



European
Commission



DBL

**DIGITAL BUILDING
LOGBOOK**



Final event to present the Technical Guidelines and project results

Meeting report of the Final Event of the
DBL Study

DBL Study Team / 26 September 2023 / online

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Morning session

Opening of the morning session on the DBL Guidelines and other EC initiatives

Mr. Andreas PAUER, Project Director, Ecorys

Mr Andreas PAUER opened the morning session acknowledging the significant milestone of the final event after 18 months of intensive work. He expressed pride in the project team's efforts and gratitude for the substantial contributions from the stakeholder community throughout the project, recognising the demanding nature of the project.

The aim of the study, as reiterated by Mr PAUER, was **to develop an EU model for digital building logbooks (DBLs) to enhance data sharing within the construction ecosystem**. The main outputs are an EU semantic data model for DBLs and technical guidelines for DBL implementation in Member States.

In a quick overview, Mr PAUER highlighted the consortium members — Ecorys, TNO, Arcadis, and Contecht — and the timeframe for the project from April 2022 to October 2023. He then outlined the day's agenda, emphasising the dense program that includes presentations on technical guidelines, discussions on further use and uptake, updates from the European Commission (EC) on relevant initiatives, exchanges on DBL development with Horizon projects, and updates on DBL activities in Member States.

The floor was then passed to Mr Gwenole COZIGOU for the opening remarks from the EC.

Opening remarks by the European Commission

Mr. Gwenole COZIGOU, Director, Ecosystems III: Construction, Machinery and Standardisation (GROW.H)

Mr Gwenole COZIGOU underscored the project's significance for the Commission's objectives, especially in addressing climate change policies. As the director in charge of construction engineering industries, machinery, and standardisation, he emphasised **the crucial role of digitisation in the construction ecosystem for sustainability**. Recognising the need for harmonisation and standardisation, he commended the efforts to achieve interoperability across systems and the building value chain.

Further, Mr COZIGOU highlighted the support of the Commission for the DBL project, seeing it as a tool benefiting all stakeholders. He anticipated presentations on the DBL framework, including data structure and a dictionary, as well as technical guidelines for Member States. Emphasising the expected contribution to harmonised DBL development, he welcomed the DBL experts joining the event and thanked the entire consortium.

Mr COZIGOU acknowledged the practical success of collaboration and urged continued efforts by DG GROW and other Commission services based on the suggestions presented during the event. He stressed the essential role of DBLs in supporting policy priorities and invited ongoing collaboration, including participation in the High Level Construction Forum. To close, Mr COZIGOU invited continued engagement for the essential effort towards harmonised development of DBLs in the EU.

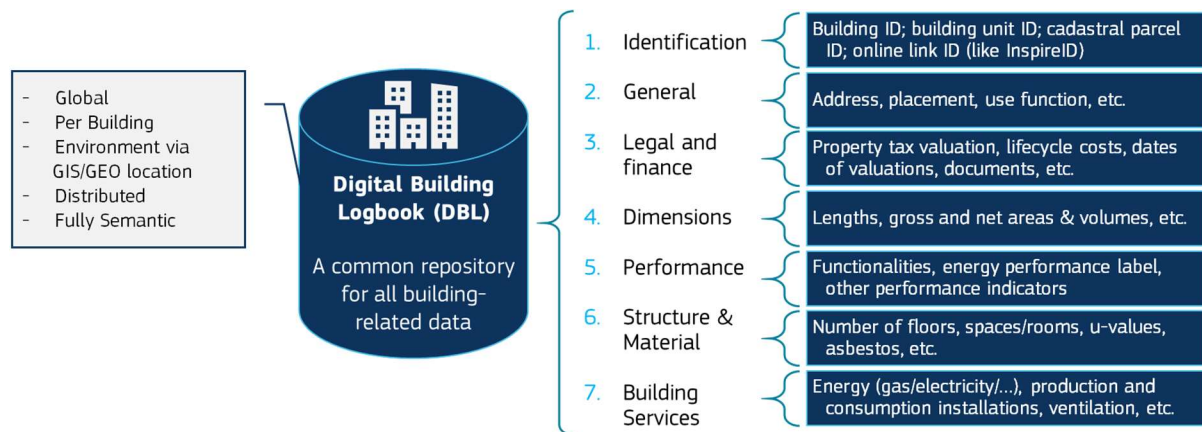
Introduction to the DBL Framework

Mr. Andreas PAUER, Ecorys, Project Director

Mr Andreas PAUER provided a comprehensive introduction to the DBL Framework, emphasising its roots in a previous study that identified the need for an EU harmonisation and standardisation process. The primary objective was to establish a semantic data model for the core elements of a DBL. The **DBL semantic data model** comprises two key components: **an ontology specifying concepts and interrelationships, and a dictionary providing terminology and definitions.** Crucially, it is a voluntary core model, focusing on buildings, building units, and cadastral parcels, while it excludes infrastructure. It builds on existing semantics, particularly from the INSPIRE initiative, and makes technological choices in the use of linked data.

The DBL itself consists of various properties (see Figure 1), most of which are voluntary and depend on data availability, except for building identification which is mandatory for the DBL to work. Other properties include general, legal and finance, dimensions, performance, structure and material, and building services. These dimensions aim to capture diverse information within the system.

Figure 1 Overview of the DBL framework



The focus of the DBL is at the Member State level, intending to support the development process, and also to provide initial thoughts about EU-level integration. Mr PAUER emphasised that the long-term vision and discussions about the integration of DBLs at the EU level are ongoing, but the study specifically concentrated on supporting DBL development at the Member State level.

Finally, to avoid confusion in terminology, Mr PAUER explained that a DBL is at a higher level than a building information model (BIM), building material passport (BMP), or digital product passport (DPP). While interconnected, these concepts are distinct and should be treated as such in discussions.

The stage was then set for detailed discussions and presentations on the DBL framework, with Mr PAUER handing over to the next speaker to cover the first topic.

