Demo Blog

THE DIGITAL BUILDING LOGBOOK: ELEVATING THE STORY

The Digital Building Logbook Organisational Model

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1. Introduction

Achieving a decarbonised building stock in Europe depends on reliable and accessible building data. Despite the building industry being one of Europe's most data-rich sectors, its slow digitalisation has left much of this potential untapped [1]. Nowadays, the data remains fragmented across platforms, stored in incompatible formats, and often complicated to access. These barriers slow the digital transformation of the construction sector, reduce transparency in building data and real estate markets, and limit the sector's capacity to trace information in renovation, increase productivity, streamline administrative procedures, lower construction costs, and accelerate the delivery of affordable and sustainable housing.

The Digital Building Logbook (DBL), was introduced in European legislation through the Energy Performance of Buildings Directive (EPBD) recast of 2024 [2] with the following definition:

A Digital Building Logbook is a common repository for all relevant building data, including data related to energy performance such as Energy Performance Certificates, Renovation Passports and Smart Readiness Indicators, as well as data related to the life-cycle GWP, which facilitates informed decision making and information sharing within the construction sector, and among building owners and occupants, financial institutions and public bodies.

DBLs record key lifecycle events such as ownership changes, maintenance and operations, and renovations, while providing access to a variety of documents like plans, technical systems, material inventory, performance and environmental impact data, and sustainability certifications. When linked with smart meters and devices, they can also enable dynamic data updates and support circularity in the built environment. By integrating building data through an interoperable platform, DBLs provide a complete lifecycle view of buildings, which can support informed decision-making. They offer clear benefits for owners, authorities, and financial actors alike [1]**.** Yet, achieving these benefits depends on addressing challenges related to data, accessibility, standardisation, integration, and governance.

1.1. Challenges of Digital Building Logbook EU Implementation

The implementation of DBLs across Europe faces interrelated i) technical, ii) legal-economic, and ii) socio-technical and governance challenges that hinder their effective deployment and scaling, as identified in the Technical Guidelines for DBLs report [3] .

Technical and data-related barriers persist as building information remains fragmented across platforms, often stored in non-interoperable formats and legacy systems. Low levels of digitalisation, outdated IT infrastructure, and the high costs of data standardisation continue to limit progress in integrating building data. Legal and economic barriers further constrain seamless data flow in the sector and wider market uptake. Unclear responsibilities for data ownership, privacy concerns, and limited incentives for private-sector data sharing reduce stakeholders' willingness to collect, maintain, wider data sharing and investing. These issues collectively undermine trust and the development of viable business models for DBLs. Most critically, socio-technical and governance barriers

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have emerged as the central obstacle. Member States are advancing DBLs under diverse frameworks with limited alignment, coordination, or common direction.

Under the **Demo-BLog**[1] project, consultations were performed through interviews and surveys to experts, by contacting existing DBLs involved in the project— CAPSA (Germany, Scotland, Netherlands, and Italy), Chimni (UK), CLEA (France), CIRDAX (Netherlands and Belgium), and Woningpas[2] (Belgium) [4]. During these consultations, stakeholders identified the following persistent challenges related to:

Technical challenges:
Issues related to data, systems, and technical interoperability

-Data governance (technical aspects such as data structures, access rules, metadata management)

-Standardisation and validation issues

-Data availability gaps

Legal-economic challenges:
Barriers linked to regulatory compliance, costs, incentives, and market conditions

-Privacy and legal compliance concerns (e.g. GDPR, liability, data ownership)

-High digitalisation costs

Socio-technical and governance challenges:
Challenges related to coordination, adoption, skills, trust, and institutional arrangements.

-Low awareness or perceived value among building owners

-Insufficient coordination with Member States

-Skills gaps

-Public acceptance barriers

1.1.1. Governance gaps in the DBL ecosystem

The challenges identified in the implementation of DBLs, particularly fragmentation and unclear responsibilities across governance levels, cannot be addressed through technical solutions alone. This challenge highlights a governance gap. Achieving harmonised and interoperable DBLs across Europe requires a shared governance and data-sharing framework that connects national and local DBLs under common European principles, while respecting subsidiarity and data sovereignty. This need for coordinated alignment with broader EU digital and green policy developments, which increasingly recognise that interoperability, trust, and fair market conditions depend on coherent governance structures that link policy objectives, technical standards, and legal safeguards.

[1] Demo-Blog : It is a four-year Horizon Europe funded project aimed at bringing together and further developing Digital Buildings Logbooks (DBLs) in Europe. This report is a byproduct of the outputs produced under "WP4 Exploitation and Replication, Task 4.2. Level Playing Field and benchmark DBL Ecosystem".
[2] Woningpas was developed in Flanders (Belgium) and provides homeowners and their authorised representatives with comprehensive, evolving information on their dwelling's characteristics, including energy performance, installations, permits, soil, and overall housing quality- https://woningpas.vlaanderen.be/

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The **Energy Performance of Buildings Directive (EPBD, 2024)** [2] provides the policy foundation for digital building documentation, including the integration of **Building Renovation Passports (BRP)** [2] and **Digital Building Logbooks** [2]. The **EU Building Stock Observatory (BSO)** [5] exemplifies how consistent indicators and transparent data aggregation support EU-wide monitoring. More recently, the **Housing and Construction Action Plan** [6] and the **Affordable Housing Action Plan** [7] further reinforce the role of digital building data frameworks, including DBLs, as enabling tools to improve transparency in real estate markets, support cost-efficient renovation and construction processes, and accelerate the delivery of affordable and sustainable housing. Together, these instruments highlight the growing policy recognition that structured, interoperable building data, supported by appropriate governance, is critical.

Legal and technical alignment is further guided by the **EU Data Strategy** [8], **General Data Protection Regulation (GDPR)** [9], **Interoperable Europe Act** [10]**, European Interoperability Framework (EIF)** [11], the **Data Act** [12] and the **Data Governance Act (DGA)** [13], provide established principles for secure, ethical, and interoperable data exchange. In parallel, the emerging **Common European Data Spaces** [14] illustrate how shared governance architectures can enable cross-border data flow without centralising data ownership while maintaining data sovereignty.

Despite this enabling policy environment, DBLs remain largely developed in isolation. The absence of a structured approach to coordination across the EU, national, and Provider levels risks perpetuating duplication, inefficiencies, limited interoperability, and uneven market development. Without an organisational foundation that operationalises existing policy and technical guidance, the potential of DBLs cannot be fully realised.

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2. An emerging Organisational Model for Digital Building Logbooks

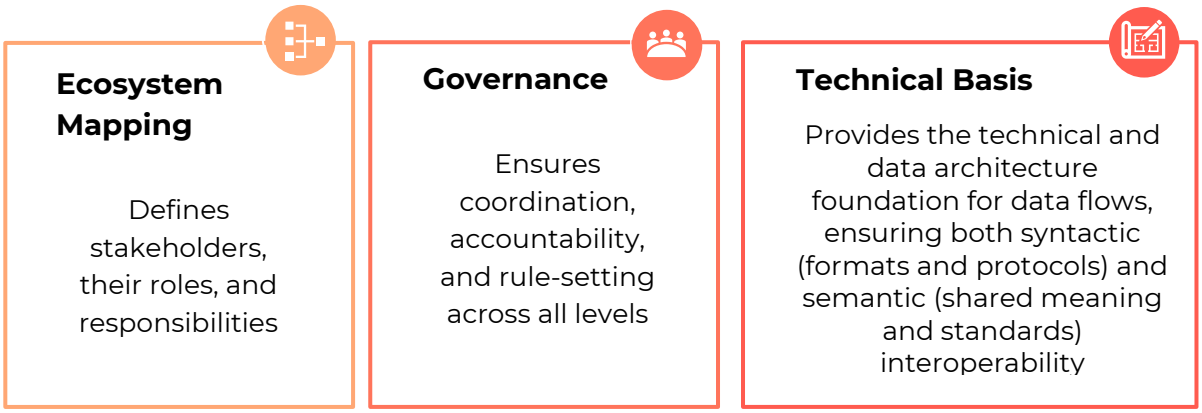
An Organisational Model can be a pertinent tool for understanding a unified governance and data-sharing framework that links current national and local efforts under shared European principles. In the DemoBlog project, the DBL Organisational Model is seen as a framework to support and harmonise the implementation of digital building logbooks across EU Member States. It achieves this by mapping EU, Member State, and Provider levels, understanding roles, responsibilities, and data workflows, as well as semantic alignment, to guide coherent decision-making and coordination across the entire DBL ecosystem. The DemoBlog Organisational Model:

establishes a structured system for understanding building data flows, integration, transparency, and collaboration among stakeholders

was designed as a strategic tool to remove policy and market barriers, foster innovation, and create a level playing field that drives the digital transformation of Europe's built environment

2.1. Core Pillars of the Organisational Model

The Organisational Model is structured around three connected pillars:



These pillars convert policy alignment into practical implementation, forming the foundation of a coherent, sustainable DBL ecosystem across Europe.

