties.



Valuers

BRPs can identify and mitigate risks at asset and portfolio levels.

Revision of the EPBD 2021



Directions and Aims

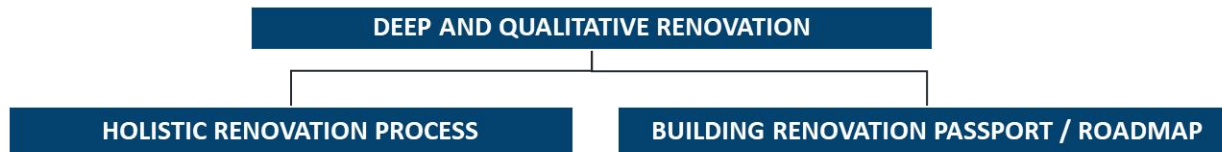
- ★ Improve the energy performance of buildings and reduce emissions in the building sector towards 2030
- ★ Setting long term vision towards climate neutrality in 2050 (zero emission building stock)



Novelties

- ★ EPC updates and deep renovation definition
- ★ Inclusion of building renovation passports (BRPs)
- ★ Inclusion of minimum energy performance standards (MEPS)
- ★ Whole-life carbon (WLC) considerations

A plan can help



Source: Energiesprong

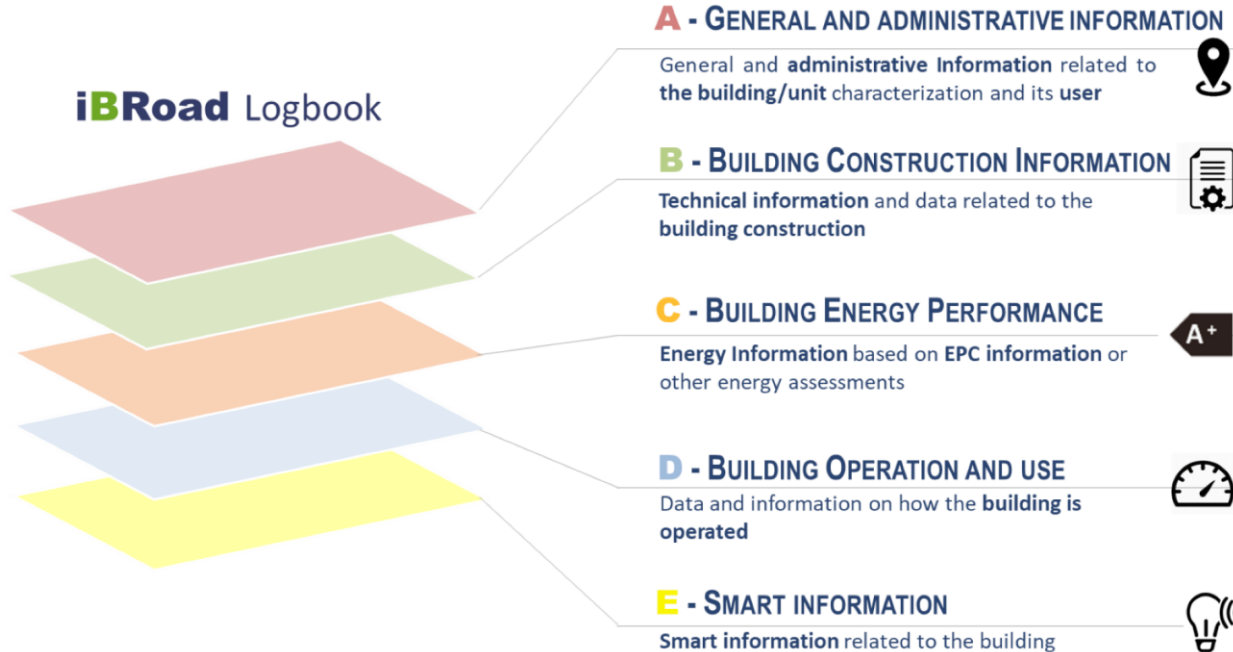
Detailed Renovation Roadmap

Step by Step Plan

	ENERGY CLASS G	ENERGY CLASS E	ENERGY CLASS D	ENERGY CLASS B	ENERGY CLASS A
Year Building	1990-2000	2000-2005	2005-2010	2010-2015	2015-2020
Minimum of delivery	Minimum	Minimum	Minimum	Minimum	Minimum