Topic #1: Why digital building logbooks matter

Mr. Michael FLICKENSCHILD, Ecorys, Project Coordinator

Mr Michael FLICKENSCHILD provided a comprehensive overview of the importance of DBLs and discussed the following benefits of DBLs:

- **Single point of entry:** DBL serves as an integrator, offering a centralised point for verified and trusted building data. It enables the combination and interlinking of different types of data from various databases.
- **Improving data quality:** DBL contributes to enhancing data quality, reliability, and standardisation. The DBL framework is designed to connect existing databases, fostering interoperability.
- **Regulatory compliance:** DBL supports regulatory compliance by providing standardised methods for data collection, storage, and reporting.
- **Informed decision-making:** Public authorities in Member States and other actors can utilise the national DBL portal to better track the state of the built environment. It thereby facilitates data-driven decision-making for authorities, companies, and individuals, offering a comprehensive view of the building stock.
- **Transparency and accountability:** DBL promotes transparency and accountability in the construction ecosystem, providing a level playing field and supporting the development of new business models.

Mr FLICKENSCHILD further highlighted the political context, emphasising that the European Commission is also focusing on longer-term perspectives. In this regard, numerous policy initiatives, key goals, and priorities are being considered. **The Renovation Wave** highlights the crucial role of DBLs in integrating all kinds of building-related data, where the goal is to ensure compatibility and seamless integration of data throughout the entire renovation journey. In the context of the **Circular Economy Action Plan**, there is a call to develop DBLs to actively promote circularity principles throughout the lifecycle of buildings in line with the ‘Circular Economy Principles for Buildings Design’ as well as using Level(s) to integrate life cycle assessment in public procurement. Furthermore, the **EU Climate Adaption Strategy** recognises DBLs as a valuable tool for better-integrating climate resilience considerations into the construction and renovation of buildings.

Regarding life cycle management, Mr FLICKENSCHILD discussed how DBLs can support the entire life cycle of buildings, from design and construction to exploitation and demolition. He emphasised the potential for DBLs to facilitate a data-driven approach to life cycle management, including aspects such as maintenance, inspections, and the reuse of building materials.

Mr FLICKENSCHILD closed his presentation by providing an overview of the technical guidelines to guide EU Member States in establishing and operationalising DBLs. The guidelines focus on four different levels: practical implementation, technical aspects, and economic and legal considerations, with a focus on specific steps and explanations for Member States. The final version of the technical guidelines is expected to be shared in November.

Topic #2: Presentation of the Technical Guidelines for Member States

Mr. Michel BÖHMS, TNO

Mr Michel BÖHMS began by addressing the broader context of digitalisation in the construction sector, particularly emphasising the application of DBLs beyond buildings to various asset types, including infrastructure. He introduced a value chain matrix, emphasising the **life cycle phases of assets** from programming and design to construction, operation, and eventual demolition/recycling. Each

phase involves its own supply chains, and he highlighted the importance of considering the decomposition of assets in understanding the broader built environment.

Next, Mr BÖHMS delved into the **layers of the built environment**, identifying key entities such as parcels, buildings, and building units. He related these to GIS, BIM and DBL, emphasising the interplay between make and buy, traditional materials, and emerging prefab technologies. The focus is on buildings and building units with consideration for all life cycle phases. Mr BÖHMS stressed that data in the DBL can originate from requirements, designs, construction details, and ongoing operational management.

In the subsequent section, the discussion shifted to the practical use cases of the DBL. Mr BÖHMS identified two key scenarios: **data exchange** and **data sharing**. While data exchange involves transferring data between systems, data sharing, which is the preferred scenario, often implies a common data environment where the latest information is accessible and ensures a single source of truth. It was noted that data exchange is relevant during transitions, like ownership change during the handover from contractor to client, but overall, data sharing is crucial for the entire life cycle for better decision-making.

Mr BÖHMS then progressed to the importance of combining communicated data for comprehensive analysis and decision-making throughout the life cycle. He envisioned a scenario where the data quality improves, making more data available for informed decision-making. Interoperability becomes a focal point, with discussions on horizontal and vertical interoperability (portability) and their benefits, including independence from specific software or platforms.

The concept of **FAIR data** was introduced in the context of interoperability and portability. *Mr BÖHMS* outlined four layers of FAIR data—findable, accessible, interoperable, and reusable. Each layer addresses different aspects, from basic accessibility to common syntax and common semantics enabling reusability. He emphasised that achieving the highest layer, reusability is challenging but essential for the intended purpose.

Moreover, Mr BÖHMS highlighted the need for **interoperability and portability** to make the system scalable. He stressed the importance of a FAIR data approach to achieve this scalability, linking it to interoperability issues. The European Interoperability Framework is referenced as a guide for different types of interoperability, emphasising technical, syntactic, and semantic aspects.

Mr BÖHMS continued by delving into the technical details of the project, including the adoption of a **linked data / semantic web approach** for interoperability. He explained the development of an ontology and a dictionary to facilitate data sharing and communication within the DBL framework. He briefly showcased the structure and organisation of these elements, such as property groups and key concepts.

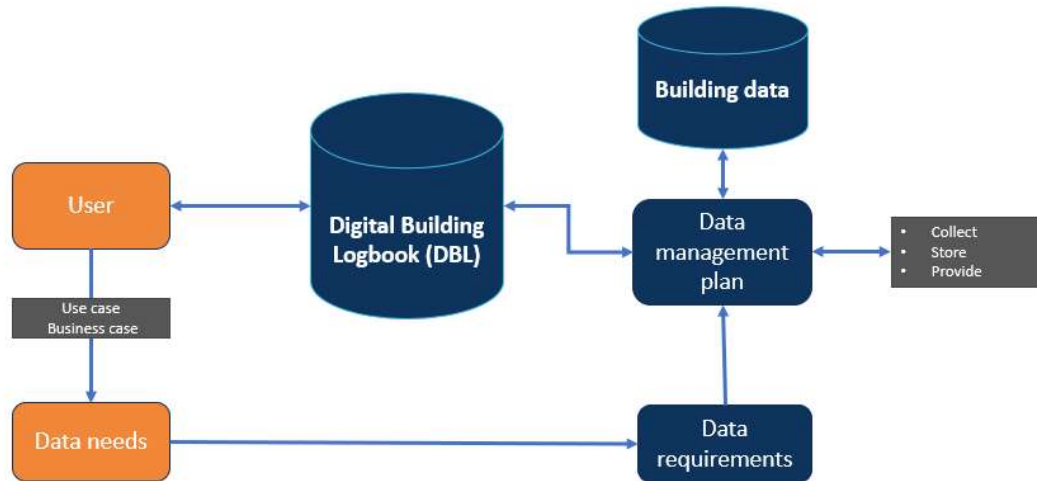
Mr BÖHMS concluded with a focus on the practical implementation of the ontology and dictionary. Steps were outlined for national authorities to adopt and extend the ontology for their specific needs, and Mr BÖHMS emphasised the importance of language and format knowledge and highlighted the support available in the technical guidelines. Finally, he set the stage for the next speaker, *Mr Tom BORST*, who would address the usage and relevant use cases of the developed framework.

