Demo Blog

Unlocking the potential of digital building logbooks for a climate-neutral building stock

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Introduction

Reducing greenhouse gas emissions from the buildings and construction sector is crucial to achieving the European Union's goal of climate neutrality. Over a third of the EU's energy-related greenhouse gas emissions come from buildings, and the large material flows associated with construction and demolition further add to their environmental impact.[1] Meanwhile, the sector is marked by a low level of digitalisation and data availability.[2] Improved access to quality building data for stakeholders in the sector is key to unlocking a resource-efficient and economically viable transition to a climate-neutral buildings and construction sector by 2050.

The potential of a common repository for building data – a digital building logbook (DBL) – as a driver and enabler of improved resource efficiency in the sector has caught the interest of EU policymakers. **But is the EU policy framework fit to support a broad uptake of DBLs in Member States, and to fully leverage their benefits?**

This factsheet explains what a DBL is and how it can contribute to a wide range of societal goals, from climate and environment to public health, innovation and more. Second, it shows how DBLs have been integrated into EU policy, how they fit into the expanding array of building information tools, and what might be missing to realise their full potential.

What is a digital building logbook?

A digital building logbook (DBL) is a comprehensive repository of information that can be used for effective management and decision-making throughout a building's lifecycle.[3] It provides information on aspects such as design, construction, quality, and environmental and performance criteria. These logbooks are now commonly referred to as digital building logbooks. The concept has also been known by other names, such as building logbook, property logbook, building passport and (electronic) building file. [4]

A DBL contains building data and other information, which is used to generate value or benefit along the whole lifecycle of the building for various stakeholders. In both respects DBLs can be used as standalone tools, but they have been conceived, ideally, to interact with other tools such as building certificates, energy performance certificates (EPCs), renovation passports. DBLs can either store this data or act as a gateway to other databases. Similarly, they can have built-in functionalities or can interact with other tools to provide additional functionalities.

1 European Commission. (2023). Transition pathway for Construction (p. 10).
2 European Commission. (2019). Supporting Digitalisation of the Construction Sector and SMEs Including Building Information Modelling.
3 European Commission. (2020). Definition of the Digital Building Logbook.
4 Blum, A. (2001). "Building-Passport" – A Tool for Quality, Environmental Awareness and Performance in the Building Sector; RIBA. What Is A Property Logbook?; Global ABC and UNEP. (2021). The Building Passport: A tool for capturing whole life data in construction and real estate – Practical Guidelines; Lorenz, D. & Lützkendorf, T. (2008). Next generation decision support instruments for the property industry – Understanding the financial implications of sustainable building; DGNB. DGNB Building resource passport.

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Digital building logbooks in a nutshell

Essentially, the DBL makes building data functional: it makes data available, useful and meaningful to different stakeholders to match their needs and interests. Data for DBLs can originate from any point in the building's lifecycle. Multiple user groups interact with this data by feeding and retrieving information. DBLs categorise this data for convenience, ease of understanding, and ease of use. See figure 1 over the page.

What types of information do digital building logbooks contain?

A DBL can record administrative documents, construction drawings and costings, Building Information Models (BIMs), material inventories, data on technical systems, fire safety measures, and utility bills. It may also include instructions for operation, maintenance, repair, and end-of-life or end-of-use scenarios, as well as real-time data on water consumption, energy use, and indoor environmental quality. It can track major events and changes over time, such as structural alterations, updates to technical systems, property transactions and financing. Existing DBLs vary widely in terms of the data they contain and the stakeholders they address.[5] Some of them only focus on energy performance aspects while others have been developed for resource use and materials.

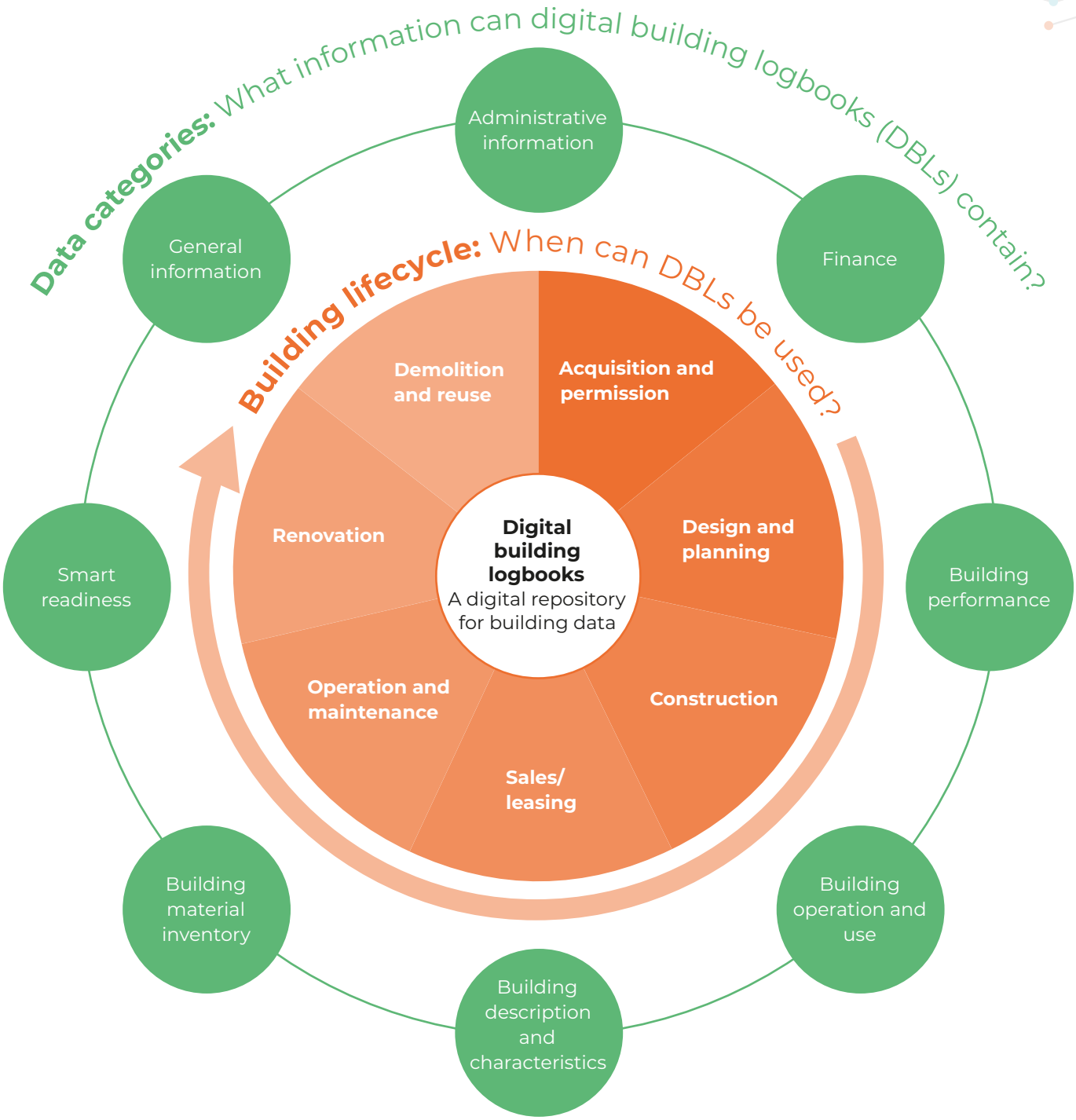
What are the functionalities of digital building logbooks, and what makes them useful for stakeholders?