Primary Energy Demand	Primary Energy Demand 100 kWh/m²/a	Primary Energy Demand 50 kWh/m²/a	Primary Energy Demand 30 kWh/m²/a	Primary Energy Demand 15 kWh/m²/a	Primary Energy Demand 10 kWh/m²/a
Final Energy Demand	Final Energy Demand 100 kWh/m²/a	Final Energy Demand 50 kWh/m²/a	Final Energy Demand 30 kWh/m²/a	Final Energy Demand 15 kWh/m²/a	Final Energy Demand 10 kWh/m²/a
CO₂ emissions	CO ₂ emissions 100 kg/m²/a	CO ₂ emissions 50 kg/m²/a	CO ₂ emissions 30 kg/m²/a	CO ₂ emissions 15 kg/m²/a	CO ₂ emissions 10 kg/m²/a
Renovation Costs	Renovation Costs 100000 €	Renovation Costs 50000 €	Renovation Costs 30000 €	Renovation Costs 15000 €	Renovation Costs 10000 €
Renovation Period	Renovation Period 10 years	Renovation Period 5 years	Renovation Period 3 years	Renovation Period 1.5 years	Renovation Period 1 year
Renovation Complexity	High	Medium	Low	Very Low	Minimal

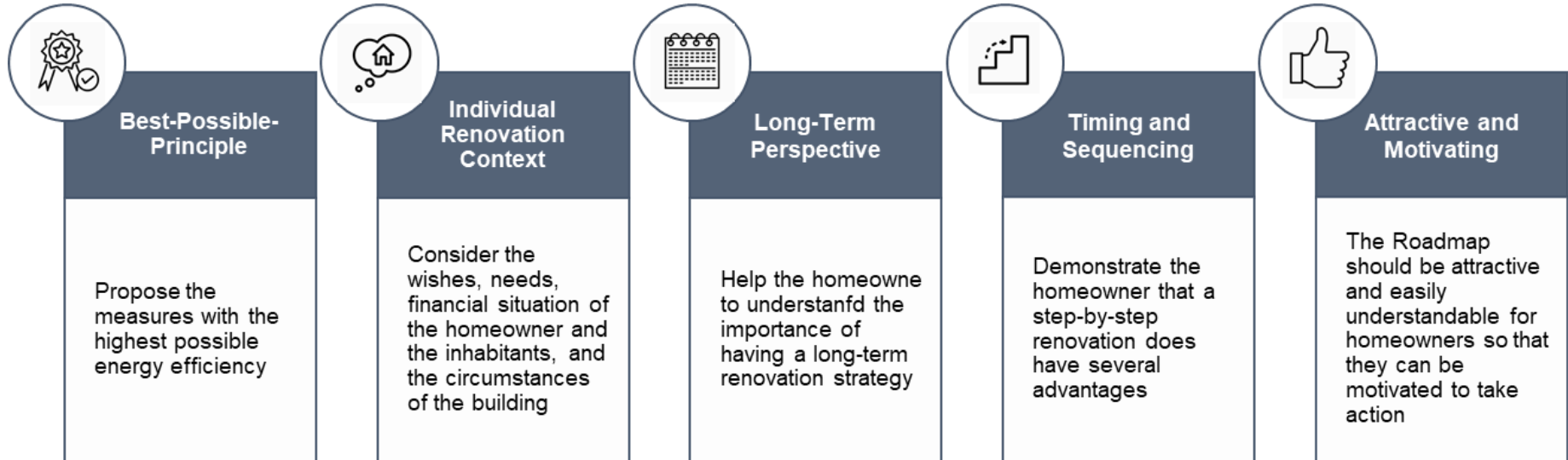
Source: iBRoad

So can a reference



Source: iBRoad project report "The logbook data quest" <https://ibroad-project.eu/news/the-logbook-data-quest/>