2.1.1. Ecosystem Mapping

The implementation of DBLs relies on collaboration among multiple actors from governments, industry, academia, and civil society, each performing distinct yet complementary functions. Public authorities provide the regulatory framework and data governance, industry develops and operates technical solutions, academia supports methodology and innovation, and civil society helps ensure transparency, usability, and trust. Effective deployment requires identifying these actors, clarifying their interactions [15], leadership, and accountability in decision-making and governance.

Insights from the validation exercises done in Demo-BLog [4] workshops and Technical Guidelines report (2023) [3], forms the stakeholder mapping into three main categories:

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1. **DBL Facilitators (Leading Role):** Public and private entities setting up and managing the logbook.
    - They are responsible for governance, compliance, and overall coordination of DBL portals. They act as decision-makers and primary points of accountability, ensuring alignment with EU and national objectives.
    - They include involved stakeholders called DBL intermediaries; these are supportive, mediating, and validating institutions such as building surveyors, lawyers, guarantee & certification bodies, academia, and trusted third-party service providers.
2. **DBL Users (End Users):** Includes governmental bodies, building owners, the construction sector, financial institutions, and utilities. DBL users can be data consumers and data producers at the same time.
    - They are responsible for using, updating, and validating data to inform policy, investment, and operational decisions. They ensure DBLs generate practical value and remain relevant to market and policy needs.

The Organisational model is designed by considering that DBLs have dynamic interfaces where DBL users may act both as data producers and data consumers, depending on their role and use case. These users are categorised to facilitate an effective *division of labour* between public and private entities regarding data management, storage, and the integration of various functionalities or services within the DBL. The main user categories are [3]:

- **Governmental Bodies:** Support policymaking, licensing, regulatory enforcement, and disaster management across national, regional, and local levels, while providing cadastral and regulatory data—such as building cadastre records, renovation passports, EPCs, SRIs, GIS data, and EU taxonomy frameworks.
- **Construction Sector:** Contribute to and leverage BIM models, digital twins, LCAs, EPDs, digital product passports, and material passports across the full asset lifecycle — from material manufacturing, design, and construction to real estate operation, management, financing, valuation, due diligence, renovation, and end-of-life recovery.
- **Building Owners & Users:** Offer operational data such as smart metering, material, and renovation details.
- **Financial Institutions:** Use EPCs, LCAs, and SRIs to support green finance, EU Taxonomy alignment, and analytical assessments of building assets, market developments, and transactions, while contributing to reporting requirements and benefiting from increased data transparency and quality.
- **Utility Companies:** Supply real-time energy and water usage data.

3. **Data and Technical Enablers (Infrastructure Backbone):** IT providers, data scientists, and developers of tools such as BIM, digital twins, and building renovation passports.
    - They contribute to the development and operation of the technical infrastructure by enabling interoperability, cybersecurity, data integration, and scalability, thereby supporting system reliability, innovation, and technological

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resilience within the boundaries set by DBL governance, regulation, and market uptake.

- **Data providers and data users:** Stakeholders often play dual roles—for example, a construction firm can be both a data user and data provider, which includes data owners as well—but DBL Facilitators retain ultimate coordination and accountability.

This mapping ensures inclusive and accountable collaboration, building trust across the DBL ecosystem, and the four stakeholder groups are used as a basis in the Organisational Model (Section 2.2).

2.1.2. The Multi-level Governance of the DBL Organisational Model

The hybrid, multi-level stakeholder governance system [3] combines EU-level coordination with national implementation to maintain coherence while respecting subsidiarity. The foundations of the model enable legal, organisational, semantic, and technical interoperability [3]. Governance defines *who leads, how coordination operates, and how accountability is ensured* across the federated ecosystem.

Governance Level	***Main Functions***
EU Level	The European Commission or a dedicated DBL Coordination Body sets the legal framework, governance principles, interoperability standards, and a minimum set of core data points and information needs. It ensures cross-border integration and monitors compliance.
Member State Level	Designated national authorities adapt EU standards to national contexts, coordinate DBL Providers, and ensure semantic and technical interoperability.
Provider Level	DBL facilitators and DBL intermediaries manage data governance and security, implement applicable EU and national regulations, and report compliance, data usage, and performance metrics to relevant authorities and participating stakeholders in accordance with defined protocols.

Rule-setting follows a clear hierarchy. The European Commission defines the overarching framework and common standards (where an EU-level DBL standardisation and reporting mandate applies). Member States designate competent authorities responsible for national implementation, oversight, and aggregation of reporting. At the operational level, DBL facilitators implement the rules in practice and report required compliance and performance information to the designated national authority. National authorities, in turn, consolidate and transmit relevant information to the EU level where mandated. This structured governance model ensures traceability, accountability, and alignment between policy objectives and technical implementation.

2.1.3. Technical Basis of the DBL Organisational Model

The DBL Organisational Model is based on a federated, multi-level architecture connecting DBLs, national or regional gateways, and the EU-level portal into an interoperable ecosystem. This structure enables secure, scalable, and seamless data sharing while

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preserving local control over datasets. According to the Technical Guidelines Report (2023) [3], all three levels implement nine key features—*data integration, validation, standardisation, security, APIs, metadata management, analytics, interoperability, and user engagement*—ensuring consistent, traceable, and machine-readable data flows. It also aligns with the Interoperable Europe Act [10] by applying shared standards, common APIs, and semantic frameworks that ensure seamless data exchange across EU, national, and local systems.

Each portal follows a three-tier architecture:

- Presentation layer (front-end): Manages DBL user interaction.
- Application layer (back-end): Implements microservices for modularity and scalability.
- Data layer: Handles secure storage, exchange, and management.

Data moves bidirectionally: DBLs publish standardised data to national gateways, which harmonise and aggregate it for EU-level access. In line with EPBD Article 16, the DBL users -building owners, tenants, and managers- have direct access to their building systems' data (including DBL-related data), while — subject to the data owner's consent — authorised third parties such as financial institutions, energy service providers, energy suppliers, statistical institutes, and competent public authorities may access relevant datasets via secure APIs. This ensures dynamic, traceable, and interoperable data exchange in compliance with the minimum Article 16 requirements [2].

Portal functions by level:

1. **EU-Level Portal:** Serves as the federated entry point linking national gateways, enabling cross-border data discovery and supporting European-scale monitoring and analytics. The portal allows gradual expansion—from core building data to advanced datasets and functionalities—so that Member States can progress according to national priorities. The EU Building Stock Observatory (BSO) provides a relevant reference for defining the legal framework, common data points, and agreed levels of aggregation to support EU-wide coordination and monitoring

2. **National or Regional Gateways:** Function as aggregation and interoperability hubs, harmonising data from multiple DBLs. They perform data validation, manage metadata, and expose APIs for both national and EU-level use. These gateways facilitate data exchange across systems and ensure consistent integration between local DBLs and the European framework. Member States need to meet the minimum requirements of *EPBD Article 22 (7)* and ensure that the national database for the energy performance of buildings is interoperable and integrated with the DBLs [2].

