TIMEPAC

FINAL CONFERENCE

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ICAEN – Catalan Institute for Energy

Spanish e-Building Logbook: Theoretical structure based on stakeholders' views

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Funding

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WP6

Analysis of the potential and requirements of the Digital Passport as a tool aimed at providing traceability to the energy efficiency interventions in buildings.

WP7

Assessment regarding the EE-Mortgages' impact on energy-efficient home development energy-efficient retrofits from the perspective of housing developers & willingness to adopt energy efficiency passports.

Climate change. Why buildings?

Europe*:

40%

Final energy consumption

36%

Greenhouse gas emissions

Spain**:

30,1%

Final energy consumption

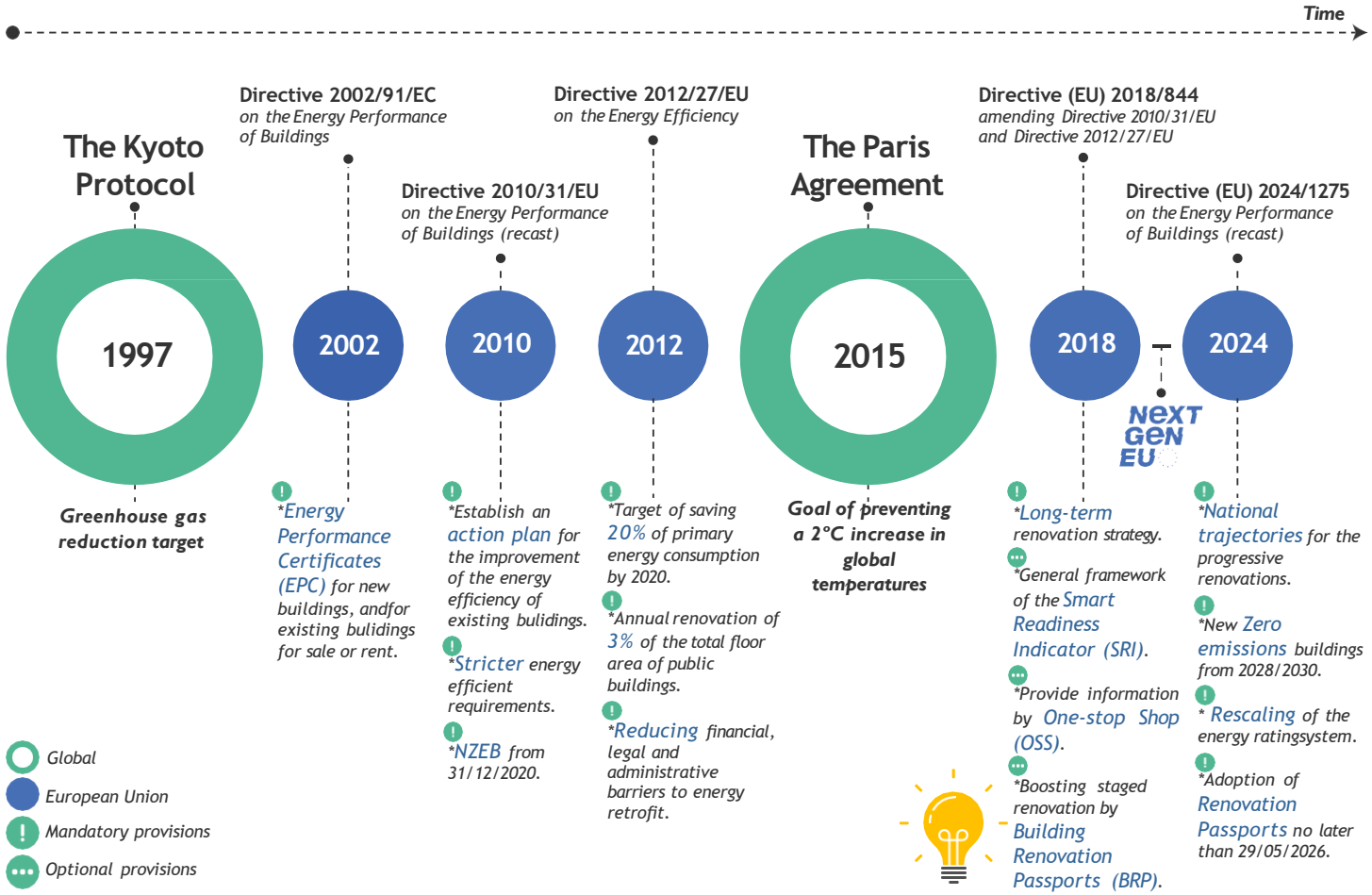
25,1%

Greenhouse gas emissions

*(EPBD, 2024)

**(GBCe, 2022)

Transition towards a decarbonised economy



- Efforts to make buildings more efficient are not new.
- **EPBD (EU) 2018/844** . First introduction of a building renovation passport as a long-term strategy with OSS
- **EPBD (EU) 2024/1275** . By 29 May 2026, Member States shall introduce a scheme for renovation passports

Renovation Passport (RP)

1 Information transparency strategy to alleviate **information asymmetry** in the energy-efficient real estate market

Certainty that what is presented as efficient is actually efficient. (EPC-GWP-SRI, EeMAP, NZEB)

2 **Scheduled Renovation Roadmap** to avoid the high costs of comprehensive renovations

Traceability of building interventions/energy renovations

Digital Building Logbook + **Scheduled Renovation Roadmap**

e-Building Logbook (LdE-e)

Tools we have in Spain for building information management

Libro del Edificio
(Nuevo o Existente)

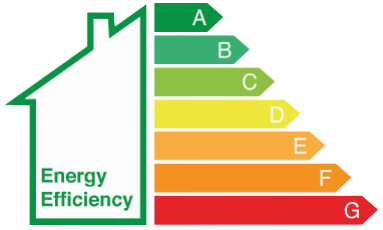
General building information tool (new or existing)