DBLs facilitate secure information-sharing and enable informed decision-making among various stakeholders in the building sector, including building owners, policymakers, and financial actors.[6] They serve as a dynamic platform for capturing, storing and accessing data, information and documents. They promote regulatory compliance, quality assurance, and consumer protection. Furthermore, they function as a data hub, promoting transparency, trust, and competition in the market.[7] DBLs have various use cases. For example, they can provide building owners with safe access to their building-related data. Homeowners or energy performance assessors can generate high-quality automated renovation recommendations based on the information in the DBL or through the DBL's inbuilt tools. Financial actors can use this information for market and risk assessment and investment decision-making.

5 Hwang, S., Henk, V. & Straub, A. (2023). Hwang, S., Henk, V. & Straub, A. (2023). Report on DBL state of play. Available soon on the Demo-BLog website.

6 Lorenz, D. & Lützkendorf, T. (2008). Next generation decision support instruments for the property industry – Understanding the financial implications of sustainable building.

7 European Commission, R2M, VITO & BPIE. (2021). Study on the development of a European Union framework for digital building logbooks.



Who can interact with digital building logbooks and provide and access data?

- Building owners, tenants
- Facility managers
- Public authorities
- Energy assessors and auditors
- Architects
- Building professionals
- Researchers
- Financial institutions & more...

What can digital building logbooks be used for?

- Store and retrieve building-related data
- Generate automated renovation advice
- Engage with energy communities
- Generate decarbonisation roadmap
- Create secondary marketplace for reused materials & more...

Figure 1 – What is a digital building logbooks?

Examples of digital building logbooks

Currently, there are at least 31 building logbook initiatives operating in Europe, which are applicable to various building types and stakeholders.[8] The Demo-BLog project[9] aims to improve existing functionalities or introduce new ones in five DBLs with a total of 4.5 million registered units, catering to a wide variety of user groups. The table below presents the data categories, user groups, and uses (functionalities) of these DBLs, and the policy objectives they support.

Examples of European digital building logbooks participating in the Demo-BLog project

	Woningpas for single and multi-family buildings (Flanders, Belgium)	CIRDAX (Netherlands)	CLÉA for residential building-units (France)	CAPSA for residential buildings (Germany)	Chimni for residential buildings (UK)
Data categories	Data and status of the dwelling, plot and surroundings: information on energy performance including EPC label, renovation roadmaps and real energy use, insulation, installations, solar potential, soil, sewage system, water supply, flood sensitivity, building permits, mobility and overall dwelling quality.	A digital materials database which stores all kinds of information on building components and materials.	General dwelling information; minutes of general assemblies; invoices and house rules; user guides for heating, ventilation and air-conditioning (HVAC); news-blog; energy monitoring; energy split per use.	Smartphone app for data collection on-site and a cloud-based data (building logbook) platform.	Building geometrical and construction data.
User groups or stakeholders	Building owners (natural persons and/or housing companies).	Large real estate owners, governments and (semi-)public authorities.	Targeted to building owners and tenants, either as a direct customer or via real-estate managers.	Homeowners, asset managers.	Homeowners, asset managers.
Use of DBLs or functionalities	It has a digital safe for attestations, plans, relevant documents with the possibility to update renovation works and a check-tool on dwelling quality. The possibility to share individual Woningpas with authorised third parties and the wider public.	Provides a dashboard with information on building components and materials, which includes market value, CO2-value and the possibility to dismount.	(1) General dwelling information with data retrieved from cadastre through API; (2) a documents module for the storage of documents; (3) an equipment module that includes user guides for HVAC and devices, with maintenance alert functions; (4) news-blog curated by Qualitel; (5) an energy monitoring module with API for French smart meters Linky and GASPAR; and (6) the use of algorithms to show energy split per use, in accordance with French thermal regulations.	Estimating operational carbon, surface area, asset management support and the (semi-) automated calculation of decarbonisation roadmaps.	Estimating operational carbon, surface area, asset management support and the (semi-) automated calculation of decarbonisation roadmaps.
EU policy objectives achieved	Building decarbonisation; Renewable energy; Environmental management.	Circular economy; Recyclability of materials and products; Construction and demolition waste; Whole life carbon.	Information management; Spatial data.	Building decarbonisation; Renewable energy.	Building decarbonisation; Renewable energy.