3. **DBL Providers (Public and Private):** Act as operational nodes that collect, process, and store building data, including product-level data, through an integrated front-end, back-end, and data layers. They leverage existing building information and related digital tools and cloud services to deliver diverse functionalities, ensuring reliable data management and contributing to the achievement of broader national and EU policy objectives.

The model can build upon existing data-sharing frameworks and data spaces, enabling gradual adoption and scalability across Europe.

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2.2. Structure and components of the Organisational Model

Based on the Ecosystem Mapping (section 2.1.1), an initial draft of the OM was created. This initial draft was presented to the five DBLs initiatives from the Demo-Blog project, and recommendations to improve the model were provided. After incorporating the feedback, the canvas below was made as a basis for mapping all the components, differentiating each group with four colours:

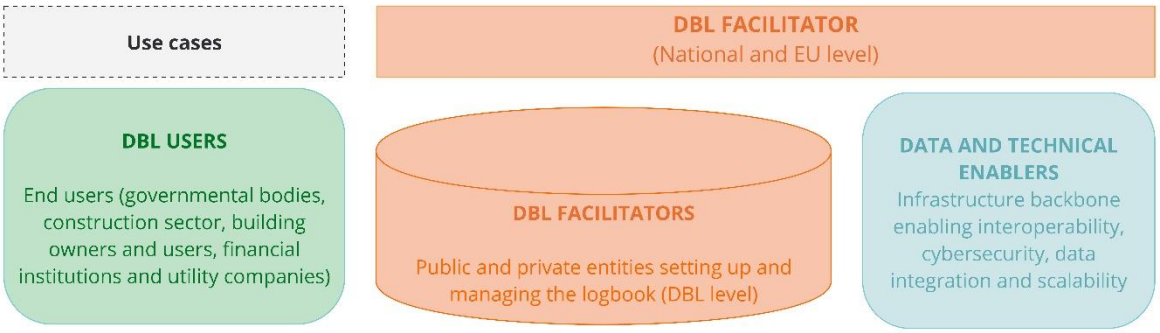

Figure 1 Canvas of the DBL OM

Business Model Integration (Grey)

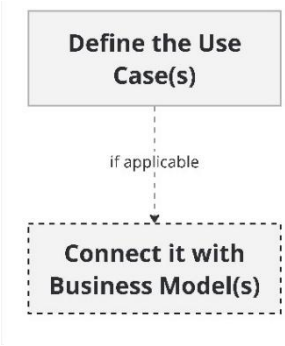

Figure 2 Organisational Model Breakdown 1: Use Cases

As a flexible and adaptable model, the components of the Organisational Model may show differences based on the use case/functionalities and business models, while always keeping the DBL Facilitators at the core.

Use Cases/Functionalities are located on the top left of the diagram. Depending on the functionality[3], the Organisational Model can show varieties according to the five main user groups defined in the *Technical Guidelines Report* [3]. Possible use cases/functionalities are:

- Building Information and Documentation (basic data, handover, lifecycle records)
- Regulatory Compliance and Certification (EPC, SRI, building codes, sustainability schemes)
- Renovation and Energy Efficiency (renovation planning, optimisation, smart meters)
- Market Transactions and Property Management (valuation, buying/selling/renting, facility management)
- Environmental Performance & Circularity (carbon footprint, materials passports, circularity data)

DBL Facilitators (Orange)

DBL Facilitators: the core actors governing and operating DBL portals.

Multi-level structure of DBL Portals: Act as gateways for accessing and managing DBL data at different levels.

- **EU-Level Portal (Top layer):** It represents the EU governance environment, where policymakers and standardisation bodies set the strategic direction, interoperability rules,

[3] Within the Demo-BLog project, use cases are commonly referred to as functionalities.

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and cross-sector data governance. It acts as a central hub connecting national DBLs, evolving from a simple hyperlink repository to a gateway for advanced data access and ensuring alignment with EU principles of sovereignty, trust, interoperability, and citizen-centric data sharing.

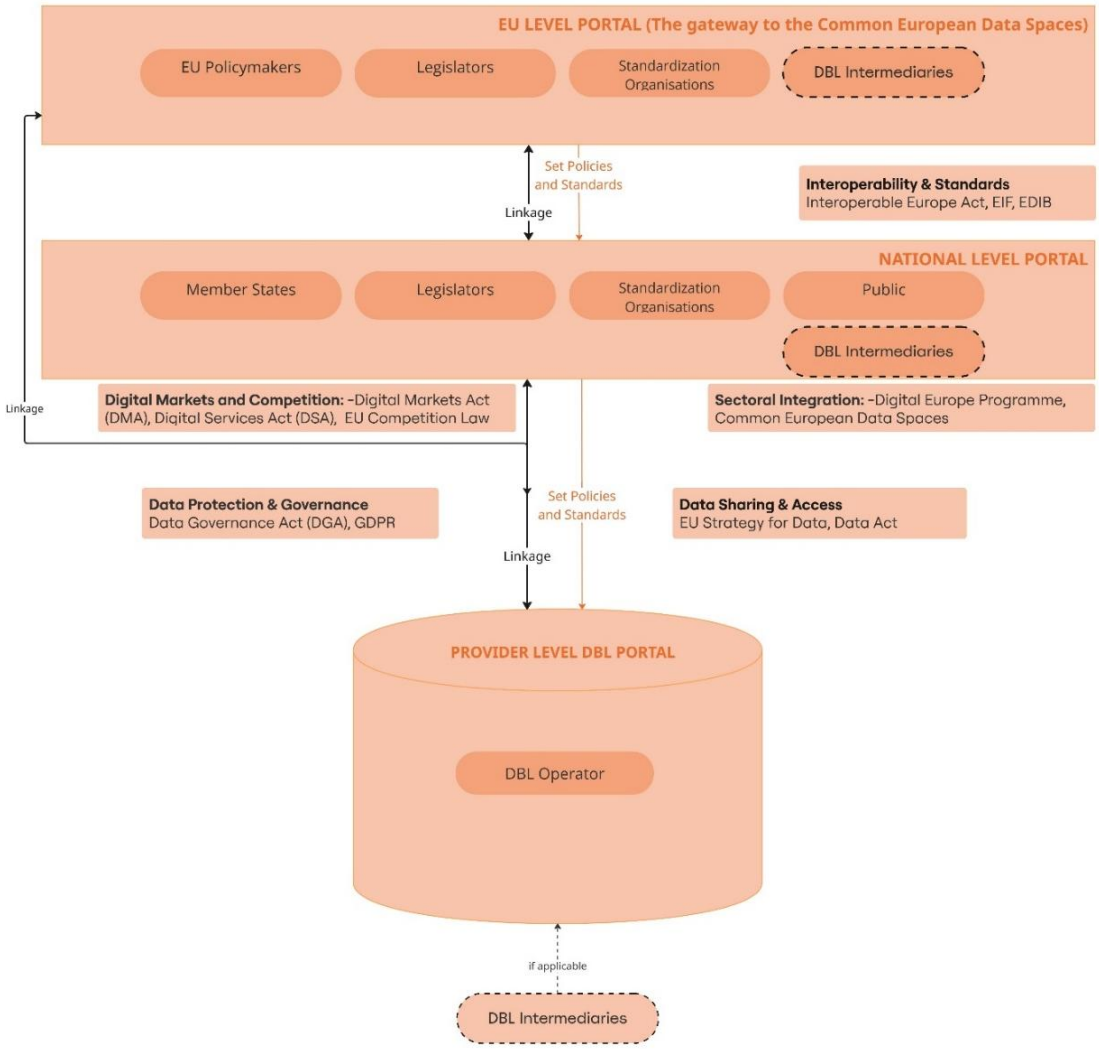

Figure 3 Organisational Model Breakdown 2: DBL Facilitators

- **National Level Portal (Middle Layer):** National portals act as intermediaries that translate EU-level rules into national implementations and coordinate data and compliance pathways across regions and DBL portals, connecting multiple initiatives. They include:
    - National policymakers, standardisation bodies
    - Integration with Member State-level regulations, strategies, and regional systems
    - This level supports alignment across DBL portals while allowing Member States to define national objectives, responsibilities, and sectoral requirements.
- **Provider-Level DBL Portal (Bottom Layer):** This is the operational layer of the DBL services, public or private platforms integrating front-end, back-end, and data layers, often

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cloud-based. This is where data is collected, validated, processed, and made available through controlled and governed mechanisms. It includes:

- DBL Facilitators (Providers and Operators)
- Technical solutions (microservices, registries, APIs)

Data and Technical Enablers (Blue)

The diagram distinguishes data sources from those who use the data while showing how DBL portals mediate controlled access.