Cédula de Habitabilidad

Accreditation tool for minimum habitability conditions

IITE
Informe de Inspección Técnica del Edificio

Structural safety, health, hygiene and accessibility assessment tool



Certificado de Eficiencia Energética

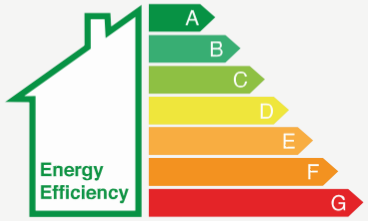
Energy assessment tool

LdE-e theoretical modelling

Libro del Edificio
(Nuevo o Existente)

Cédula de
Habitabilidad

IITE
Informe de
Inspección Técnica
del Edificio



Certificado de
Eficiencia Energética

LdE-e E-Building Logbook

Technological Proposal

BIM

Blockchain

Theoretical Instrumental Proposal

PAS·E
Pasaporte del edificio

cíclica

GBCe

Regulatory Proposal

FUNDACIÓN
la casa
que ahorra

European examples of public initiatives

Germany	Mein Sanierungs-fahrplan
France	Expérience P2E
Belgium	WONINGPAS

Adaptable, not adoptable:

- Programmed as **voluntary** schemes
- Targeted at energy renovation of **single-family houses**
- **Various** approaches/management of building data collection

For Spain we need:

Scheme for accompanying owners (horizontal property)

Digital data interconnection structure

Process to refine the model

1. Categorization and structuring of existing instruments.
2. Analysis of the benefits of BIM and Blockchain in the management of building data.
3. Elaboration of an embryonic structure of the e-Building Logbook (LdE-e) based on BIM and Blockchain.
4. **Presentation of the model to a panel of 13 experts in 11 interview sessions (technicians, administration, technical colleges).**

5. **Reformulation and validation of the LdE-e model based on feedback from experts.**

Data structure proposal

LIBRO DEL EDIFICIO ELECTRÓNICO (NEW BUILDING) - DATA STRUCTURE PROPOSAL

DOCUMENT REPOSITORY

CERTIFICATE OF OCCUPANCY	ENERGY PERFORMANCE CERTIFICATE	TECHNICAL BUILDING INSPECTION REPORT
	X	X
	X	X
	X	X
	X	X
	X	X
	X	X
	X	X
	X	X
	X	X
	X	
		X
		X
		X
		X
		X
		X
		X
		X