Mr. Tom BORST, Arcadis

Mr Tom BORST delved into the significance of the data management plan within the context of the digital building logbook project. He emphasised that the **data management plan** serves as a repository for pertinent building data, outlining how it is collected, stored, and provided over the lifecycle of the digital building logbook. He underscored the diverse goals of users accessing the

logbook, each with their unique business cases or use cases, and highlighted the iterative process where users identify data needs that, in turn, inform the requirements for the data management plan (Figure 2).

Figure 2 DBL from the user's perspective



Mr BORST then categorised DBL users into distinct groups, each with specific needs and perspectives on building data:

- **Governmental agencies:** Require DBL for policy insights, license issuance, regulation enforcement, and disaster management.
- **Construction sector:** Needs DBL for obtaining and reporting building-related data, encompasses varied sub-groups.
- **Building owners and users:** Rely on DBL for collecting building information, and aiding in exploitation, maintenance, and updates through service providers.
- **Financial institutions:** Utilise DBL for formula-based analysis, gaining insights into the assets market, and improving transparency and data quality for building transactions.
- **Utility companies:** Depend on DBL for planning installations, maintenance, and potentially providing aggregate data on energy performance.

He emphasised that these groups have direct or indirect relationships with each other. Mr BORST then proceeded to present various use cases, illustrating how the digital building logbook can interact with different entities. Short-term gains can be achieved by analysing existing processes, while long-term developments open up new business cases as the logbook evolves.

Next, Mr BORST provided concrete examples of use cases, distinguishing between interactions with the DBL and general business processes. He advocated analysing existing processes to identify areas where the DBL can bring advancements. Looking ahead, as the DBL matures, new business cases can emerge, positioning it as a valuable data provider.

Mr BORST then continued by underscoring the importance of a comprehensive data management plan, detailing how data is collected, stored, and provided throughout its lifecycle. He introduced aspects such as data collection, storage, and accessibility, emphasising the need for a checklist to address potential data issues. He further elaborated on the close relationship between data management and use cases, emphasising that effective data management is guided by use case

requirements. He broke down key components, including data collection, organisation, integration, access and security, analysis, confidence and compliance, highlighting their role in supporting specific use cases.

Furthermore, Mr BORST reiterated the importance of specifying the management of digital building logbook data in terms of standard systems, communication, and organisation. He proceeded to discuss some additional aspects of data quality that extend beyond the previously covered FAIR principles, which include: data accuracy, completeness, consistency, timeliness, validity, uniqueness, precision, relevance, security, and usability.

Finally, Mr BORST introduced the user portal of the digital building logbook. He showcased potential website examples, illustrating the European Commission's ambition to create a platform for collecting relevant information and providing access to building data. He concluded by walking through steps such as finding building information, accessing underlying documents, and searching building data with filters.

Discussion on the technical guidelines

Mr FLICKENSCHILD thanked Mr BÖHMS and Mr BORST for their introduction to the technical guidelines, emphasising the importance of interoperability, technological choices, and data management. He then opened the floor for discussions with participants.

Ms Marta GALISTEO from Cíclica Arquitectura in Spain was invited to share her thoughts, and she **commended the complexity and adaptability of the DBL for Member States**. She expressed the challenges of working with semantic web technology but found it beneficial. She highlighted the importance of building complex entities and social categories in the Spanish context, and she appreciated the collaboration and hoped for the application of DBL in Europe. Following Ms GALISTEO's input, Mr BÖHMS discussed the DBL as an evolving model, emphasising the need for alignment with other programs and directives. The discussion touched on the challenges of incorporating labels related to energy efficiency and the importance of further linking to existing standards.

A question was raised concerning the **relationship between the DBL and the digital product passport**. In response, Mr BÖHMS emphasised the distinct roles of DBL and digital product passports, where he saw DBL as a common entrance linking various data types rather than duplicating efforts and emphasised the need for alignment and harmonisation between different initiatives.

In response to a question regarding **data accuracy and transfer from the actual building to the DBL**, the challenge was highlighted concerning data validation and ensuring the correctness of the information. Mr BÖHMS discussed data verification and validation, distinguishing between static and dynamic data. The importance of formal processes for data compliance was emphasised. Mr BORST added that a single source of truth and responsibility from data owners is crucial.

Next, Ms Carolina KORONEN from the Building Performance Institute of Europe raised a question about how the technical guidelines for DBLs translate to different stakeholders in the construction sector. She emphasised the need to understand the **roles and responsibilities of stakeholders** in implementing DBLs. Mr Martin VAN DER ENDE clarified that the technical guidelines primarily target Member States, emphasising their voluntary nature and the need for Member States to take the initiative in developing DBLs. He highlighted the importance of building a prototype and incorporating feedback from stakeholders to improve the logbook. Mr BÖHMS added that while the guidelines are generic, there may be a need for specialised guidelines for specific data views, especially when defining semantics.