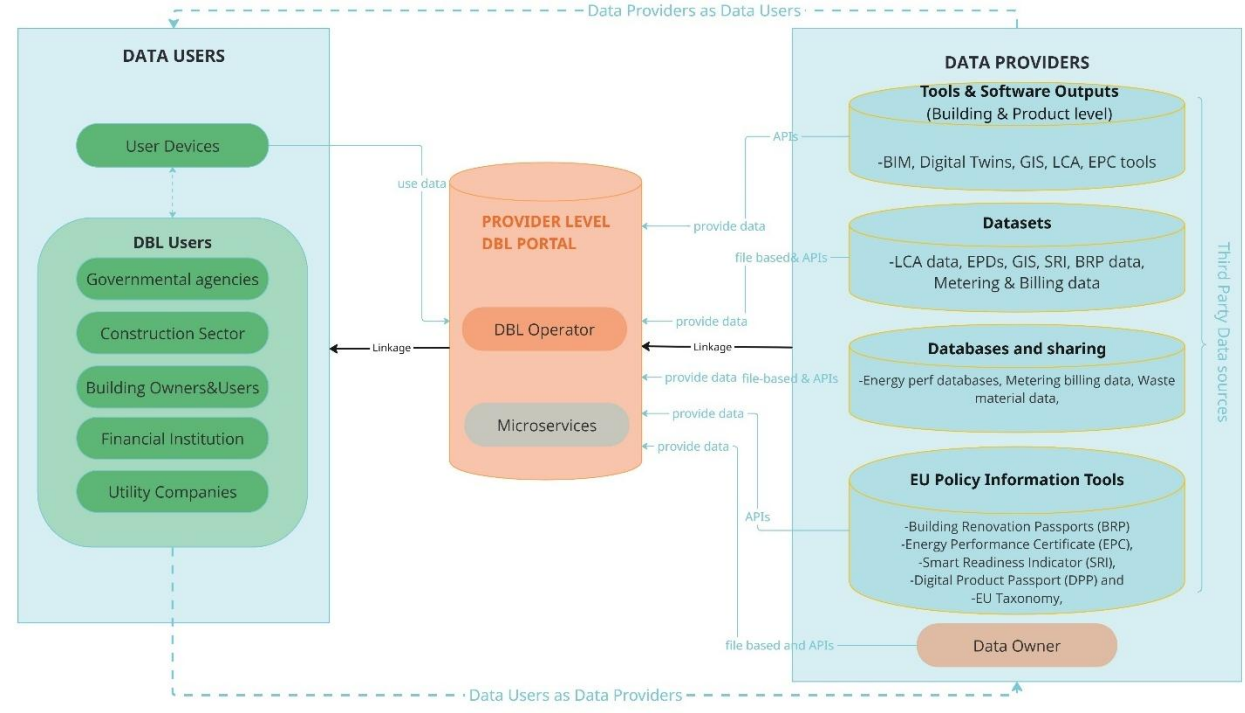

Figure 4 Organisational Model Breakdown 3: Data and Technical Enablers

Data Providers (Right Side)

Data Providers are ecosystem actors that generate or hold datasets, information, or digital outputs relevant to buildings. They may act as data holders or processors on behalf of data owners, with data shared in accordance with applicable rules and, where required, the consent of the data owner. They include:

- **Third-party data sources**
  - **Tools & Software Outputs** (Building and Product level): BIM, Digital Twins, GIS, LCA, EPC tools,
  - **Datasets:** LCA data, individual EPC data, EPDs, GIS, SRI, BRP data, planning files, public records, and metering and billing data from utility companies,
  - **Databases and sharing:** Energy performance databases, metering and billing data, waste material data
  - **EU Policy information tools:** Building Renovation Passports (BRP), Energy Performance Certificate (EPC), Smart Readiness Indicator (SRI), Digital Product Passport (DPP), and EU Taxonomy
- **Data Owners** are the entities legally responsible for the dataset and authorised to grant access. Data remains with the Data Owner, and access is provided through:

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- Direct database queries and file-based retrievals
- Web-based retrievals and APIs

Data Users (Left Side)

Data users' access to DBL-related information for policy, decision-making, investment, compliance, or operational needs. It includes the DBL users and user devices.

DBL Users (Green)

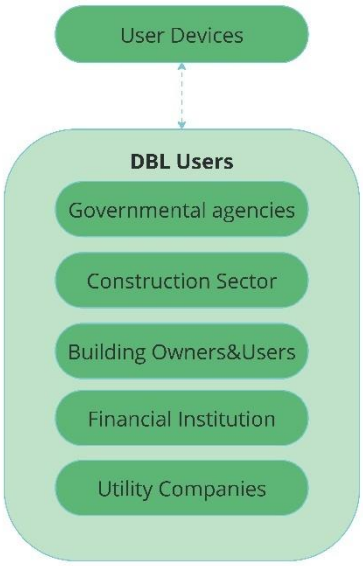

Figure 5 Organisational Model Breakdown 4: DBL Users

They include public authorities, the construction sector, building owners and occupants, financial institutions, and utility companies. They have a dual role as data users.

User Devices refers to the *technical endpoints* through which DBL users interact with DBLs, such as smartphones, laptops and computers, tablets, smart home or metering devices, sensor-enabled building management tools.

The link represents *interoperability pathways* between levels of the system. It indicates:

- A standardised interface (e.g., API, federated gateway)
- A governance relationship (e.g., reporting requirements, compliance flows)
- A data-access mechanism (e.g., a technical service enabling controlled queries)

It illustrates the capability to connect, request, and exchange information in a regulated way.