INTERCONNECTED DATA STRUCTURE

SUB PACKAGE	FIELD NAME	FIELD DESCRIPTOR	FIELD TYPE	MEASUREMENT UNITS OR FIELD OPTIONS	PACKAGE
BUILDING INDENTIFICATION	REF_CAD_ED	Cadastral Reference (Matrix)	Alphanumeric		
	TIP_VIA	Street type	Pull-down menu	Avinguda Carrer Carretera Plaça Passatge Passeig Rambla	
	VIA	Street name	Alphanumeric		
	NUMERO_VIA	Number	Numeric		
	ESCALA	Staircase	Numeric		
	BLOC	Block	Numeric		
	CP	Postal Code	Numeric		
	POBLACIO	Town	Alphanumeric		
	PROVINCIA	Province	Pull-down menu	List of Provinces	
	COM_AUTO	Autonomous Community	Pull-down menu	List of Autonomous Communities	
	PLAN	Current planning	Alphanumeric		
	CLASS	Land classification	Alphanumeric		
	CLAU	Land qualification	Alphanumeric		
	PROTEGIT	Heritage cataloging	Pull-down menu	Yes No	
	ZONA_CLIM	Climatic zone according to CTE	Pull-down menu	List of climatic zones	
	INICI_CONST	Date of beginning of building construction	Date	(dd/mm/yyyy)	
	FINAL_CONST	Date of completion of building construction	Date	(dd/mm/yyyy)	
	RECEP_OBRA	Date of the reception acts	Date	(dd/mm/yyyy)	
	NORM_EPC	Energy Efficiency Regulations in the year of construction	Alphanumeric		
BUILDING DATA (LIST OF NUMBER OF ENTITIES)	SUP_SÒL	Plot surface	Numeric	m²s	
	SUP_ST_1	Gross floor area of the building - Above grade	Numeric	m²st	
	SUP_ST_2	Constructed area of the building - Below ground level	Numeric	m²st	
	FONT	Surface area information source	Pull-down menu	Cadastre Deed Plans Others: (_____)	
	TIP_EDIFICI	Type of building	Pull-down menu	Single-family Multi-family	
	ALÇADA	Height above ground	Numeric	m	
	PL_SOBRE_RASANT	Number of floors above ground	Numeric	Unitat	
	PL_SOTA_RASANT	Number of floors below ground level	Numeric	Unitat	
	VERIF_INSPEC	List of floors and their use, according to the verification carried out by the technician during the inspection.	Alphanumeric Table (**)		
	TIP_IMPLANT	Typology of the building's construction	Pull-down menu	Isolated Semi-detached	