Table 1 – Examples of digital building logbooks within the Demo-BLog project

8 Hwang, S., Henk, V. & Straub, A. (2023). Hwang, S., Henk, V. & Straub, A. (2023). Report on DBL state of play. Available soon on the Demo-BLog website.
9 Demo Blog project website.

Digital building logbooks as enablers of multiple policy objectives

The need to address the environmental impacts of the construction, use and renovation of buildings was highlighted in the European Commission's flagship communication on the European Green Deal[10] in 2019. Digital building logbooks' (DBLs) potential contribution to the Green Deal's objectives prompted the European Commission to assess ways of bringing them into the policy framework. This section maps how DBLs are integrated into the subsequent European strategies and action plans, and the resulting legislative and supporting initiatives. A timeline is found in Figure 2.

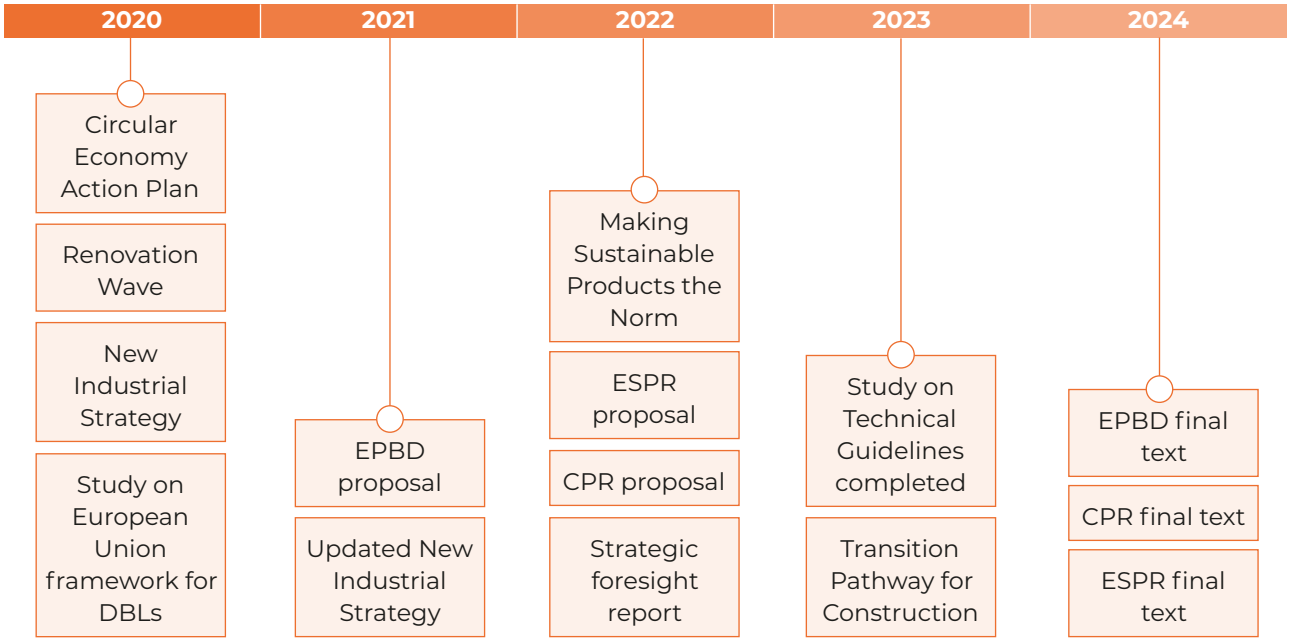


Figure 2 – Timeline action plans and subsequent policy relevant to digital building logbooks

Circular Economy Action Plan and Strategy for Sustainable Built Environment

In March 2020, the European Commission published its Circular Economy Action Plan (CEAP).[11] This was the Commission's blueprint for creating a framework of policies that would "make sustainable products, services and business models the norm", and it listed construction and buildings as one of seven key value chains to address.

The CEAP explicitly mentioned DBLs and acknowledged their potential to contribute to increased circularity in the buildings and construction sector. The planned course of action concerning DBLs was to develop a full **Strategy for Sustainable Built Environment** (SSBE) that would ensure coherence across all building-related policy areas, namely "climate, energy and resource efficiency, management of construction and demolition waste, accessibility, digitalisation and skills". This strategy would encompass the development of DBLs as a pivotal part of a sustainable built environment. The creation of the SSBE was also listed as a planned action in the Commission's New Industrial Strategy.[12]

However, the SSBE has not been published during the 2019–2024 Commission mandate. According to the Commission[13] in late 2020 though, some of the planned actions in the SSBE were frontloaded within other initiatives, such as the Renovation Wave.

10 COM(2019) 640 final.
11 COM(2020) 98 final.
12 COM(2020) 102 final.
13 Answer given by Mr Breton on behalf of the European Commission E-003497/2020(ASW).

Renovation Wave

In October 2020, a few months after the CEAP was released, but in a world that had dramatically changed due to the COVID-19 pandemic, the European Commission published the Renovation Wave (RW):[14] a strategic action plan aiming to boost the energy renovation rate of buildings.