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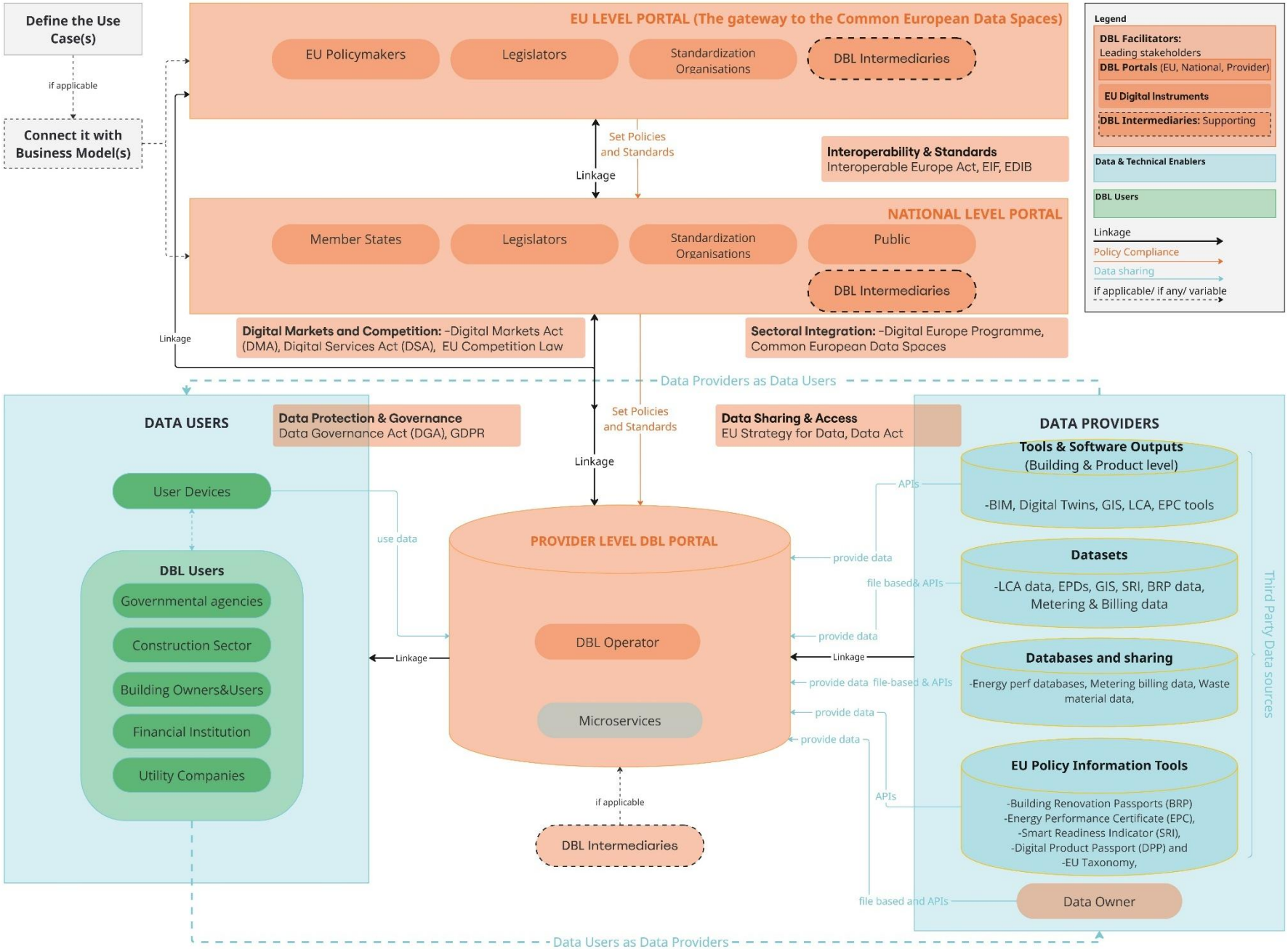

Figure 6. Emerging Digital Building Logbooks Organisational Model

3. Strategic Value and Innovation Potential

The emerging DBL Organisational Model facilitates the recognition of roles and responsibilities at EU, national, and Provider levels to ensure the effective implementation of DBLs across Member States. Rather than connecting stakeholders and instruments, it structures how roles, responsibilities, and coordination mechanisms are organised within the broader building ecosystem. By defining these operation pathways, the Organisational Model provides a shared vision and framework that enables public authorities, financial institutions, construction professionals, and real estate actors to act coherently and align policy objectives with market practice. At the same time, by establishing common governance principles and interoperable structures, the model contributes to creating a level playing field across Member States, enabling both public and private actors to participate under consistent conditions.

Unlike a one-size-fits-all solution, the DBL Organisational Model can be adapted to diverse use cases/functionalities, enabling multiple value creation pathways. It helps stakeholders develop new business models, drive innovation, and achieve sustainable finance. It strengthens national systems by improving interoperability, streamlining data sharing, and aligning technical data flows with regulatory and financial frameworks.

The Organisational Model enables higher-value use cases/functionalities, including digital compliance processes, renovation guidance, materials passport integration, and circular economy services. Its structure also facilitates connections with digital permitting workflows, EPC repositories, and cadastres, confirming its role as a cross-system integration enabler. This framework supports emerging business models such as valuation methods based on trusted building data, cost–benefit analysis for renovation investment, risk-based financing, and data-driven construction services by providing the interoperability, trust, and governance conditions necessary for scalable innovation across the EU built-environment sector.

How can the DBL Organisational Model be useful as strategic tool?

- Facilitating informed decision-making and information sharing in the construction sector and policy areas
- Defining the ecosystems needs, with a focus on user rights, skills, privacy, and security to ensure level playing field.
- Introducing the importance of benchmarking DBL readiness against policy priorities to ensure a resilient building stock that meets EU climate and energy goals
- Enabling innovation by eliminating the policy and market barriers at the EU and Member State levels.
- Providing a standardized and harmonised framework and clear path to follow for policymakers at both national and EU level.

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3.1. EU policy and operational alignment

Within the European policy context, the DBL Organisational Model sets the blueprint that can bring together the objectives of different EU initiatives such as the **European Green Deal**, the **Digital Europe Strategy**, and the **EU Data Strategy**. It provides an overview of governance and interoperability frameworks needed to harmonise building-related data flows across borders and policy domains, ensuring that digitalisation directly supports decarbonisation, competitiveness, and inclusion. To support evidence-based convergence across Member States, the DBL Organisational Model can also be benchmarked against national policy priorities, building stock characteristics, and levels of digital maturity. This benchmarking assesses DBL readiness in relation to key functionalities—such as EPC integration, renovation planning, digital permitting, and data reuse—so that policy interventions can be tailored to national contexts while preserving European harmonisation.

Section 1.1.1 introduces the policy context of DBLs, and in this section, how the Organisational Model can support and enhance these instruments to create value is explained. As illustrated in Figure 7, the strategic value within the European policy context is realised through the alignment of two complementary dimensions: a) EU Policy and Regulatory Frameworks and b) EU Policy Information and Operational Tools.

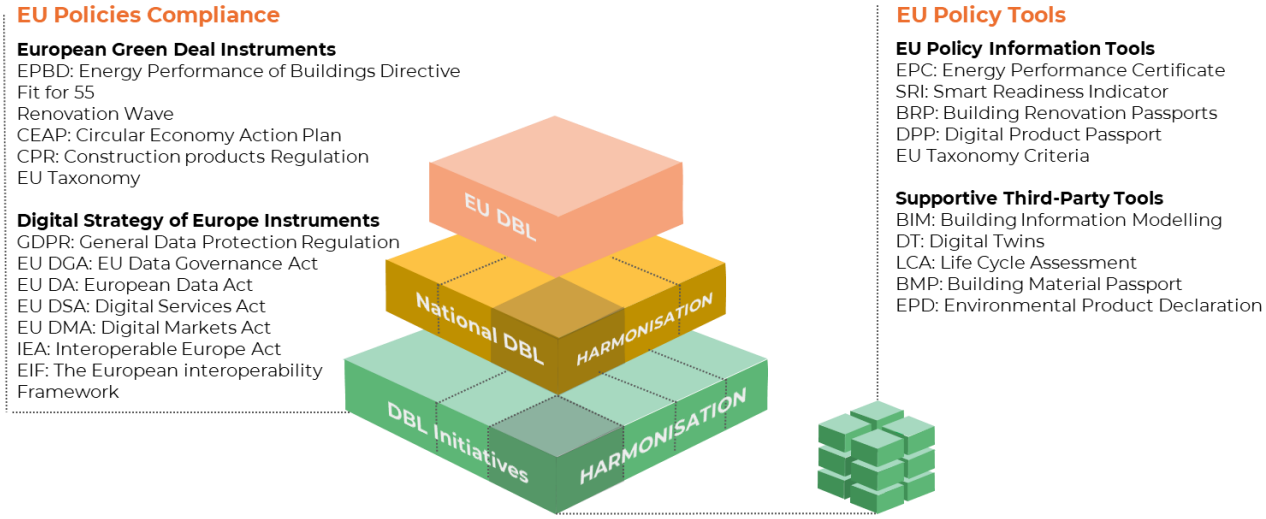

Figure 7.Harmonisation of Logbook Levels, including the EU policies and tools

A. EU Policy and Regulatory Frameworks

DBLs serve as reliable facilitators of data exchange in accordance with European digital legislation, and the Organisational Model is fully compliant with and aligned to the specified EU instruments to facilitate trustworthy, fair, and secure data sharing:

- Implement the **FAIR principles** [16] (Findable, Accessible, Interoperable, Reusable).
- Comply with **the European Data Act and the Data Governance Act**, **GDPR**, and the **Interoperable Europe Act**, ensuring lawful and secure data use.
- Support competition and innovation through safeguards such as the **Digital Markets Act (DMA)** [17], **Digital Services Act (DSA)** [18], and **EU Competition Policy** [19], protecting SMEs and users.