+ 400 data fields

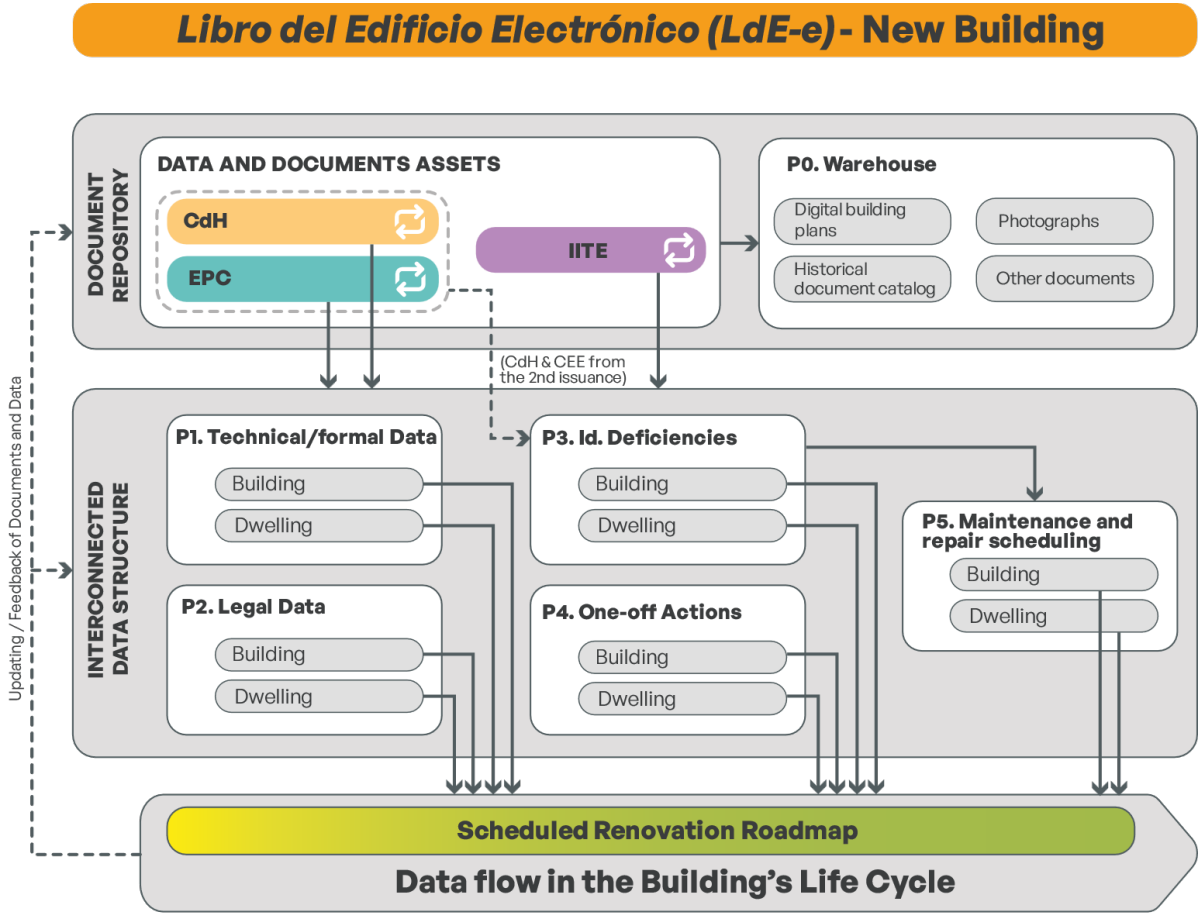
Panel of experts interviewed

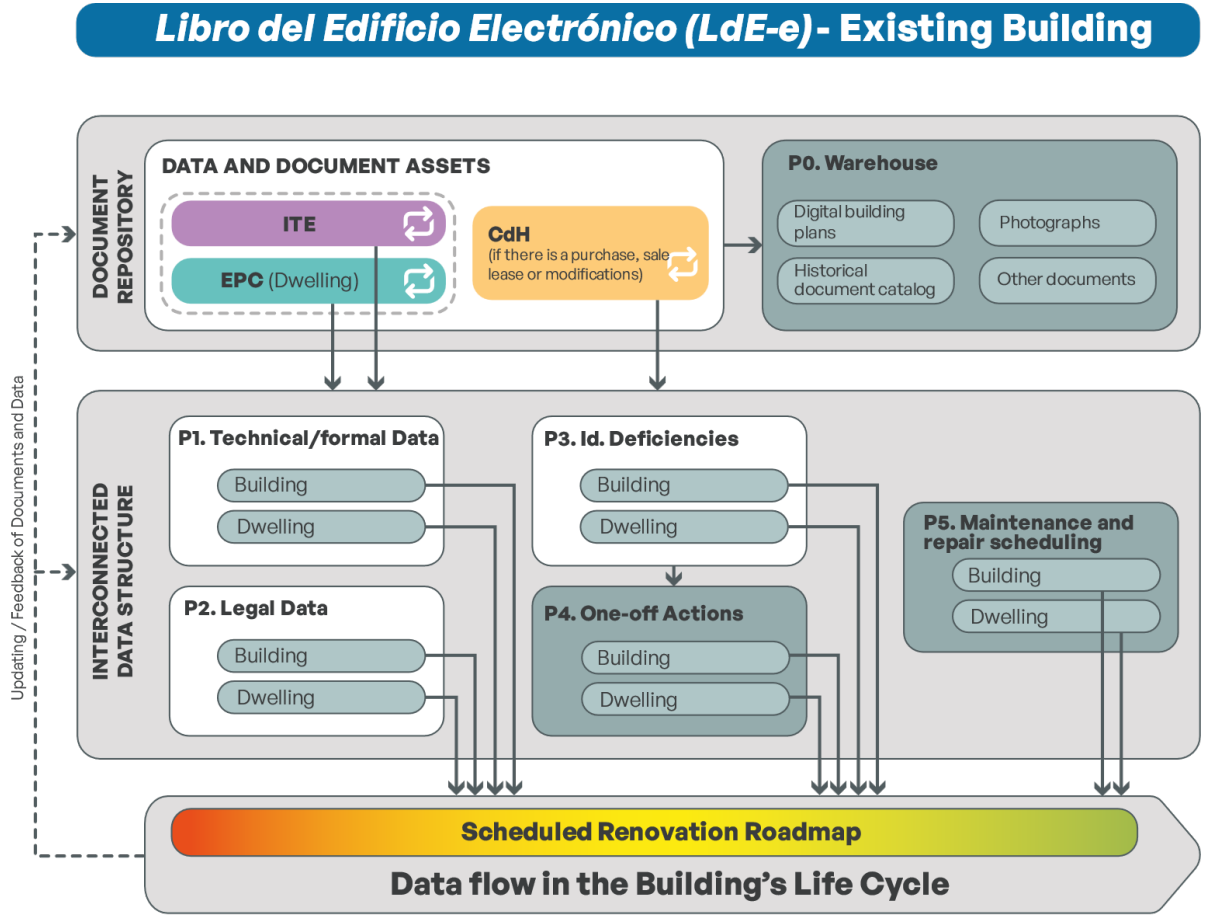
Industry	Institution – Organization - Company	Experts
Technical professionals	Self-employed	4
Technicians' associations	Association of Quantity Surveyors, Technical Architects and Building Engineers of Barcelona (CATEB) Architecture and Sustainability (AuS)	2
Real estate professionals	Association of Developers and Constructors of Catalonia (APCE) Barcelona Association of Real Estate Agents (API) Association of Property Managers of Barcelona-Lleida (CAFBL)	5
Government	Housing Agency of Catalonia (AHC) Local Energy Agency of Barcelona (Barcelona City Council)	2

Interview blocks

- Unified information registry
- Data recording per housing unit
- New and Existing LdE-e
- Governance
- Management
- Utility or barriers of ICT associated with LdE-e (BIM methodology and Blockchain technology)
- The role of one-stop shops in SRR
- Data usage policies
- Barriers to LdE-e adoption
- Tool implementation requirements/costs.