Guiding Principles for establishing the Roadmap



The results

Current building state

Roadmap overview

Detailed Roadmap

Detailed renovation step

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 754045

The results

Current building state

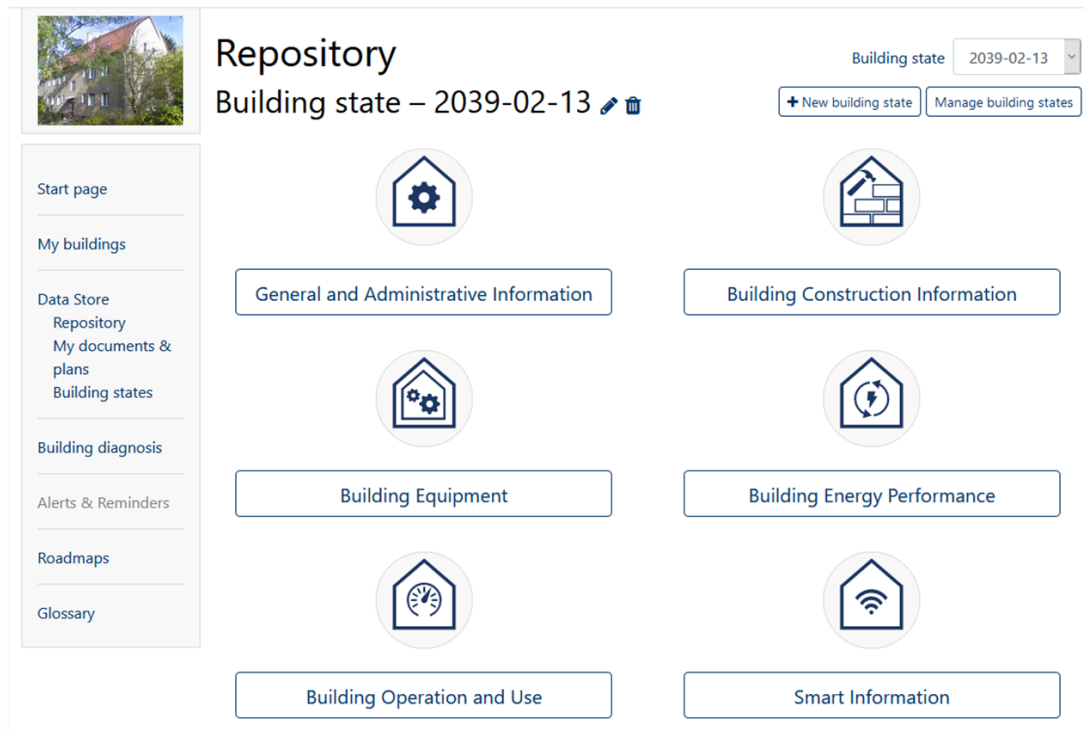
Roadmap overview

Detailed Roadmap

Detailed renovation step

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The results

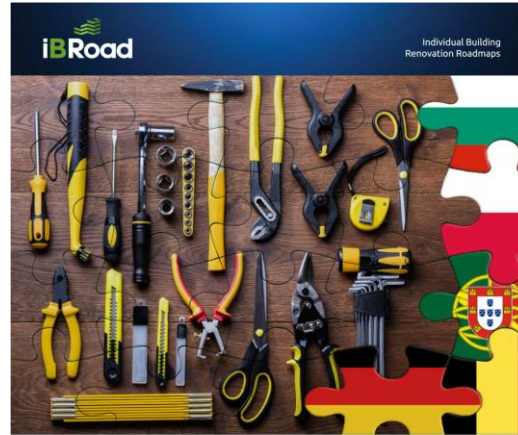


The screenshot shows the iBRoad Repository interface. At the top left is a small image of a building. The main header area includes the title "Repository", the current "Building state" (2039-02-13), and buttons for "+ New building state" and "Manage building states". Below this are six main navigation buttons arranged in a 3x2 grid, each with a house icon and a specific function: "General and Administrative Information", "Building Construction Information", "Building Equipment", "Building Energy Performance", "Building Operation and Use", and "Smart Information". A left sidebar contains a navigation menu with items: "Start page", "My buildings", "Data Store" (with sub-items "Repository", "My documents & plans", "Building states"), "Building diagnosis", "Alerts & Reminders", "Roadmaps", and "Glossary".