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- Rely on enabling programmes like the **Digital Europe Programme** [20] and the **Data Spaces Support Centre** [21], which provide the technical foundations for cross-sector integration within the Common European Data Spaces.

B. EU Policy Information and Operational Tools

The Organisational Model integrates the operational instruments already established under European legislation. Key examples include those based on the Policy Factsheet (BPIE, 2024) [22] which shows the position of the DBLs among wider policy tools and building information tools:

- **Energy Performance Certificates (EPCs):** Provide standardised, machine-readable energy data for building assessment and green finance.
- **Smart Readiness Indicators (SRIs):** Enable benchmarking of building intelligence and smart functionality across Member States.
- **Building Renovation Passports (BRPs):** Offer dynamic, data-based roadmaps for progressive energy renovation.
- **Digital Product Passports (DPPs):** Enhance material traceability, transparency, and circularity.
- **EU Taxonomy:** Allows DBLs to serve as verifiable evidence providers for sustainable investment compliance.

These policy tools are complemented by **third-party digital enablers** such as **BIM**, **Life Cycle Assessment (LCA)**, **Environmental Product Declarations (EPDs)**, and **Building Material Passports (BMPs)**. They provide the technical backbone for data quality, interoperability, and circular economy monitoring.

By mapping these policy frameworks and operational tools within a single organisational architecture, the DBL Organisational Model becomes a strategic instrument for policy and market alignment. It ensures that data collected for compliance purposes can also drive innovation, investment, and sustainability—turning fragmented datasets into actionable intelligence.

3.2. Unlocking Opportunities

This section outlines the opportunities and co-benefits that can be enabled through the DBL Organisational Model, recognising that these represent potential avenues to unlock broader value rather than an exhaustive solution in themselves. It offers a strategic opportunity to contribute to the transformation of Europe's fragmented digital and construction landscape into a more integrated, data-driven ecosystem. It supports greater consistency across Member States while allowing flexibility for local adaptation. This dual capability—combining harmonisation at scale with responsiveness to context—positions the Organisational Model as an important enabler of innovation, sustainability, and industrial competitiveness in Europe's construction and energy sectors.

Advancing Energy Efficiency and Decarbonisation Goals

The Organisational Model plays a pivotal role in achieving energy transition objectives by linking national renovation strategies, energy performance policies, and smart readiness initiatives under a single operational logic. By structuring how data on energy use, renovation, and building intelligence is shared and governed, the model ensures that

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performance improvements are measurable, comparable, and scalable across Member States. This systematic alignment strengthens Europe's ability to meet climate neutrality targets while fostering a new generation of data-enabled energy services that can optimise efficiency, flexibility, and comfort at both building and district scales.

Enabling Innovation in Business Models and Market Transformation

The Organisational Model creates the structural conditions for innovation to flourish across the building value chain. By aligning market incentives and policy instruments under one harmonised system, it reduces administrative fragmentation and opens space for new forms of collaboration between technology providers, construction firms, and investors. This foundation stimulates the emergence of innovative service ecosystems—from digital construction platforms and performance-based contracting to circular economy marketplaces—by ensuring that trusted, interoperable data can flow seamlessly across different stakeholders and jurisdictions. CIRDAX's Matdaq platform [23] exemplifies how the Organisational Model can enable innovation by using DBLs to create a trusted marketplace where building materials, linked through Materials Passports and CO_2 accounting, become traceable, tradeable assets that drive circularity and decarbonisation.

Strengthening Industrial Competitiveness and Growth

The DBL Organisational Model promotes transparency, efficiency, and scalability in the European construction and real estate sectors, providing governance between the industry actors. It supports the growth of digital and industrial ecosystems that leverage common standards, shared data spaces, and open innovation principles. This creates the conditions for new business models—such as data-as-a-service platforms, AI-driven analytics, or predictive maintenance frameworks—to evolve within a unified European marketplace.

Mobilising Investment and Ensuring Measurable Impact

The DBL Organisational Model also supports the mobilisation of public and private sustainable financing and innovation funding by connecting verified data, regulatory compliance, and financial evaluation mechanisms. It enhances the credibility and traceability of investments in building renovation, decarbonisation, and circular material use—helping investors and funding bodies ensure that supported projects deliver verifiable environmental and social impact. By linking policy objectives to measurable market outcomes, the model strengthens Europe's capacity to direct resources effectively and to reward high-performing and transparent practices.

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Example: The Organisational Model as a process enabler of trustworthy banking through EPCs

DBLs can enhance property value by providing transparent, verifiable data on building performance and sustainability. In countries such as Belgium, dwellings with higher Energy Performance Certificates (EPCs) command higher prices, and banks offer preferential loans for energy-efficient buildings.

By clarifying roles, responsibilities, and data workflows through the DBL Organisational Model, some benefits are:

- Trusted and efficient data exchange between EPC registries and financial institutions.
- Harmonised and comparable EPC data across Member States.
- Reliable, verifiable evidence to support EPC-based financial incentives such as green mortgages.

By defining how these actors interact and how data flows between them, the Organisational Model supports trustworthy access to EPC information through DBLs.

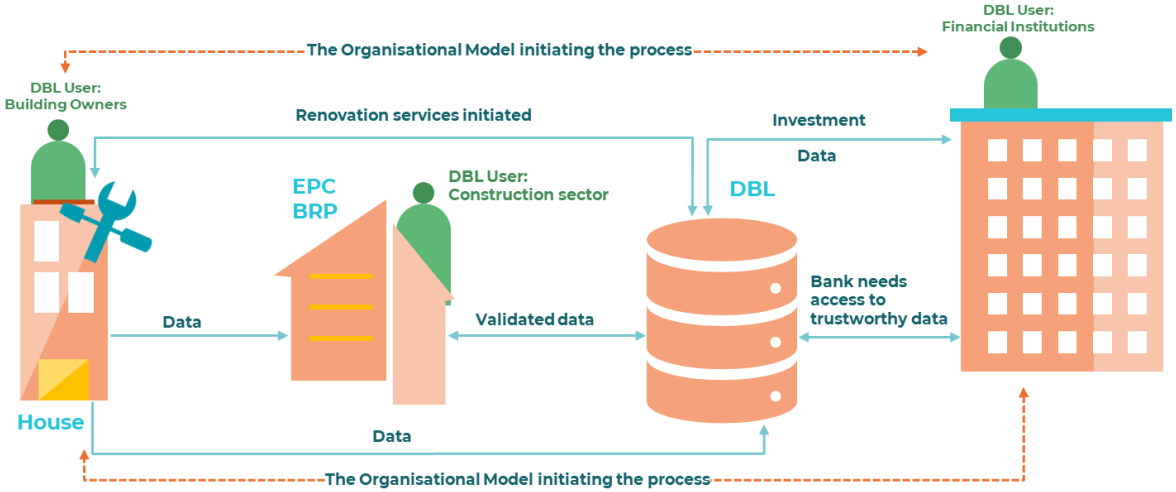

Figure 8 The Organisational Model as a process enabler of trustworthy banking through EPCs

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3.3. Level Playing Field for policy and market convergence

While the DBL Organisational Model creates the conditions to unlock innovation, sustainability, and competitiveness by enabling a coherent and data-driven ecosystem across Europe, these opportunities can only be realised if implementation occurs under fair and consistent market conditions. Without alignment on governance and interoperability principles, national or proprietary implementations risk reinforcing fragmentation and unequal participation. Ensuring a level playing field is therefore a necessary next step to translate the Organisational Model's potential into scalable and inclusive outcomes across Member States.

A harmonised and interoperable DBL ecosystem[4] is essential to ensure fair and transparent operation so that all stakeholders—governments, industry, SMEs, financial institutions, and citizens—can participate equitably and benefit from the digital transformation of the built environment. Without clear governance and open standards, the risk of monopolies, fragmented data systems, and unequal access increases, limiting competition and stifling innovation.