The RW communication advanced the idea of DBLs in the EU policy framework and used the capitalised term 'Digital Building Logbooks', indicating that DBLs were now an established concept. The RW brought up DBLs in close connection with other building information tools and concepts, namely "Building Renovation Passports, Smart Readiness Indicators, Level(s) and EPCs". Although the wording in the planned action concerning DBLs leaves some room for interpretation, it is clear that the RW viewed DBLs as a tool for gathering and managing the accumulated data from these other initiatives, specifically in the context of boosting renovations.

Making sustainable products the norm

In March 2022, the Commission published another DBL-relevant communication "On making sustainable products the norm".[15] In this package of interlinked policy initiatives towards more sustainable products for the EU single market, the centrepiece was the proposal for a new Ecodesign for Sustainable Products Regulation (ESPR).[16]

The ESPR proposal put forward a new information tool called a Digital Product Passport (DPP). The link between DPPs and DBLs was mentioned in the ESPR impact assessment,[17] which was published together with the proposal. In the assessment, the Commission's ongoing work on DBLs was described as "closely related to the EU digital product passport". However, this document did not explain how the two initiatives should relate to each other.

In addition to the horizontal framework in ESPR, the communication announced that the sustainability of construction products would be further addressed in a revision of the product-specific Construction Products Regulation (CPR). In the accompanying explanatory memorandum, the Commission wrote that all information and documentation relating to the CPR "may be processed in digital form (e.g. Digital Product Passport)" which will "allow construction products' data to be stored in building logbooks and used for calculations required under other legislation (e.g. Energy Performance of Buildings Directive)".[18] This statement somewhat recalls the CEAP view of DBLs as a link between different parts of the buildings policy framework.

Strategic Foresight Report

In June 2022, the Commission published a communication regarding the 2022 Strategic Foresight Report: Twinning the green and digital transitions in the new geopolitical context.[19] The report examined the interactions between the green and digital transitions in five critical sectors, including construction. With regard to successfully achieving the twin transition in construction, it stressed that "digital logbooks and life-cycle analysis will be necessary to assess, report, store, and track information on whole-life emissions, and will help reduce the environmental impact of materials and help prevent the use of toxic ones."

14 COM(2020) 662 final.
15 COM(2022) 140 final.
16 COM(2022) 142 final.
17 SWD(2022) 82 final.
18 COM(2022) 144 final.
19 COM(2022) 289 final.

Transition Pathway for Construction

In March 2023, the Commission published a Transition Pathway for Construction (TPC):[20] a sector-specific concretisation of its Updated New Industrial Strategy[21] that was developed in collaboration with a group of key stakeholders. It highlighted how "proper integration among initiatives requires attention. For example, the interoperability [of DPPs and CPR databases] with BIM and building logbooks is a cornerstone for market utilisation". The recommended actions to address this were the development and subsequent use of the Commission's model and guidelines for DBLs.

Notably, the TPC explicitly brought up DBLs in the context of a new legislative initiative on asbestos screening. An action to "improve data availability on buildings' safety through a regulatory proposal for digital building logbooks" was listed.

Conceptual study and EU technical guidelines for digital building logbooks

Over the course of the policy mandate, the Commission has also funded two studies on DBLs to inform its policymaking and support implementation. A study on the development of an EU framework for DBLs[22] was concluded in December 2020; one of its main contributions was to provide a definition of DBLs for the policy context, which set the example for the definition of DBLs in the EPBD proposal.

Following the first study, the Commission further commissioned a technical study[23] to support the implementation of DBLs in Member States, which finished in November 2023. Its main outcomes were a set of technical guidelines on how to set up and operationalise DBLs in Member States under a common EU framework, and a semantic data model for DBLs.

Energy Performance of Buildings Directive

The planned action to introduce DBLs, which had been expressed in several communications, eventually translated into their establishment within the Energy Performance of Buildings Directive (EPBD). In 2021 the Commission published its proposal, and in April 2024 the final text was adopted.[24] This directive formally introduced DBLs into the EU policy framework, by providing a definition of them. The DBL definition included three principal functions of the concept: it is a data repository, a decision aid, and an instrument for information-sharing. This clearly expressed the main functions of the DBL as a policy-implementing tool. In addition, the EBPD established some basic criteria for the interoperability of DBLs with other building information tools and resources within the same directive (Articles 12, 16 and 22). These links are further discussed in the following section.

However, there was no provision in the EPBD that mandated the introduction of DBLs in Member States. Consequently, the provisions laying down links to other information tools were followed by conditional wording like "where available" (Articles 12 and 16). Implementation of DBLs is thus left to the discretion of Member States in their transposition of the EPBD.

2024 EPBD recast formally introduces digital building logbooks into the EU policy framework, by providing a definition of them. The DBL definition included three principal functions of the concept: it is a data repository, a decision aid, and an instrument for information-sharing.

20 European Commission/DG GROW. (2023). Transition Pathway for Construction.
21 COM(2021) 350 final.
22 European Commission/EASME. (2020). Study on the development of a European Union framework for digital building logbooks.
23 Ecorys. Technical study for the implementation of Digital Building Logbooks in the EU. [29-02-2024]
24 Directive (EU) 2024/1275 https://eur-lex.europa.eu/eli/dir/2024/1275/oj

Digital building logbooks position among other building information tools

How digital building logbooks (DBLs) are defined and described themselves is only one part of the picture. It is equally important to understand how they relate to other building information tools in the wider policy framework. This section lists several other building information tools and building-relevant data that are promoted in the EU policy framework, and explores their explicit or potential integration with DBLs.