Adaptation for countries



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Country-specific adoption of elements within the national version of iBRoad

Bulgaria, Poland, Portugal, Belgium/Flanders, Germany

ifeu – Institut für Energie- und Umweltforschung Heidelberg
February 2019

www.ibroad-project.eu



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Training material



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Handbook for Energy Auditors

Guidance and advice on how to create an iBRoad Individual Building Renovation Roadmap and how to use the iBRoad Building Logbook

ifeu – Institut für Energie- und Umweltforschung Heidelberg
February 2019

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iBRoad training toolkit

Guidance for auditors in the iBRoad pilot countries

ifeu – Institut für Energie- und Umweltforschung Heidelberg
March 2019

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Training material and training sessions



Handbook for Energy Auditors

Guidance and advice on how to create an iBRoad Individual Building Renovation Roadmap and how to use the iBRoad Building Logbook



iBRoad training toolkit

Guidance for auditors in the iBRoad pilot countries

This iBRoad Pilot Energy and Climate Financing Handbook
March 2019

www.ibroadproject.eu



Testing results

Pilot country	No.	Year of construction	Number of renovation steps	Current energy level	Final / future energy level	Current primary energy demand [kWh/ m ²]	Future primary energy demand [kWh/ m ²]	Estimated date for final renovation step	Completeness
BULGARIA	1	1970	3	G	B	600	362	When plaster needs renovation	complete
	2	-	4	D	B	269	36	2035-2040	complete
	3	1950	3	G	B	600	119	New heating system	complete
	4	1994	3	G	B	504	176	2019	parts missing
	5	1970	4	G	B	479	126	When boiler is exchanged	complete
	6	1980	4	F	A	390	73	2030-2035	complete
	7	1950	3	F	B	600	112	New heating system	-
	8	1968	5	E	A+	411	27	2035-2040	complete
	9	1982	4	G	B	500	111	2030-2035	complete
	10	1947	4	G	A	600	95	2025-2030	complete
	11	1911	2	D	B	362	142	2025-2030	parts missing
	12	2008	2	C	B	203	158	2025-2030	complete
	13	1929	5	G	A	505	109	2035-2040	complete
	14	1962	4	D	B	262	108	2035-2040	complete
	15	-	3	D	B	280	136	When windows are exchanged	parts missing

60% average improvement

Pilot country	No.	Year of construction	Number of renovation steps	Current energy level	Final / future energy level	Current primary energy demand [kWh/ m ²]	Future primary energy demand [kWh/ m ²]	Estimated date for final renovation step	Completeness
PORTUGAL	1	1986	5	C	A+	183	74	2035-2040	complete
	2	1500	5	D	A+	155	48	2035-2040	complete
	3	1971	4	E	A+	183	0	When plaster needs renovation	complete
	4	1937	3	F	A+	600	27	2030-2035	complete
	5	2001	3	A	A+	30	0	When boiler is exchanged	complete
	6	1937	4	F	A+	600	19	2030-2035	complete
	7	1919	5	D	A+	356	120	2025-2030	complete
	8	1998	4	C	A+	116	0	When plaster needs renovation	complete
	9	1994	2	A+	A	145	112	2025-2030	parts missing
	10	2002	3	C	A	278	104	2030-2035	complete
	11	1575	4	D	A	319	42	2025-2030	complete
	12	1988	4	F	A+	423	117	When windows are exchanged	complete
	13	1998	5	E	B-	203	0	2025-2030	complete
	14	1972	4	D	B-	387	250	2025-2030	complete
	15	1995	3	C	A	176	19	2030-2035	parts missing
	16	1966	2	E	A	326	27	2025-2030	complete
	17	1946	4	F	A	350	92	2030-2035	-
	18	1989	5	D	A+	116	20	When plaster needs renovation	complete
	19	2001	5	E	A	192	19	When plaster needs renovation	complete
	20	1981	4	C	A	211	34	2025-2030	complete