Furthermore, a question was raised about how the model deals with information complexities at **different life cycle events**, such as merging units or splitting buildings. Mr BÖHMS explained that significant effort was put into addressing the time aspect, including the use of timestamps and metadata to track changes over time. He emphasised the importance of both relevance time and information time in modelling asset data, allowing for flexibility on the property level. The discussion also touched on the modelling of merging units, presenting it as a metamodeling issue rather than a time modelling issue.

Mr Pedro Meda MAGALHÃES agreed with Mr BÖHMS's discussion on **timestamps** and highlighted the potential insights from ISO standards 23386 and 23387, initially designed for digital product passports. He suggested that these standards could provide valuable insights for DBLs due to the shared mechanism of capturing properties with a long range over time. Mr BÖHMS acknowledged it as valuable input, emphasising the complexity involved and the ongoing efforts to align different standards within CEN/TC 442 and coordinate with buildingSMART International.

Mr FLICKENSCHILD raised a question from Mr Saulius URBANAS regarding the **integration of DBL into the INSPIRE implementation work plan**. The concern was about the potential amendments to INSPIRE methodology to accommodate DBL, emphasising the need for closer integration. Mr BÖHMS explained that they had extended and started from a subset in their link with INSPIRE, addressing both semantic and technical aspects. The idea was to align different initiatives within INSPIRE, influencing standards for better integration. Mr URBANAS then highlighted the challenge of limiting DBL to spatial data within the INSPIRE directive and suggested the possibility of using some parts of INSPIRE in DBL while employing other mechanisms or frameworks for non-spatial data. The discussion also touched upon the reuse of existing specifications, the challenges of defining common ontologies for data exchange, and the voluntary nature of the initial ontology development. Mr VAN DER ENDE explained that the goal was to have a core ontology used by all Member States, but individual countries could still have specific types of buildings or data.

Mr Rasmus KASK posed a philosophical question about the **viability of a standardised ontology for data exchange** and questioned whether a more decentralised approach might be considered. Mr VAN DER ENDE and Mr BÖHMS responded by emphasising the voluntary nature of the ontology and the possibility of a hybrid situation where different parties adopt different levels of standardisation.

The discussion concluded with Mr FLICKENSCHILD thanking the participants for their questions and reflections, acknowledging the complexity of the issues raised and the hybrid nature of future data systems.

Topic #3: Presentation on European Commission initiatives

Data-related aspects of the Energy Performance of Buildings Directive and Renovation Passports

Ms Brigitte JACQUEMONT from DG ENER presented the revision of the **Energy Performance of Buildings Directive (EPBD)**. She began by linking the initiative to the European Green Deal, emphasising the goals of climate neutrality by 2050 and a 55% reduction in greenhouse gas emissions by 2030. The discussion highlighted the increased importance of energy efficiency due to the ongoing conflict in Ukraine and the need to secure energy independence. The European Commission's proposal aligns with the long-term vision and aims to reduce emissions and energy consumption.

Furthermore, Ms JACQUEMONT detailed the connections with the Fit for 55 package and other directives such as the Energy Efficiency Directive and ETS and Renewable Energy Directives. The EPBD proposal, presented in 2021, has seen progress with the Council's general approach and discussions under the Swedish and Spanish Presidencies. The goal is to conclude discussions by the end of the year, emphasising the significance of the EPBD within the Fit for 55 Package.

Concerning the European Commission's proposal, Ms JACQUEMONT explained its alignment with the long-term vision and objectives of reducing greenhouse gas emissions and energy consumption. The four key areas of focus include **renovation, decarbonisation, financing, and modernisation / system integration**. Renovation policies, energy performance standards, and tools like renovation passports were highlighted as essential elements to achieve these objectives.

1. **Renovation:** includes clear plans and timelines for Member States, minimum energy performance standards, and the introduction of renovation passports.
2. **Decarbonisation:** aims for zero-emission buildings, considering the entire carbon life cycle.
3. **Financing:** includes the Smart Readiness Indicator, to raise awareness of smarter technologies and prioritising financing for the most vulnerable.
4. **Modernisation and system integration:** includes stronger requirements for immobility and advancements in digitalisation and data accessibility.

Ms JACQUEMONT then discussed the **building renovation passports** (BRP), which complement the DBL. These passports aim to provide comprehensive information about building renovations, serving as a roadmap with indicators like energy bill savings and greenhouse gas emissions reduction. Financial support is a crucial aspect, and the ultimate objective is to support and achieve deep renovation.

To conclude, Ms JACQUEMONT expressed that discussions on the EPBD are ongoing, with a hope for a positive agreement soon.

Data-related aspects of the Construction Products Regulation and updates from relevant studies

Mr Manfred FUCHS of DG GROW briefly covered the importance of data quality, structure, and comparability, acknowledging the need for cornerstones in reporting.

Mr FUCHS delved into regulatory aspects, emphasising the EPBD and the ongoing revision of the **Construction Products Regulation (CPR)**¹. He discussed challenges regarding the CPR, including the harmonisation of assessment methods and reporting formats, especially regarding global warming potential and substances used.

Next, Mr FUCHS covered various studies and projects including a study for the development of the roadmap for the reduction of whole-life carbon of buildings². The whole life carbon roadmap will be presented in a Staff Working Document in the spring of 2024. Another study is analysing Life-Cycle Greenhouse Gas Emissions of EU Buildings and Construction³, and a third measured the application

¹ Review of the Construction Products Regulation, https://single-market-economy.ec.europa.eu/sectors/construction/construction-products-regulation-cpr/review_en.

² For more information, see: <https://c.ramboll.com/whole-life-carbon-reduction>.

³ For more information, see: <https://c.ramboll.com/life-cycle-emissions-of-eu-building-and-construction>.

of circular approaches in the construction industry ecosystem⁴. He emphasised the need for collaboration to avoid overlaps and ensure a consistent picture.

He further discussed ongoing studies on carbon reduction in the construction sector, stocktaking exercises related to information collection, and grassroots approaches in building product performance assessment. He introduced the **Level(s) framework**, an initiative aligning with Commission policies as a basis for measuring and reporting on whole-life carbon and circularity.