EU policy information tools

Energy performance certificates

Energy performance certificates (EPCs) are the key documents in an established EU system for assessing and making available information on a building's energy performance. They indicate a building's energy performance using an energy class on a scale of A to G and provide a numeric value for its primary energy use. EPCs also provide cost-effective renovation recommendations for improving energy performance, including the steps required to implement them. They may also contain related information, such as energy audits, or financial incentives and funding possibilities for renovation. Following the EPBD 2024 recast, EPCs should be issued based on an on-site visit, be available in digital format, and display the lifecycle global warming potential (GWP) of the building. The intended link between EPCs and DBLs is described in the DBL definition in Article 2 of EPBD: "'digital building logbook' means a common repository for all relevant building data, including data related to energy performance such as energy performance certificates".

Building renovation passports

Building renovation passports are plans for the stepwise renovation of a specific building to significantly improve its energy efficiency. The introduction of building renovation passport schemes in Member States is supported by EPBD Article 12 Renovation passport, and a common framework is set out in an annex. By default, the use of building renovation passports should be voluntary for building owners, but Member States may choose to make them mandatory. Renovation passports may also be drawn up and issued together with EPCs. Renovation passports' connection to DBLs is explicit in EPBD Article 12.8, which reads: "*Member States shall ensure that the renovation passport is stored in, or can be accessed via, the digital building logbook, when established*". They are also listed in the DBL definition.

Smart readiness indicators

Smart readiness indicators (SRIs) are a voluntary scheme intended as a way of measuring a building's capacity to adapt aspects of its operations – e.g. energy use – to the needs of its occupants and the grid. The precise definition of SRIs and the methodology with which they should be calculated will be detailed in secondary legislation. SRIs are listed as another example of relevant building data in the EPBD definition of DBLs.

Digital product passports

Digital product passports (DPPs) were formally established in the EU policy framework through the new ESPR[25]. This will require manufacturers and importers to make available a "set of data" in easily accessible digital form for any product they place on the EU single market, including construction products, appliances, components of technical systems, and just about any other product found in buildings. ESPR provides the outlines for DPPs, while the precise type of information to be included in them will be determined by product-specific and secondary legislation.

In the case of construction products, the new CPR[26] draws up conditions for a "Construction digital product passport system" that should build on the DPP framework in ESPR "without compromising interoperability with Building Information Modelling (BIM) while taking into account the specific characteristics and requirements related to construction products".

25 Regulation (EU) 2024/1781

26 Based on the final compromised text on the revision of the Construction Products Regulation, February 2024

The potential benefits of integrating DPPs and their data with DBLs were raised in the accompanying documents of the ESPR and CPR proposals. However, there are no provisions in either regulation to promote this integration.

Taxonomy criteria

The EU Taxonomy Regulation[27] and its related implementing and delegated acts is a classification system for environmentally sustainable economic activities, which is intended to help to direct financial investments towards projects and activities that are aligned with the EU's climate and environmental goals. This includes substantial contributions to the transition to a circular economy, and environmentally sound management of construction and demolition waste. To be eligible for such 'green' investments, projects must comply with certain criteria. DBLs could work as a platform to provide data and functionality that demonstrates compliance with the Taxonomy criteria, and smooth sharing of this data with the relevant institutions. Although financing is a key component of the transition, this potential link to DBLs is not yet explicit in the policy framework.

Databases and data sharing

Databases for the energy performance of buildings

The EPBD requires Member States to establish a national building energy performance database, which will collect data from various sources, including EPCs, inspections, renovation passports, SRIs and energy consumption records. It will also collect and store data on operational and embodied emissions, as well as total lifecycle global warming potential. To increase the coherence, consistency and usefulness of the information, this database will be interoperable with other databases, such as the DBLs, and the data will be machine-readable and accessible via a digital interface. Building owners, tenants and managers will have free access to parts of this database, such as the EPCs, and building owners will be able to grant access to other users, such as financial institutions. Local authorities can access energy performance information to help them develop cooling and heating plans.

Data on operational energy and energy costs

The Energy Efficiency Directive[28] articles 13–18 lay down rules around billing and metering of gas, heating and cooling, and domestic hot water that, when implemented, will increase granularity of and access to data on energy consumption and the related costs for households. Among other things, it supports individual metering of household consumption in buildings that are centrally heated, requires all new energy meters to be remotely readable, and ensures that customers have access to billing information in digital format. This is yet another example of a policy-supported building-related data stream that could be integrated with DBLs.

Data on construction and demolition waste

The construction sector is the source of over a third of the waste generated in the EU, and the recycling potential of this waste stream is generally underutilised.[29] The main EU legislative initiative to address this priority waste stream is the Waste Framework Directive,[30] originally from 2008 and amended in 2018. Better availability of data is a key enabler in this context. Accurate data facilitates selective demolition and safe handling of hazardous materials, which in turn supports material recovery and reuse, and environmentally sound management of residual material. DBLs have a key role to play towards these objectives.

Data exchange

Article 16 of the EPBD deals with data exchange. It mandates Member States to provide free and direct access to "building systems data" for building owners, tenants and managers. Building systems data primarily include all readily available data related to the energy performance of building elements and services, heating and cooling systems, building automation and control systems, meters, e-mobility points,

27 Regulation (EU) 2020/852
28 Directive (EU) 2023/1791
29 European Commission. Construction and demolition waste. [2024-02-16]
30 Directive (EU) 2018/851

and other measuring and control systems. Where available, these data can be linked to the DBL. The rules for data management and exchange should comply with international standards and management formats for data exchange, as well as the legal framework of the Union, such as the General Data Protection Regulation (GDPR).