Pilot country	No.	Year of construction	Number of renovation steps	Current energy level	Final / future energy level	Current primary energy demand [kWh/ m ²]	Future primary energy demand [kWh/ m ²]	Estimated date for final renovation step	Completeness
POLAND	1	1975	3	medium orange	light green	474	134	Substitution of the old windows	complete
	2	1978	3	dark orange	light green	382	123	2030-2035	complete
	3	1987	4	dark orange	yellow	400	172	2019	complete
	4	1950	3	dark orange	light orange	570	326	2020	complete
	5	1978	1	red	yellow	600	159	As soon as possible	complete
	6	1975	3	medium orange	yellow	321	160	When windows are exchanged	complete
	7	1981	3	dark orange	light green	435	185	2025-2030	complete
	8	2000	3	dark orange	light green	233	185	2035-2040	complete
	9	1978	3	light green	dark green	138	31	2025-2030	complete
	10	1990	3	light orange	light green	335	193	2025-2030	complete
	11	1991	4	medium green	dark green	70	78	2025-2030	complete
	12	1936	5	red	light green	422	134	When plaster needs renovation	parts missing
	13	1978	3	medium orange	light green	276	133	2025-2030	complete
	14	1980	3	dark red	yellow	600	189	2025-2030	parts missing
	15	1999	5	medium green	light green	165	197	2035-2040	complete
	16	2000	5	dark orange	yellow	374	152	During the attic renovation...	complete
	17	2006	5	medium orange	light green	143	86	2030-2035	complete
	18	1981	5	red	medium green	181	46	2025-2030	complete
	19	1980	4	light orange	yellow	600	316	2025-2030	complete
	20	1982	2	yellow	medium green	198	161	When plaster needs renovation	complete

Potential for further replication and extension



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How can Member States implement iBRoad?
Barriers and drivers for countries willing to explore the feasibility and replicability of iBRoad

BPE – Buildings Performance Institute Europe
June 2019
www.ibroad-project.eu
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 754045



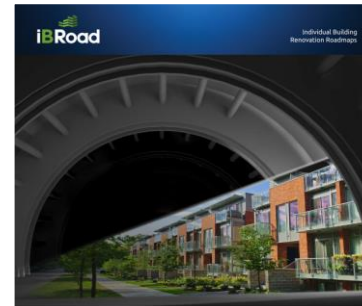
iBRoad policy brief
A guideline for implementing Building Renovation Passports and Building Logbooks

Ifes – Institute for Energy and Environmental Research
November 2020
www.ibroad-project.eu
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 754045



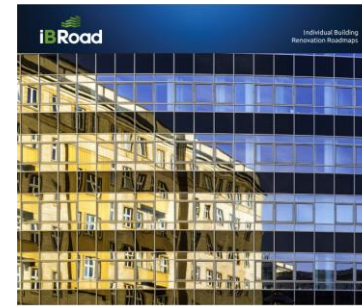
Protecting personal data when implementing iBRoad

Syngravis Team / Ifes – Institute for Energy and Environmental Research
April 2020
www.ibroad-project.eu
This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 754045



Stepwise and structured
Surrounding policy instruments to support the iBRoad approach for building renovation take-off

Ifes – Institute for Energy and Environmental Research
December 2019
www.ibroad-project.eu
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Beyond the single-family house
Potential extension of iBRoad to other building types

Ifes – Institute for Energy and Environmental Research
June 2020
www.ibroad-project.eu
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/ The iBRoad2EPC project - The evolution of iBRoad

The future: iBRoad2EPC



iBRoad2EPC

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101033781

A photograph of a large building under renovation, completely covered in a complex network of metal scaffolding. The sky is blue with some white clouds. The text is overlaid on this image.