Structure of the LdE-e through expert validation





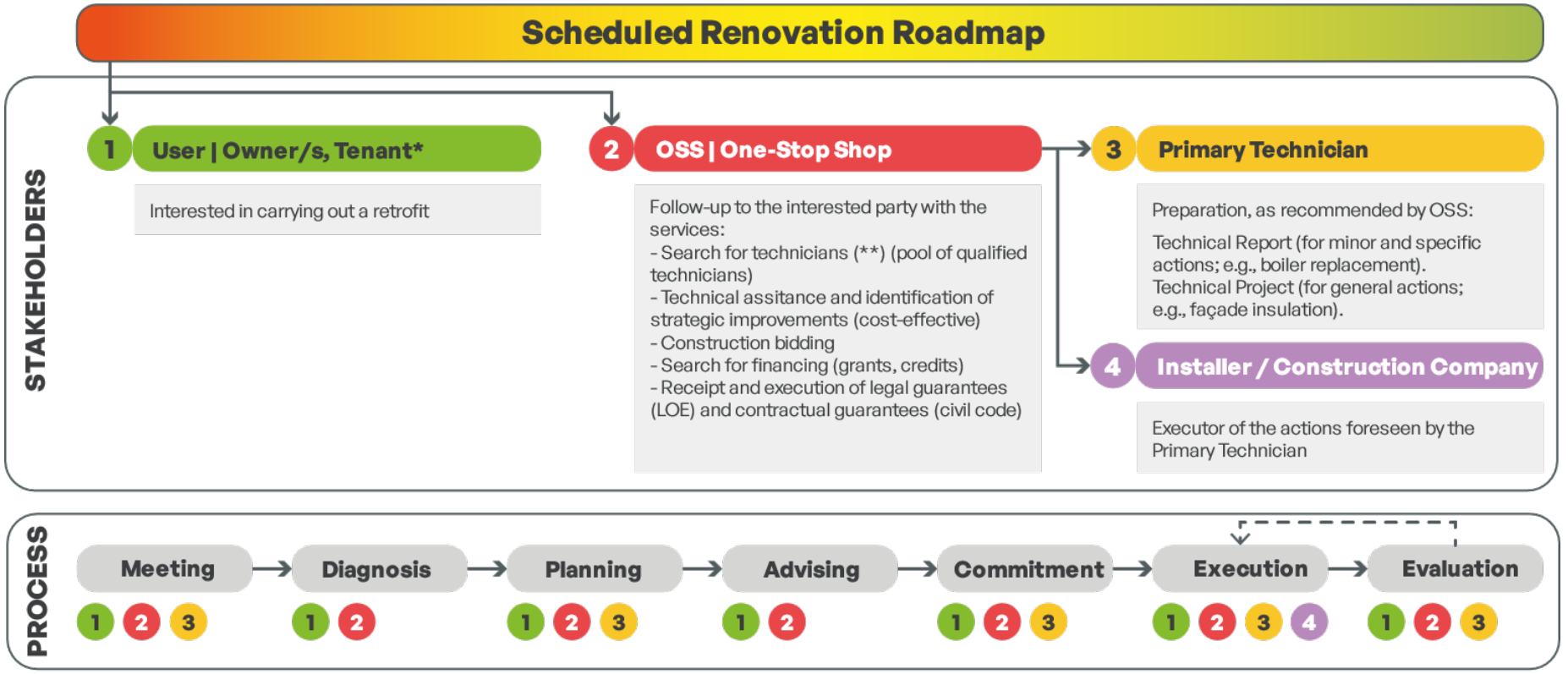
References:

Documents prepared at the same time at the beginning of the building's life cycle (for the case of the CdH, only if it is a market price housing).
The documents must be created when they expire or when a new issuance is mandatory.

References:

Documents prepared at the same time at the beginning of the existing building LdE-e.
The documents must be created when they expire or when a new issuance is mandatory.
Proposals for new registrations to the data structure (not regulated at the moment).

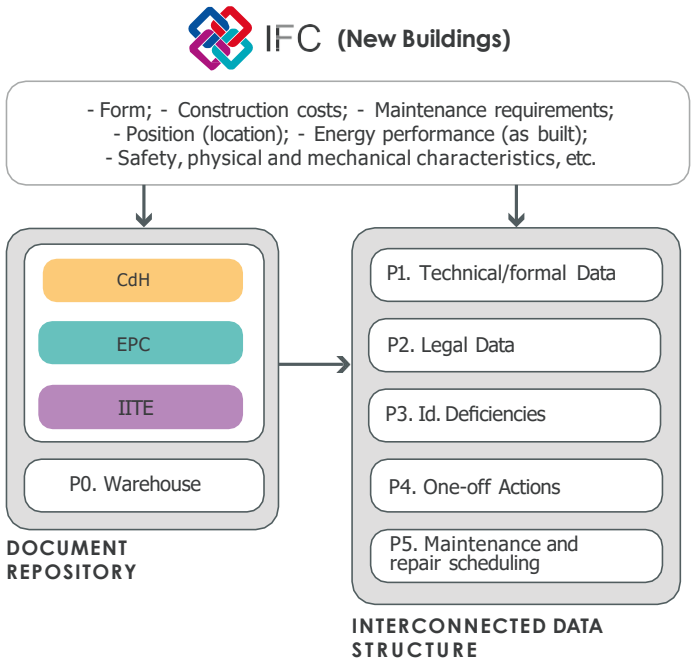
Structure of the LdE-e through expert validation