Other buildings software and tools

Environmental product declarations

Environmental product declarations (EPDs) are summaries of a product's lifecycle environmental impact that manufacturers can publish on a voluntary basis. EPDs include information on embodied carbon and other environmental impacts of construction products, and they are created according to the European standard EN 15804 plus complementary product-specific rules. The current system for EPDs is marked by a lack of harmonisation.[31] Quality data on lifecycle impact will become more sought-after because it is needed to perform whole-life carbon assessments of buildings. EPDs are yet another building-related data source that could be integrated into DBLs to facilitate data collection and sharing.

Building information modelling, digital twins and geospatial information models

Building information modelling (BIM) facilitates a structured and systematic flow of information throughout the lifecycle of a building among various stakeholders in the construction industry.[32] Most commercial and open BIM software can generate construction drawings, an inventory of building materials and components, and realistic 3D graphical and functional representations of buildings (also called digital twins). Governments across the EU often encourage the use of BIM, which is considered equivalent to Industry 4.0 for manufacturing and is crucial in facilitating the digital transition in the buildings and construction sector.[33] The definitions of BIM and DBLs may appear similar, but they are not the same.[34] However, integrating BIM models within DBLs can significantly enhance data and improve the information capabilities of DBLs. A geographic information system (GIS) is another important digital tool for spatial mapping that can be integrated within a DBL.

Lifecycle assessment of buildings

The lifecycle assessment (LCA) of buildings is a method for measuring their environmental impact. The calculation method for assessing the environmental performance of buildings is provided by standards such as EN15978. There are different methods for calculating LCA and corresponding environmental and social indicators,[35] using various open and commercial LCA databases and calculation tools.[36] Research on BIM and LCA is currently being carried out to facilitate their smooth and automatic integration.[37] DBLs can be linked with LCA databases and tools either independently or as part of BIM integration. This makes DBLs a comprehensive information tool for assessing the environmental impact of buildings.

Links between tools

In the EPBD, EPCs, renovation passports and SRIs are explicitly listed as examples of building-relevant data that will be accessed via DBLs. It also mandates the creation of databases for the energy performance of buildings that will collect and store these data. These links to DBLs are formalised in the policy framework. Regarding other tools such as DPPs, possible links have been discussed, but they have not been articulated in the framework. Finally, additional benefits could be reaped by linking tools that are currently more peripheral, and where no integration with DBLs is being discussed by policymakers. Figure 3 illustrates how DBLs could be integrated with an array of building-related data supported not just by the EPBD but across a broad range of policies from the EU framework, as well as from commonly used building information software.

31 BPIE. (2021). Addressing the hidden emissions in buildings.
32 Borkowski, A.S. (2023). A Literature Review of BIM Definitions: Narrow and Broad Views.
33 EU BIM Observatory. (2019). Analysis of BIM adoption processes in 11 different European countries.
34 Ecorys, TNO, Arcadis & Contecht. (2023). Technical guidelines for digital building logbooks.
35 Dos Santos Gervasiom, H. & Dimova, S. (2018). Model for Life Cycle Assessment (LCA) of buildings.
36 openLCA Nexus, Sustainable Facilities Tool & European Platform on LCA.
37 Guilherme, G., João, L.C., Darli, V. & Alencar, B. (2023). BIM and LCA integration methodologies: A critical analysis and proposed guidelines.