iBRoad2EPC project

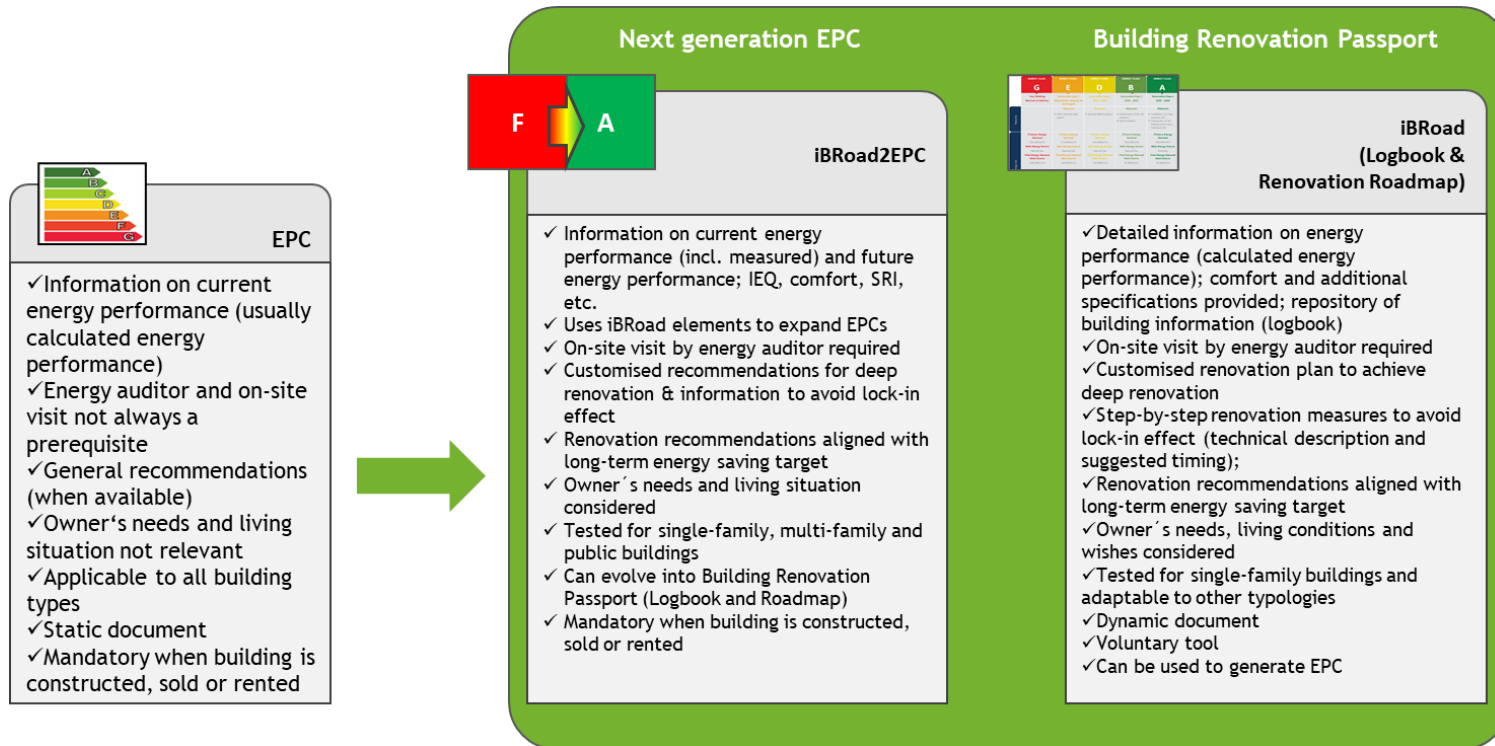
Integrating Building Renovation Passports into Energy Performance Certification schemes for a decarbonised building stock