Finally, Mr FUCHS discussed waste management protocols and audits, mentioning ongoing revisions to streamline information, and he briefly referred to end-of-waste criteria for construction demolition waste. The presentation concluded with an invitation to the **High Level Construction Forum** for more detailed information and to stay up to date on the developments regarding the Transition Pathway for construction.

Q&A on European Commission initiatives

Following the presentations of Ms JACQUEMONT and Mr FUCHS, Mr FLICKENSCHILD initiated a discussion by posing three questions to them.

Q1. How are you planning to link up between EPBD and the work from different kinds of initiatives such as Level(s)? And how are you going to ensure that there will be a good integration?

In response to the first question, Ms JACQUEMONT highlighted the close collaboration between DG GROW and DG ENER. She mentioned regular interactions, including through the High Level Construction Forum and the EPBD, ensuring information sharing and coordination. Mr FUCHS added a pragmatic perspective, acknowledging the limited manpower and the importance of minimising overlaps and gaps. He emphasised the value of utilising existing knowledge and implementing a cut-and-paste approach when possible. He illustrated this with the example of Level(s), which synergized policy initiatives and technical standardization efforts. He stressed the evolution from isolated initiatives to a more integrated and learning-oriented approach. Mr FLICKENSCHILD appreciated the insights and acknowledged the transformation of these initiatives from isolated silos to interconnected efforts. The role of stakeholders was recognised as crucial for identifying and addressing issues or concerns arising from conflicting initiatives.

Q2. How would the Commission make sure that all needed information from manufacturers could be delivered by them in one format?

Addressing the second inquiry, Mr FUCHS mentioned the existing Construction Products Regulation (CPR) outlines a format for product standards. However, he acknowledged that the current CPR does not entirely meet the informational needs of end-users and is more focused on facilitating trade. To address this, the CPR is undergoing revision to improve the availability of information. He highlighted an ongoing feasibility study exploring the creation of a database structure that serves as an entry point for this information. This database is closely linked to the concept of a digital product passport, leveraging experiences from related initiatives. The aim is to capitalise on pre-existing frameworks rather than undertaking unnecessary duplication of efforts. While the format is established, the IT implementation poses a significant challenge, and the study aims to provide a realistic solution for easier access to information, aligning with other tools like the DBL.

⁴ For more information, see: <https://op.europa.eu/en/publication-detail/-/publication/2f3b2373-1173-11ee-b12e-01aa75ed71a1/language-en/format-PDF/source-288378130>.

Q3. How do the initiatives anticipate future systemic changes that we may expect?

This question, raised by a participant, cited examples such as the potential impact of an abundance of cheap renewable energy on EU construction initiatives and the need to adapt to changes in urban mobility. In response, Ms JACQUEMONT emphasised the European Commission's systemic approach aligned with the European Green Deal. She highlighted that efforts are underway, emphasising collaboration to address future challenges. Mr FLICKENSCHILD concurred, acknowledging the complexity of the question and the ongoing research aimed at understanding and adapting to potential changes in the future.

Closing of the morning session

Ms. Katharina KNAPTON-VIERLICH, Head of Unit, Construction (GROW.H.1)

In her closing remarks of the morning session, Ms KNAPTON-VIERLICH started by drawing parallels between the purpose of DBLs and their function as a link between physical buildings and their digital representations. Stressing the significance of the work discussed, she highlighted the technical depth explored during the morning, particularly in the context of DBLs. She emphasised that the technical studies presented were based on the right principles, avoiding reinventing the wheel and integrating existing standards. She acknowledged the practical applications and the importance of data management. The guidelines on data management were discussed, emphasizing their linkage to specific use cases and potential user groups, including governments, building owners, users, and companies.

Furthermore, Ms KNAPTON-VIERLICH expressed satisfaction with the participant turnout and the thoughtful questions, indicating a shared desire for the work to achieve its goals. She reiterated the importance of keeping links with other EU policies in mind during the digitalisation of the construction ecosystem, noting collaboration with initiatives like the EPBD.

Looking ahead to the afternoon session, Mr FLICKENSCHILD thanked Ms KNAPTON-VIERLICH for her inspiring words, closing the morning session. He provided details about the upcoming afternoon session, promising exciting panel discussions, international perspectives, and presentations from Member States.

Afternoon session

Opening of the afternoon session on future developments

Mr. Michael FLICKENSCHILD, Ecorys, Project Coordinator

Following the break between the morning and afternoon sessions, *Mr Michael FLICKENSCHILD* welcomed back all participants and introduced the first panel of the afternoon session. The first panel was dedicated to the future development of DBLs in and beyond the EU with the following speakers: *Mr Nigel WALLEY, Prof. Henk VISSCHER, Ms Noemi FRIEDMAN, Mr Filippo LANDI and Mr Italo SPADA.*

Before delving into the panel discussion topic, the panellists were given 5 minutes to briefly introduce themselves to the participants. Following the introductions, the panellists were invited to answer the questions prepared by the organisers as well as respond to any questions from the audience.

The two questions posed to the panellists:

1. Following the presentation on the technical guidelines this morning, what are your views on their future use by Member States and how do they relate to your work?
2. How do you view the future developments regarding the accessibility and availability of building data and the role of digital building logbooks?

Topic #4: Panel discussion on the future development of DBLs in and beyond the EU

Mr. Nigel WALLEY, Chairman of the Residential Logbook Association of the United Kingdom

Mr Nigel WALLEY represents the Residential Logbook Association of the United Kingdom⁵ which is a group of six companies that found a common interest in the need for DBLs in 2018. Though *Mr WALLEY* stated that the member companies are technically competing in the same market, the need to cooperate arose from the lack of involvement and initiative from the government side in DBLs. The focus of the Residential Logbook Association is to create a core standard for DBLs in the UK based on the work that other EU and Horizon Europe-funded projects have done.