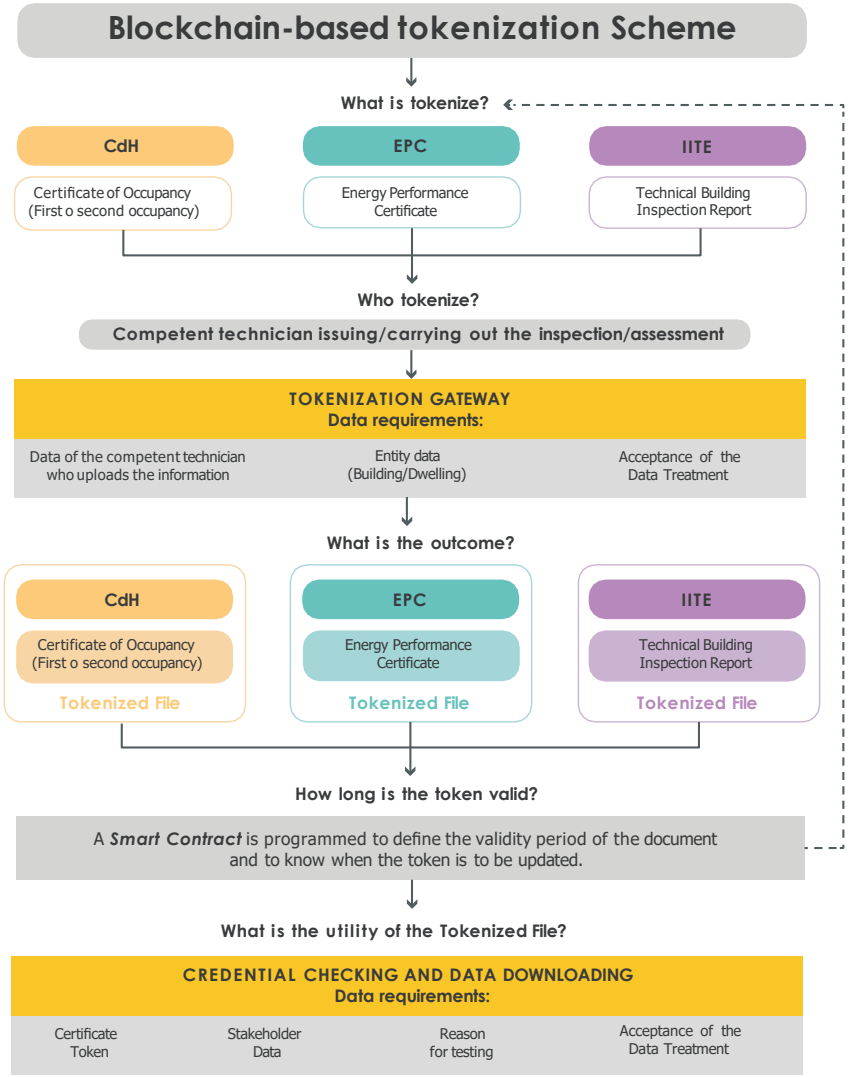


References:

(*) It could also be the tenant, provided that article 31.5 of RD 853/2021 (aid programs for residential rehabilitation) of the Recovery, Transformation and Resilience Plan is complied with.
(**) To prepare the necessary documents to access a grant or credit (building certifications, identification of improvements, technical intervention projects).

BIM-Blockchain implementation through expert validation





Other expert opinions

Governance: Perceived as complex. Tool should be hosted on a public portal and preferably governed by a specific entity. Data packages should be developed by specific technical associations based on their technical expertise.