The future: iBRoad2EPC



iBRoad2EPC

The project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N° 101033781

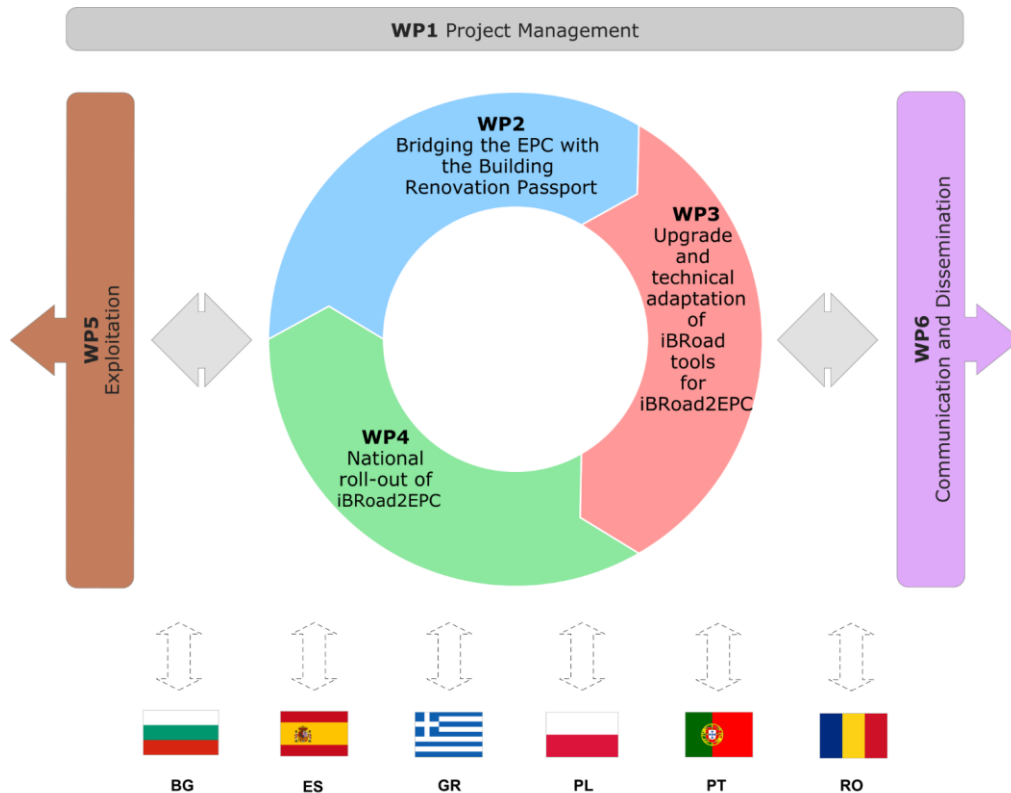


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The future: iBRoad2EPC



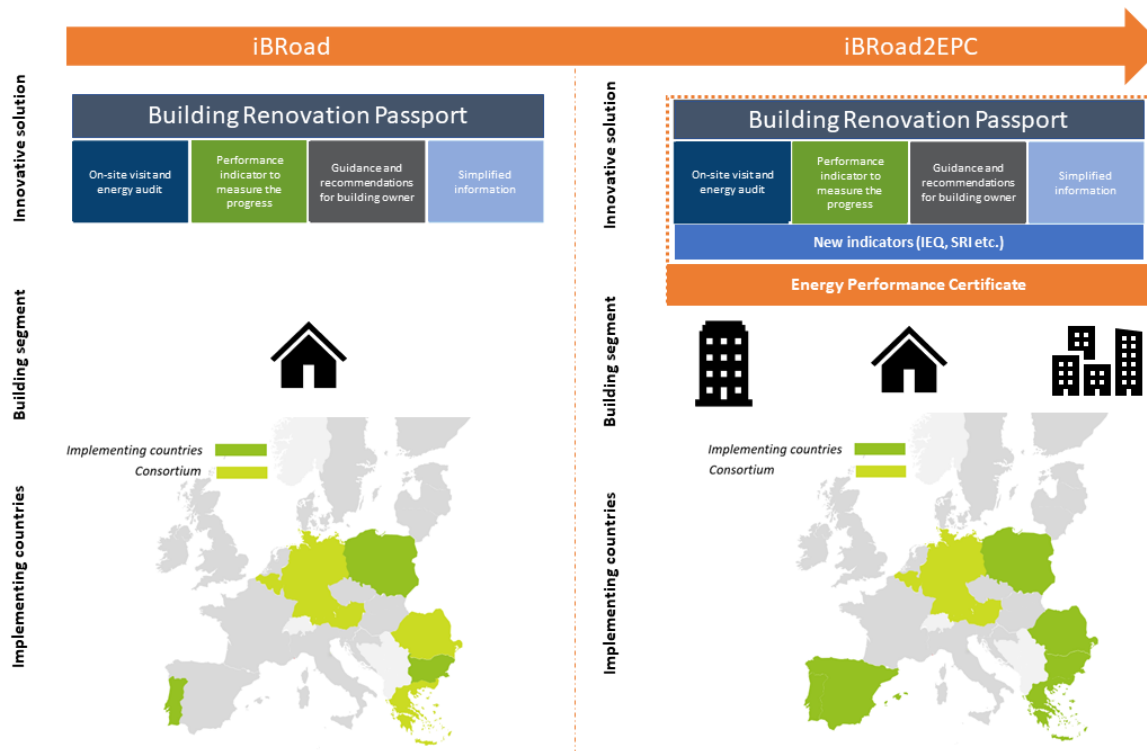
The future: iBRoad2EPC



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/ The iBRoad2EPC project - The evolution of iBRoad

The future: iBRoad2EPC



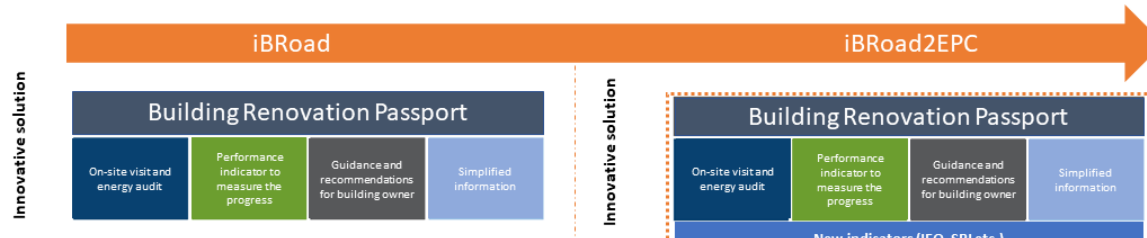