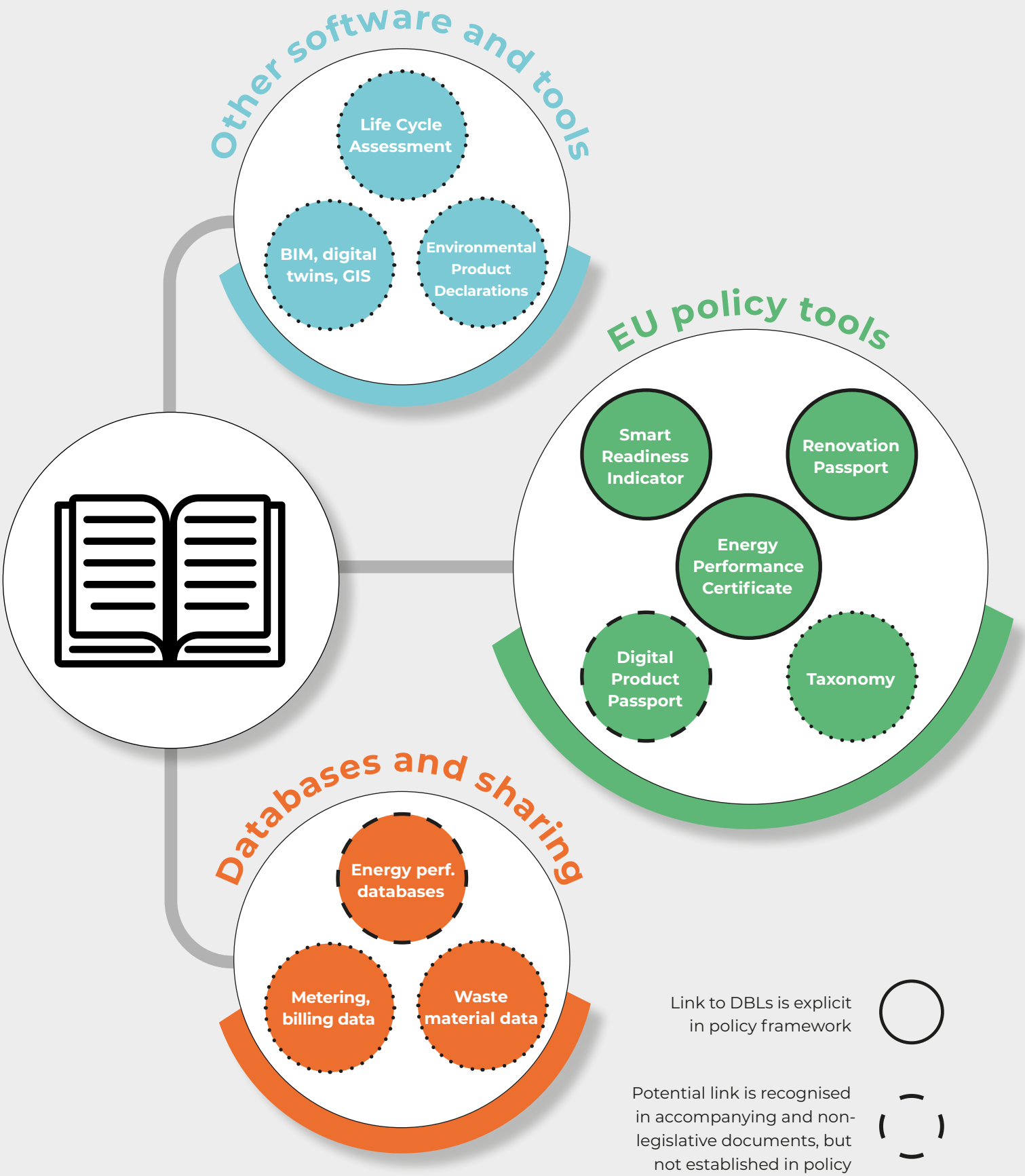


Figure 3 – Digital building logbooks' links to other building information tools and resources.

Is the policy framework fit for purpose?

Policymakers have envisioned digital building logbooks (DBLs) as cross-policy tools that should have a central role in delivering sustainability in the built environment in a broad sense, far beyond the energy performance of individual buildings. For several years, the European Commission has dedicated resources towards exploring and developing DBLs as a tool for achieving improved energy performance, resource efficiency, transparency and public health, and as a basis for more informed investment decision-making and reporting and disclosure. It has recognised the potential of DBLs in its strategic policy action plans and has funded studies to define the DBL concept and data model. However, the delivery of the vision for DBLs is unfinished – more action is needed to complete it.

In the EU buildings policy framework as it now stands, DBLs are deployed as a voluntary repository for data on building energy performance. Bringing DBLs into the legislative text of the EPBD and providing a definition is undoubtedly a step in the right direction towards utilising them as a tool for policy implementation. The EPBD also addresses building data management and exchange and supports controlled sharing of data with legitimate stakeholders. These aspects are crucial for well-functioning DBLs, and are key enablers for new services and circular business models that deliver data-driven resource efficiency. DG GROW has provided optional technical guidelines and a data model – that further detail the data management and exchange aspect of DBLs – as a complementary action to support the uptake of DBLs in Member States.

However, there are several challenges and risks left to address to unleash the full potential of DBLs: there is a need to improve integration with circularity policy strategies and other policy areas, to prevent conflict and fragmentation among related policy tools, and to give a clear mandate to Member States.

Support cross-policy integration

The benefits of improved data management in the buildings and construction sector are not limited to improving the energy performance of individual buildings. DBLs can contribute to emissions reductions, environmental protection and social benefits throughout the whole lifecycle of a building, including selection of construction materials, financing of renovations, environmentally sound waste management, innovation, health and safety, and more. In addition, it can help foster a neighbourhood approach instead of a single-building approach to, for example, energy supply and mobility.

The Circular Economy Action Plan and its vision of DBLs at the centre of a broad strategy for a sustainable built environment recognised this potential, but the vision has not been translated into policy action beyond the context of the energy performance of buildings. Perhaps the most obvious missing link exists with regard to circularity policies, where DBLs have great potential to contribute to improved resource efficiency.

Given the numerous interlinked policy areas where DBLs can be used for implementation, a coordinated and strategic approach to the transition in the built environment across all the initiatives involved is needed.

The Commission should develop a comprehensive vision for DBLs' as part of a strategy for a sustainable built environment, and roadmap for DBL integration with policy areas beyond energy performance of buildings.

Existing links between policies and DBLs focus on the data supply side, where DBLs function mostly as a repository for data and documentation generated from the policy tools in the EPBD. Next, DBLs have a role to play on the data demand side of policy implementation. They could facilitate administration, foster compliance and alignment, and ensure smooth delivery of policy objectives relating to e.g. construction waste management and financing sector transition. Notably, DBLs are likely crucial as a smooth and cost-effective way for stakeholders to prove compliance with EU Taxonomy technical screening criteria and to fulfil disclosure obligations under the EU Sustainable Finance Disclosure Regulation (SFDR) and Corporate Sustainable Reporting Directive (CSRD). Demonstrating the value of DBLs to stakeholders on the data demand side can also raise the appeal of DBLs and contribute to mainstreaming them.

Stakeholders from the financial sector could be made more aware of DBLs' potential if this opportunity was presented as part of guidance on requirements for Taxonomy compliance.

The Commission should provide guidance on documentation and validation of Taxonomy compliance and ESG reporting for financial institutions, to enable the development of DBL functionality for this purpose.

Align building information tools

A concrete issue on the theme of cross-policy integration is the need to align the various building information tools and clarify their relationship to each other as well as to DBLs. There is an armada of information tools and policy provisions aiming to increase the availability of and access to various types of building-related data that can contribute to an efficient, equitable and climate-neutral transition of the buildings and construction sector. DBLs have a crucial role to play as a single interface for easy access to and control over all this information, while safeguarding data privacy. For this to work, all information tools – not just those in the EPBD – need to be interoperable with DBLs. Special priority should be given to digital product passports, environmental product declarations, and data on construction waste.

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There is nothing in the EU policy framework that hinders Member States from integrating national DBLs with tools beyond the EPBD, but there is also nothing encouraging them to do so. As Member States now start implementing the directives, there is a risk that DBLs merely become treated as a user interface and data repository for EPCs and renovation passports, and that integration with other building-related data is deprioritised or overlooked.