To do so, the Residential Logbook Association has consulted multiple industries: buying and selling, legal, and retrofit as well as local government authorities to agree on data standards. Due to the lack of top-down support and regulation, the six commercial company members have utilised the already published papers on DBLs such as the EUDBL paper from 2020 for dissemination to involved stakeholders. Regardless of the government feedback, the Residential Logbook Association has been actively working towards creating a UK version of EU DBL initiatives as all areas covered by published papers and reports apply to the UK context.

Mr WALLEY also introduced the potential use of DBLs to tackle the problem of property fraud as raised by the buying and selling industry in the UK. The Residential Logbook Association built a register which contains information on the individual attributes that properties have to ensure transparent processes. This means that once a building and its details are logged in the DBL, any company, property lawyer, real estate agent or local government in the UK can contact the register and check if it answers their needs.

⁵ For more information, see: <https://www.rlba.org.uk/>.

In response to the question regarding the future practical use of technical guidelines by EU Member States, Mr WALLEY emphasised the need for securing and implementing a core standardised framework, especially in the context of integrating various systems. However, he also stated that there needs to be a **balance between said framework and allowing flexibility for commercial companies to innovate** and provide unique services on top of that foundation.

Concerning the query about the accessibility and availability of building data and the role of DBLs, Mr WALLEY expressed sharing the view presented by Ms FRIEDMAN and Mr LANDI (see below). He also emphasised the **challenges and importance of encouraging homeowners to adopt DBLs** in the UK. With a vast number of homes and an old building stock lacking data, there's a need to incentivise homeowners to use DBLs and input accurate data. Furthermore, DBLs can support issues like net-zero retrofit plans for homes and Mr WALLEY urged the need to make this notion part of the public discourse to explain the benefits of DBLs to everyone.

Additionally, Mr WALLEY broached the subject of data privacy. He stated that it is important to **differentiate between public, private, and DBL-only data**. He stressed that homeowners need to understand the value of DBLs as digital assets that can enhance the value of their homes. Therefore, raising awareness and educating users on DBL data and its use is essential.

Furthermore, Mr WALLEY touched on the topic of **including data for old buildings** stating that the attachment of historical data is highly valuable on the market. In response to a question from the audience, he elaborated that discussions with lawyers showed that potentially negative data attached to the building would nonetheless come up in reports in the middle of the transaction process. Therefore, it is highly valued to have all information – positive or negative – upfront. The same concept can be applied in the surveying industry where a standardised network would streamline the information of assessments and when and why they were made for future consideration.

Prof. Henk VISSCHER, Director TU Delft Urban Energy Institute UEI and Project Coordinator DEMO-BLOG

Prof. Henk VISSCHER presented the DEMO-BLOG project⁶ which is a part of Horizon Europe, made up of various stakeholders. The project began in January of this year and is still in the start-up phase. It focuses on existing digital building logbooks and their functionalities, which is different from other initiatives that start with data definitions and technical aspects. The project aims to showcase existing functionalities related to housing, particularly in existing housing stock, with a focus on decarbonisation in Europe. There are different partner organisations within the project that have ranging functions and relationships with public and private entities:

- **Chimni and CLÉA:** These partners focus on user-centric automated renovation advice. They use data for AEP and provide renovation advice to building owners.
- **CAPSA:** A German initiative targeting large building estates and has its own approach to data collection for decarbonisation roadmaps at the building level.
- **Woningpas:** A Belgian platform aiming to develop a platform for community-driven decarbonisation projects.
- **CIRDAX:** A Dutch company focused on circularity approaches in connection with warning paths.

⁶ For more information, see: <https://demo-blog.eu/>.

Prof. VISSCHER further elaborated that the project's organisation includes a central focus on functionalities and user experience methodologies. Work package two concentrates on data collection, interoperability, processing, and governance. The core of the project involves demonstrating and evaluating the various functionalities in different countries. The project also considers exploitation and replication, with TU Delft playing a coordination and evaluation role. TU Delft is not developing a digital building logbook in the Netherlands, instead, it maintains the connections with all the other projects involved in DEMO-BLOG.

In response to the question regarding the future practical use of technical guidelines by EU Member States, Prof. VISSCHER focused on **the challenge of aligning existing DBL tools**, which are practical and functional in practice with the theoretical and structured data definitions proposed in the study. He acknowledges that this comparison might be a challenge. During a General Assembly meeting with project partners, there was a suggestion to compare available DBLs using a common set of buildings as a starting point. However, it was noted that existing DBL providers were hesitant to do so, as they already have their own established functionalities and approaches.

Regarding the query about the accessibility and availability of building data and the role of DBLs, Prof. VISSCHER highlighted the importance of national governments. He suggested that **governments should establish a central repository for unique building data**, including property identification and the ability to link data from various sources. This would help connect different initiatives and datasets related to buildings, even if they serve different purposes.

Prof. VISSCHER also mentioned the **challenge of dealing with existing buildings that lack systematic data**. Contributing with a different perspective, he emphasised the importance of collecting only necessary data based on specific purposes, such as renovation passports or energy performance certificates (EPC), rather than trying to gather all data at once. Starting with a simpler approach and gradually adding more layers of data as needed can make the process more feasible.

Ms. Noemi FRIEDMAN, Institute for Computer Science and Control (SZTAKI) & Mr. Filippo LANDI, Department of Civil and Industrial Engineering, University of Pisa, BUILDCHAIN

Ms Noemi FRIEDMAN introduced the BUILDCHAIN project⁷, which commenced in January. She clarified that she initiated the project but is not its coordinator, with the University of Pisa represented by *Mr Filippo LANDI* being involved as well. The core idea of the BUILDCHAIN project revolves around using DBLs to create a knowledge base that traces all activities throughout a building's life cycle. This involves integrating trustworthy and traceable data to create a marketplace where stakeholders can share their offers, quality certificates, and credentials while tracking and tracing all related activities. The ultimate goal is to improve sustainability and services in the building life cycle sector.

The project has started by implementing a DBL for the Florence Municipality, integrating it into a structured system with semantics using building-related ontologies. Additionally, functionalities are added to manage this extensive database. Ms FRIEDMAN specified 12 use cases related to structural health, life cycle assessment, renovation, construction economics, energy efficiency, and more related to the overall aims of the project. The development of APIs to support the use cases is planned and will be tested across five diverse pilot projects involving historical and modern buildings.