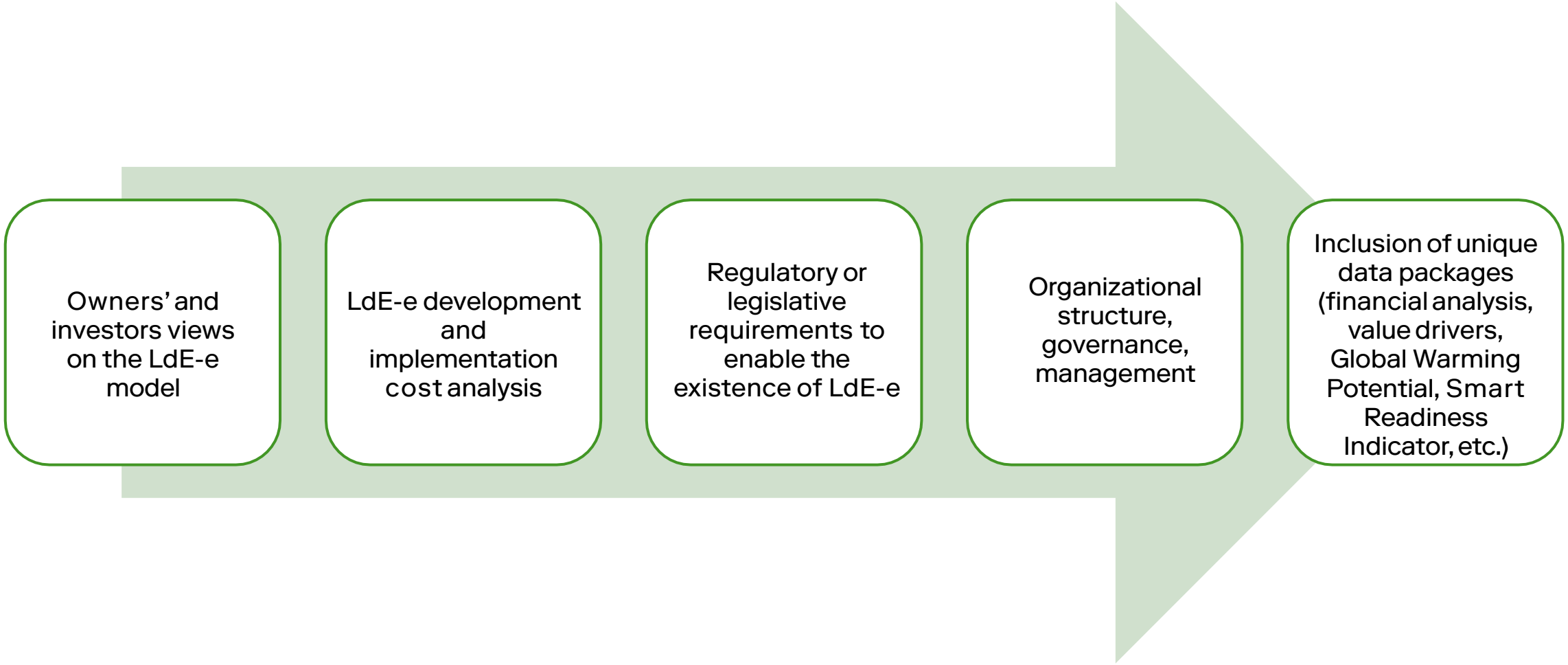
Management: Some experts argued that due to the complexity of the LdE-e, it should be managed by a technical professional and not by the owners. Others believe that the role of the technical professional already lies with the property managers. Other experts believe that the figure of the “primary technician” should be promoted

Data usage policies: The experts agreed that a housing stock data set would benefit government policies. However, they raised concerns about open data publicity, stressing the need to protect confidential information

Barriers to LdE-e adoption: Energy efficiency is not a key factor in buying, renting or renovating a house.

Tool implementation requirements/costs: Experts lacked a clear idea of the theoretical cost of developing the LdE-e. Some experts suggested it might be like the cost of LEED or BREEAM certification, though they were not fully convinced.

We are moving towards:



If you would like further information, please contact us at

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