The Commission should support effective data management between different initiatives, and make sure all building-relevant data tools become interoperable with DBLs in due course.

Another aspect of coordinating the numerous building information tools and initiatives in the EU framework is to make sure they are complementary and not conflicting or overlapping. In the case of EPCs and renovation passports, which both have explicit links to DBLs, there are still grey areas with regards to their respective domains and interlinkages. EPCs must include recommendations for energy efficiency improvements of the building. Renovation passports also include recommendations to building owners, but unlike EPCs they should provide a full roadmap of stepwise interventions to eventually reach a zero-energy building. Both EPCs and renovation passports are listed as examples of building-relevant data in the DBL definition, but only renovation passports come with an obligation for Member States to ensure interoperability with DBLs (when established).

The EPBD states that the renovation passports should substitute the recommendations in the EPC when these are issued jointly, but there is room for more clarity from the Commission on how these tools should relate to each other in practice. Such clarity is needed to ensure buy-in from all concerned stakeholders, ranging from Member State implementing agencies down to private individual homeowners.

On a related note, there are already existing stakeholder ecosystems of businesses, government agencies

and citizens, and data infrastructure, like databases, for the management of EPCs and building energy performance data in Member States. An immediate question as DBLs are introduced is how they should be linked to these existing structures, technically and legally, in order to create complementarity and synergy and avoid overlap between different building information policy tools. A more precise description of the relationship between closely related tools is needed to ensure they complement each other instead of conflicting.

The Commission must distinguish definitions and clarify the relationship between building renovation passports and DBLs to ensure there is no (perceived) conflict or overlap, as well as clarify DBLs' relationships and integrations with existing structures for building data related to energy performance.

Give Member States a clear mandate focusing on priority policy objectives

While the EPBD defines what a DBL is and suggests how it may be used, a clear mandate to Member States for the roll-out of DBLs is still needed; one that ensures that DBLs are fit for their purpose of supporting a climate-neutral and resilient building stock.

The absence of such a mandate may not have hindered the emergence of DBLs, but a clearer direction is needed for their even uptake, harmonisation and adequacy. There are already a number of DBLs available in the EU. Some of these are aligned with the uses, functionalities and interlinkages suggested in the EPBD, such as Woningpas, CIRDAX, CLÉA, CAPSA and Chimni. However, DBLs are far from available for all EU buildings. In addition, the proliferation of existing DBLs is fragmenting data exchange and stakeholder collaboration along the value chain, which is arguably contrary to their purpose. To support the development of DBLs that are fit to deliver on societal goals, a clear mandate to Member States is necessary; one that ensures their availability for all buildings within a reasonable timeframe. The Commission should also guide Member States not only on technical protocols but also by setting some priorities with regards to functionalities that have a clear link to the prioritised policy objectives.

These priorities should include:

- Improving the energy performance of buildings, including at a neighbourhood level, by sharing assets and exchanging energy.
- Facilitate embodied carbon assessment and capping in the buildings and construction sector.
- Enable improved circularity, e.g. by reuse, recycling and sound waste management of construction material.
- Contribute to de-risking investments towards a climate-neutral and resilient building stock.
- Increase the overall transparency of the sector.

Each of these objectives will require that DBLs have certain data points and functionalities. This should be the basis for the guidance to Member States. Other aspects to be considered in such guides are privacy and data protection.

The Commission should give a clear mandate to Member States to ensure availability of DBLs for all buildings within a reasonable timeframe. It should also guide Member States by setting priorities with regards to functionalities that have a clear link to prioritised policy objectives.

Setting priorities will not hinder Member States or market actors from operating DBLs with additional functionalities. However, it will ensure that all building owners get access to DBLs that meet minimum criteria. This will enable DBLs to function as policy implementation tools and be interoperable with the relevant data infrastructure.

Summary and recommendations

DBLs can be effective enablers and accelerators of the transition to energy efficient, climate neutral, affordable and healthy buildings. As interoperable hubs for all building-relevant information, DBLs can help overcome the current fragmentation of data and lack of transparency in the sector. This would unlock new opportunities for improved energy performance, circularity, and smartness through informed decision-making. But their benefits go far beyond climate mitigation objectives: DBLs can also improve access to financing for renovations for low- and middle-income households by providing financial institutions with key data, protect human and environmental health by monitoring the presence of hazardous materials, and support the emergence of new data-driven business models in the real-estate industry. In short, they have a critical role to play in a transparent and more sustainable real estate and construction sector.

The 2024 EPBD recast introduced DBLs into the EU policy framework, by providing a definition and promoting links between DBLs and other information tools and resources relating to the energy performance of buildings. This marks a significant step forward for DBLs. Now, we must capitalise on this momentum to fully realise the multifaceted potential of DBLs as a policy and market tool.

Recommendations for the European Commission:

- Develop a vision for DBLs' role in a sustainable built environment and roadmap for cross-policy integration, exploring specifically their contribution to climate neutrality and circularity, as well as policy objectives within financing and health.
- Ensure effective data management between initiatives from various policy areas, and interoperability of all building-relevant data tools with DBLs.
- Provide guidance on documentation and validation of Taxonomy compliance and ESG reporting for financial institutions, enabling the development of DBL functionality for this purpose.
- Distinguish definitions and clarify the relationship between building renovation passports and DBLs to ensure there is no (perceived) conflict or overlap, and clarify DBLs' relationships and integrations with existing structures for building data related to energy performance.
- Give a clear mandate to Member States on DBL implementation, ensuring their fitness to deliver policy objectives and preventing data fragmentation.

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