The BUILDCHAIN project envisions scalability beyond traditional DBLs, aiming to leverage digitally available information across the building sector, including administrative and structural data. The

⁷ For more information, see: <https://buildchain-project.eu/>.

system is modular, allowing for the integration of various tools and applications to enhance its capabilities, ultimately benefiting policymakers, administrators, and researchers.

In response to the question regarding the future practical use of technical guidelines by EU Member States, Mr LANDI acknowledged **the importance of the presented work in emphasising the key principle of interaction and interoperability** in the implementation of DBLs. He appreciated how the presentations highlighted the benefits of DBL implementation, particularly in terms of updating logbooks, which can be a convincing factor for stakeholders to adopt. He emphasised that scalability is crucial for both Member State and EU levels and expressed interest in the final draft of the presented work.

In regard to the query about the accessibility and availability of building data and the role of DBLs, Mr LANDI added another dimension to the topic: the **discoverability of building data**. He emphasised that the platform, supported by centralised technologies, can enhance the discoverability of building data while also ensuring data protection and verification. Moreover, Mr LANDI mentioned the use of technology to identify objects and data, along with the creation of building-related ontologies. This approach would allow stakeholders to request access to specific data, contributing to the overall goals of their research project.

Ms FRIEDMAN contributed to the discussion by highlighting **the process of data verification**. She emphasised the importance of having certificates for data to enhance its reliability. While the exact methods for data verification are still under consideration, the key idea is that data should only enter the knowledge graph when it is secure and verified, or at the very least, there should be information available about its verification level and certification status.

Ms FRIEDMAN also touched on the topic of **incentivising and motivating individuals to use DBLs**. She emphasised the importance of demonstrating the benefits of using the knowledge base, both at a personal and functional level, to motivate individuals to provide data voluntarily. She elaborated that authorities pushing for DBL adoption alone may not be sufficient, and instead, the focus should be on showcasing how people can benefit from DBLs. This could include features like simplifying renovation planning, providing benefits for data contributors, or highlighting the advantages of having a Building Information Model (BIM).

In response to a query about **the role that trust plays** in the creation of DLBs, Ms FRIEDMAN introduced the possibility of expanding and viewing DBLs as platforms where stakeholders have their own profiles and share their proof of certification and verification. Moreover, this could be broadened to a system where other stakeholders could rank or comment on one another's profiles to create a credible community.

Mr. Italo SPADA, Department Director of New Technologies and Design at CETMA and Project Coordinator OpenDBL

Mr Italo SPADA presented the OpenDBL project⁸ of which he is the project coordinator. OpenDBL aims to facilitate the adoption of DBLs in Europe by creating an open API platform for the conception, creation, implementation, and updating of digital building logbooks. The project is focused on leveraging the latest technologies in the market, supporting data matching with external databases, and using artificial intelligence for data-related tasks. They are also exploring the use of blockchain for smart contracts and certificates.

⁸ For more information, see: <https://www.opendbl.eu/>.

Mr SPADA added that the OpenDBL project is already in the pilot phase in four Member States: Italy, Spain, Greece, and Germany. These sites will integrate IoT sensors to balance energy efficiency, operational lifetime, accuracy, and maintenance costs. He also introduced the visualisation technology that the project utilises. Namely, the project aims to provide an easy-to-use interface with advanced 3D and 2D content for users. This includes cloud point cloud viewers, IFC viewers, and virtual reality collaborative platforms for inspection and validation. Mr SPADA concluded his introduction by expressing a deep interest in developing the project further, especially in the context of Italy's private buildings and constructions.

In response to the question regarding the future practical use of technical guidelines by EU Member States, Mr SPADA concentrated on two main challenges. The first lies in **integrating different tools from various technologies** to achieve common objectives. The second issue, particularly in Italy, is the **difficulty in collecting data from private buildings** due to confusion and a lack of dedicated personnel for this task. This relates to the differing levels of Member State readiness that can also be observed in practice. Mr SPADA believes that creating a new standard framework that can be used and shared among professionals is crucial. This framework would enable professionals to work together and exchange data seamlessly, even if it originates from different sources. He highlights the potential of using artificial intelligence to streamline data entry and corrections within this standardised framework.

Concerning the query about the accessibility and availability of building data and the role of DBLs, Mr SPADA pointed out that an **obstacle in the creation of DBLs lies in the digital acquisition of data**, particularly in cases where original drawings are unavailable. He further highlighted that the process of digitally acquiring models of a building, especially with 3D scanning technology, can be resource-intensive and lacks clear standards or guidance for transforming this data into a format suitable for an open DBL. Therefore, greater attention should be paid to visual data and streamlining the transformation of acquired building data into a format compatible with DBLs.

Mr SPADA also responded to a question regarding the correction of inputted data. He explained that if a user enters data with errors or misspellings, the system will automatically correct those mistakes to ensure accurate and standardised data in the database. This involves the automated process of translating files from one type to another.

Topic #5: Presentation of relevant building and construction data initiatives in EU Member States

The Netherlands: The Dutch Data Space for the built environment (DSGO) and DBL initiative

Ms Saskia HESSELINK, Policy officer in the Directorate of Building & Energy at the Ministry of the Interior and Kingdom Relations presented the several initiatives taking place in the Netherlands. The Dutch government aims with these initiatives to address climate goals, and housing shortages and accelerate construction by leveraging digitalisation and data sharing.

Ms HESSELINK shared that the soon-to-be-launched (15th November 2023) **Data Space for the built environment** (DSGO). Its purpose is to facilitate data sharing without a government mandate. Instead, it is a public-private partnership initiated and overseen by the Building Digitalisation Council. She further shared that the Data Space functions on a federated data-sharing principle. It therefore focuses on roles, responsibilities, identification, authentication, and authorisation for data access and aims to expand the data-sharing ecosystem beyond trusted partners. The Data Space is also data

agnostic, which further highlights its focus on role and responsibility identification instead of the standardisation side of data input.