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/ The iRoad2EPC project - The evolution of iRoad

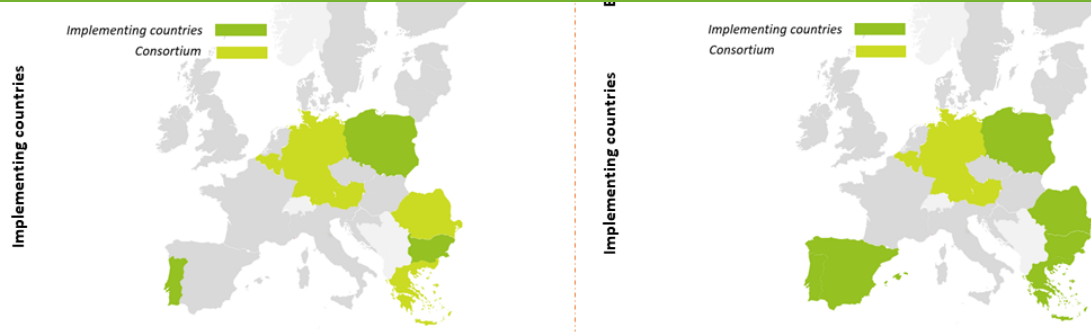
The future: iRoad2EPC



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INITIALISING ENERGY BALANCE
TOWARDS ZERO

Thank you!

Alice Corovessi
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initialising energy balance towards zero

Q&A Session

Conclusions



Clémence Arto
Autodesk – EuroACE Member

Thank you!