The Organisational Model establishes a clear division of labour between public and private actors. Public authorities are responsible for governance, standardisation, core registries, and regulatory oversight, while private actors develop value-added services, analytics, and user-facing applications built on interoperable DBL data. This separation ensures neutrality of the core infrastructure while fostering innovation and competition in downstream services.

The barriers, drivers, and solutions summarised below were identified collaboratively with stakeholders during the Demo-Blog project workshops.

Barriers	***Drivers***	***Suggested Solutions***
Dominance of large technology providers/risk of monopolies	Fair competition and transparent data governance	Enforce **EU competition law**, **Digital Markets Act (DMA)**, and **Data Governance Act (DGA)**; establish **clear roles** for public/private actors; apply **proportional regulation** differentiating SMEs and large firms.
Fragmented standards and lack of interoperability	EU harmonisation and cross-border cooperation	Apply **European Interoperability Framework (EIF)** and **Interoperable Europe Act**; use **common technical/data standards** (IFC, BIM, DPP, FAIR principles); support **Common European Data Spaces** integration.
Unequal data access and limited transparency	Open data and trust	Promote **open data policies** under the **Open Data Directive**; use **data-sharing contracts** with clear governance and arbitration; ensure **GDPR-aligned privacy and security** safeguards.

[4] This section specifically addresses Task 4.2 Level Playing Field and benchmark DBL ecosystem of Demo-Blog project.

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High entry costs and limited SME capacity	Market inclusiveness and innovation	Provide **financial incentives** (EU/Member State subsidies, tax credits, Horizon Europe funds); offer **capacity-building programs** and **technical assistance** for SMEs and municipalities.
Lack of alignment between national initiatives and EU policy tools	Policy coherence and efficiency	Use **national DBL portals** as intermediaries; align with **EPCs, SRIs, Building Renovation Passports (BRP), LCAs, and Digital Twins** for seamless integration; follow **EIF** for interoperability.
Low public acceptance and unclear value proposition	Economic and sustainability benefits	Raise awareness through **communication campaigns**, prioritise **DBL-compliant projects** in public tenders, and **mandate logbooks for public buildings** to showcase value.

Table 1: Barriers and Drivers for a level playing field defined by the Demo-Blog project workshop participants

A fair DBL ecosystem requires transparent cost–benefit allocation, addressing split-incentive challenges where the actors investing in DBL setup and data provision are not always those who directly capture the resulting benefits. Public authorities typically finance the governance and standardisation layer, while private actors invest in data integration and service provision. The resulting benefits—including improved regulatory compliance, streamlined administrative processes, support for digital permitting, interoperable datasets for automated checks, new market opportunities, lower financial risks, and increased asset transparency—are broadly shared across stakeholders. Industry's limited engagement highlights this need to ensure fair access and prevent market concentration; proportional distribution is essential to maintain trust and balanced participation across Member States and industry actors.

A well-governed, interoperable DBL ecosystem ensures equal access to data and markets, empowering SMEs, enabling innovation, and strengthening trust across the value chain. As illustrated in Figure 6. Emerging Digital Building Logbooks Organisational Model, by organising the ecosystem, embedding regulatory safeguards, and technical standards, the Organisational Model can prevent monopolies, promote competition and transparency, and deliver societal, environmental, and economic value through a harmonised European framework.

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4. Integration with European Data Spaces

Data Spaces are decentralised frameworks that enable secure and trusted data sharing [24]. Instead of storing all data in one place, they connect different data systems through common governance, technical standards, and shared rules. In business and regulatory contexts, data spaces now represent collaborative frameworks for sovereign, interoperable data exchange, where participants interact directly, and data is shared according to pre-agreed policies.

Common European Data Spaces across key strategic sectors are central to the Data Governance Act, a foundational element of the European Data Strategy that came into force in early 2024 [14]. These data spaces bring together both public and private actors and span domains such as energy, mobility, environment, manufacturing, agriculture, finance, and public administration.

DBLs can align closely with the principles of Common European Data Spaces, in particular in terms of governance, technical interoperability, trusted data sharing, and data-sovereignty models, as both promote interoperability, transparency, and data sovereignty. While DBLs have so far relied on centralised data portals, a data space approach supports federated access where stakeholders (e.g., architects, municipalities, contractors) keep control of their data but share it securely through common agreements and role-based permissions. This alignment at the governance, data sharing, and data-control level directly addresses one of the main challenges in DBL implementation: uncertainty around data ownership and data security [25]. By ensuring that data remains with its rightful owners while still being accessible through trusted, interoperable mechanisms, a data-space model helps resolve long-standing data-related barriers such as fragmentation, inconsistent access rights, and limited sharing incentives**.**

A neutral coordinating body, usually a public or trusted entity, ensures fair governance, supports onboarding, and resolves disputes. Participation is voluntary but encouraged through clear legal frameworks, interoperability standards, and shared benefits for all actors. Using the European Data Space principles in the implementation of DBLs enables trusted, policy-aligned data exchange across sectors such as energy, mobility, and the environment. This enhances data accessibility, supports better policy design, and strengthens citizen engagement. It also promotes innovation and transparency in construction, one of the EU's least digitised sectors. By providing interoperable, high-quality data and a trusted governance framework, this connection lowers barriers for digital services, analytics, and new business models, enabling innovation across the construction value chain.

However, to fully realise these ambitions, the construction sector requires a shared common language, underpinned by strong ontological alignment and a Common Data Dictionary, to enable semantic harmonisation across regulatory and market silos, reduce fragmentation, and lower the costs of compliance [25]. These elements are essential for an EU-wide data space yet remain underdeveloped in the construction industry, which continues to lag behind other sectors in digital maturity and semantic standardisation**.**

Rather than the EU-level DBL portal becoming a data space, the DBL ecosystem can contribute to the future *Common European Data Space* [26] by acting as a federated layer that aligns Provider level, national, and EU level portals through harmonised access points, governance structures, and interoperability mechanisms built on these shared semantic foundations.

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A *European Data Space for Buildings* [26] could place DBLs at its core, linking lifecycle data across domains like energy, legal, and scientific information. By providing a trusted, federated framework for cross-level data exchange, the data space would help overcome fragmented data systems, support a level playing field for SMEs and public authorities, and ensure GDPR-compliant data use across jurisdictions.

Figure 9 illustrates the alignment of the DBL Organisational Model with the Common European Data Spaces at the EU level and clarifies that it is not itself a data space but a governance and interoperability framework that can underpin one.

The pyramid has three layers. The base represents the cross-sectoral technical foundations, including shared standards, ontological alignment, a common data dictionary, secure data-exchange mechanisms, and legal frameworks such as GDPR and the Data Governance Act. These foundations enable semantic alignment, trust, interoperability, and data sovereignty across sectors.

The middle layer is the Common European Data Space for Buildings, where the DBL Organisational Model (see Figure 6) sits, enabling harmonised governance, federated access, and consistent data flows across EU, national, and Provider levels. By locating it in the middle layer, the approach addresses key barriers such as data ownership, fragmentation, and interoperability gaps.

At the top, the various sectoral data spaces connect through this shared framework.

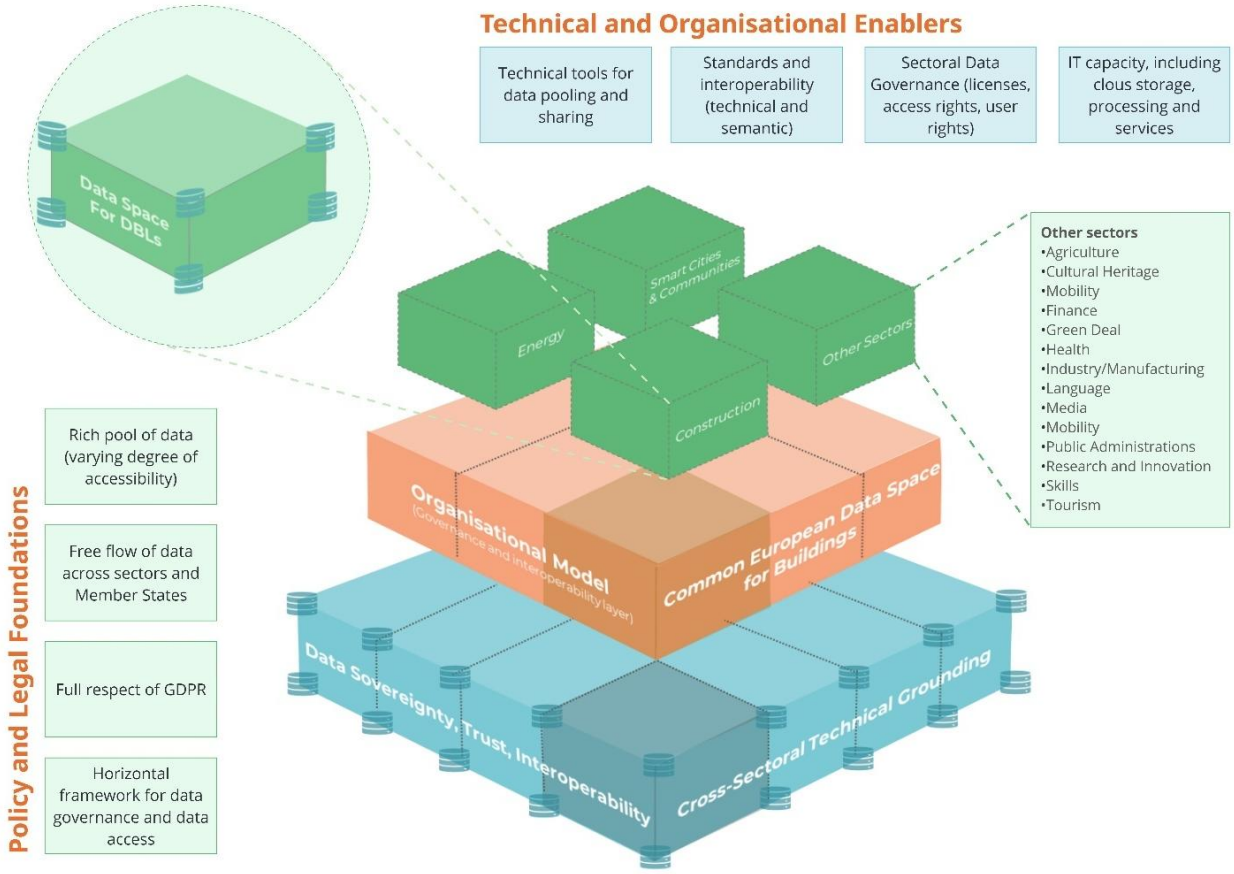

Figure 9 Foundational framework of DBL and Common European Data Spaces alignment adapted from Second Staff Working Report (European Commission, 2024) *[26]*, Mobility Data Space *[27]*, and Sitra (2023 *[28]*).

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5. Conclusions and Policy Recommendations

The Organisational Model is a blueprint to deploy the full potential of DBLs. It can strengthen EU policy implementation by:

- Providing a framework for DBL deployment to support interoperability, policy alignment, and data exchange.
- Mapping stakeholder roles and data flows across the building and construction sector value chain and ecosystem.
- Delivering structured data for decision-making by public authorities, building owners, and financial actors.
- Stimulating innovation, generating new business models, and supporting the green and digital transitions.

Recommendation 1: Establish a Unified EU Digital Building Logbook Governance Framework

A coordination body at the EU level is essential to steer implementation and define common governance principles that can avoid duplication, inconsistent data standards, and fragmentation. It is important to:

- Develop a shared EU vision and governance framework for DBLs consistent with the Green Deal and EU Data Strategy.
- Set up an EU-level central expert coordination body to define implementation requirements and guidance to Member States, monitor progress, and ensure coherence while allowing national flexibility.
- The governance framework should integrate DBLs into a broader data-space agenda and treat the OM as a layer that can underpin a future Common European Data Space for Buildings.

Recommendation 2: Use National Portals as Bridges to EU Harmonisation

National DBL portals should operationalise the EU vision at the local level.

- Establish DBL platforms at the national level as interaction hubs connecting authorities, private actors, and citizens. A relevant example is Woningpas[5], which functions both as a national portal and as a DBL Provider, fostering standardisation and supporting policy adoption.
- Establish structured monitoring, reporting, and coordination mechanisms between national authorities and EU institutions so that lessons learned from the implementation of national Digital Building Logbook portals can systematically inform updates to EU guidelines, interoperability standards, and policy frameworks.

Recommendation 3: Strengthen Technical and Legal Foundations

A coherent technical and legal foundation is essential to scale DBLs, ensure common interoperability and a semantic framework, and build stakeholder trust across the Union:

[5] Woningpas was developed in Flanders (Belgium) and provides homeowners and their authorised representatives with comprehensive, evolving information on their dwelling's characteristics, including energy performance, installations, permits, soil, and overall housing quality- https://woningpas.vlaanderen.be/

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- Develop an EU roadmap for DBL standardisation, aligned with the FAIR principles, the EU Data Strategy, and integrate DBL governance with existing initiatives such as the common European Data Spaces—covering data quality, interoperability, and GDPR compliance.
- Clarify and harmonise legal provisions on data ownership, use, and liability to reinforce trust, accountability, and policy coherence in DBL implementation.
- Develop EU-wide semantic alignment and maintain the EU-funded cross-policy Common Data Dictionary for construction and real estate.

The use of the DBL Organisational Model can align governance, roles, and data-sharing arrangements for the implementation of the Affordable Housing Plan and the European Strategy for Housing Construction, ensuring that DBLs are deployed as interoperable connectors between digital permitting, Digital Product Passports, and other core building data systems across Member States.

Recommendation 4: Promote Adoption through Incentives and Mandates for the Market

Similar incentive schemes under the Renovation Wave have increased building renovation rates and private investment in energy-efficient upgrades. To create critical mass and ensure widespread implementation:

- Mandate DBLs for all public buildings, in line with EPBD recast obligations for public-sector leadership using public programmes as coordination hubs that connect authorities, practitioners, and data providers and apply DBL OM.
- Use the DBL Organisational Model to embed DBLs within key lifecycle trigger points—such as major renovations, property transactions, and renovation permit procedures—by clarifying governance arrangements, stakeholder roles, and data responsibilities across the building value chain.
- Enable financial-sector participation within the DBL Organisational Model, allowing banks and financial institutions to integrate DBLs into mortgage origination, renovation loans, and green financing schemes through trusted data access and verification mechanisms.
- Strengthen industry readiness through the DBL Organisational Model by supporting PropTech innovation, clarifying operational responsibilities, and embedding DBL-related training and guidance within national digitalisation and skills programmes.
- Align public funding and renovation incentives with DBL OM processes, ensuring that projects supported by EU or national programmes contribute structured data to DBLs and reinforce interoperable data governance.
- Coordinate these measures with the Energy Efficiency Directive (EED), Affordable Housing Action Plan, and Renovation Wave actions to reinforce legislative alignment.

Recommendation 5: Develop further a Participatory DBL Organisational Model:

Design a participatory Organisational Model that ensures structured and inclusive stakeholder engagement.

- It can be coordinated through national authorities, expert groups, and EU-funded initiatives, with a dedicated EU body managing implementation and integrating stakeholder input into governance, standards, and policy frameworks.

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The Organisational Model offers the European Commission a practical and strategic framework to translate the ambition of wider EU digital and green policies into a coherent implementation pathway. It is key to understand the DBL ecosystem to establish harmonisation and interoperability frameworks, ensure policy coherence, and efficient data governance across the EU. This approach transforms DBLs from a technical data tool into a strategic policy instrument—enabling transparent, evidence-based decisions and strengthening Europe's leadership in a green, digital, and resilient built environment. The value of the Organisational Model lies not only in improving access to building data, but in creating the conditions for innovation, investment, market transparency, and more effective public policymaking. If supported through clear governance, common standards, and integration with the emerging European data space landscape, DBLs can become a cornerstone of Europe's transition towards a more sustainable, competitive, and digitally enabled built environment.

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