The second initiative shared by Ms HESSELINK is the **Central Service for Building Data**. The aim is to link existing databases to provide added value. Data accuracy will improve through feedback loops and validation. She also emphasised that since the government aims to link private data sources to the central service, privacy and data durability challenges must be addressed.

The initial use cases for the Central Service for Building Data are rooted in energy consumption initiatives. For example, renewing energy labels, benchmarking non-residential buildings, and creating renovation passports. These applications will help homeowners and businesses access valuable insights from shared data.

Lithuania: The Lithuanian Building Data Bank

Mr Saulius URBANAS, an expert from the Spatial Data Policy Analyst at the Ministry of Environment of the Republic of Lithuania introduced the **"Building Data Bank" project**, which aims to stimulate building renovation and maintenance in Lithuania. The project seeks to ensure an efficient and data-driven decision-making process in building renovation and building maintenance, thereby promoting building renovation processes. The expected timeline for this project is from September 2023 to June 2025.

The project is led in a top-down mode with the involvement of four authorities under the auspices of the Ministry of Environment. However, Mr URBANAS added that one of the goals is to involve local communities, municipalities, and building administrators. As such, the project aims to collect various building-related data including building characteristics, technical documentation, building status reports, energy performance indicators, and energy consumption information. Data will be collected from state registers and information systems, including spatial planning data, building pyramids, energy performance certificates, and more. The project aims to harmonise and make this data available for decision-making.

Mr URBANAS also summarised the expected outcomes of the project. The **aim is to create a comprehensive building data repository that combines data from state registries and other sources**. It also seeks to develop risk assessment methodologies and enhance communication with building owners to support renovation and maintenance activities. To accomplish this task, the project plans to integrate its Building Data Bank with the existing special planning and construction gate, which provides information about spatial planning and construction permits. It also envisions using the gate's functionalities and web services to serve society.

As an outlook to the future, Mr URBANAS expressed interest in the outcomes of the DBL project, seeing it as directly related to their project's goals. He mentioned that the project could further benefit from aspects like BIM data and connecting it with building permits, geospatial information, utilities data, and material information.

Czech Republic: Outlook for a Czech Digital Building Logbook

Mr Tomáš PROKEŠ, Chief Digital Officer at the Czech Standardization Agency discussed the Czech Republic's approach to implementing DBL and its related strategies. The DBL implementation began as part of a broader strategy during the Czech Presidency of the Council for the European Union. The Ministry of Regional Development was chosen to lead DBL implementation due to its involvement in

the new Building Act and the digitalisation of spatial planning, building permitting processes, and building approvals.

Mr PROKEŠ elaborated that **the Czech Republic is simultaneously working on four strategies:** BIM strategy for public procurement, Digitalization of Building Permitting processes – including BIM-based building permits –, Geo-Info strategy for geospatial information and Digital Technical Map for technical infrastructure – relating to the cadastral plan. In addition, a long-term Open Data Strategy is running. These strategies are driven by different ministries and institutions but need alignment and coordination. To align the authorities, a Governmental Council has been established, responsible for overseeing and prioritising strategies. It includes various steering committees and working groups, including one for digital construction.

To ensure comprehensive data collection, **database mapping is conducted at both the state and regional levels.** There is a robust collaboration with regions to understand how data and information about buildings are managed. Therefore, a combination of a top-down European-level approach with a bottom-up approach is present in synchronising digitalisation strategies. For instance, one goal is to create a common framework for regions and state authorities to prepare asset information models and to identify ‘Critical Points of Interest’ for information exchange. Examples include fire alarm and sprinkler systems, lifts and chiller units which are potential sources of gas leakages, heat noise and vibration.

In doing so, the Czech Republic is looking to achieve both EU goals and the United Nations Sustainable Development Goals. The country is therefore exploring synergies between DBL and recommendations from the UN Environmental Programme regarding building passports⁹. Mr PROKEŠ also shared three types of implementation necessary to reach the goals of the initiative:

- **Political implementation:** developing a business case, identifying use cases, promoting and communicating benefits and generating buy-in among relevant stakeholders.
- **Technical implementation:** Using the DBL framework including the proposed data architecture, technologies and implementing the DBL ontology and dictionary.
- **Economic implementation:** Costing and resourcing of setting up a national or regional platform.

Discussion on Member States' initiatives

A question regarding the Dutch Data Space for the built environment was raised in connection to the standardisation of data. Ms HESSELINK reiterated that the DSGO is designed as data agnostic, however, she acknowledged that it is difficult to separate standardisation from the process. She continued to say that there is already a plethora of standards in existence and that a standardisation of standards might be necessary to create a baseline. In the discussion, it was suggested that standards with overlapping content could be combined, with only the remaining unique aspects requiring specific attention.

Mr FLICKENSCHILD raised a question aimed at information and knowledge sharing about the implementation of DBLs other than through the shared technical guidelines, such as separate working groups or Member State communication channels.

⁹ The Building Passport: A Tool For Capturing And Managing Whole Life Data And Information In Construction And Real Estate, available at: <https://globalabc.org/resources/publications/building-passport-tool-capturing-and-managing-whole-life-data-and>.

Mr URBANAS explained that he first became familiar with DBLs during an EU BIM General Assembly and believes that the team involved in the Lithuanian project will keep up with the EU BIM channel and its knowledge-sharing activities. He also expressed a willingness to share their project's success or challenges and emphasised the importance of learning from European requirements, standards, and the experiences of other authorities and countries implementing similar projects.

Mr PROKEŠ echoed Mr URBANAS' statements and expressed gratitude for the community that the DBL project created. He also expressed support for the establishment of a DBL task or working group which would facilitate knowledge and experience sharing.

Mr VAN DER ENDE raised a question about the challenge of maintaining some homeowner data private, which data would be mandated to be publicly accessible by the government, and how the presented initiatives are set to tackle it.

Mr URBANAS explained that the Lithuanian Building Data Bank project does not face privacy issues with data related to building permits that have been approved publicly. However, when it comes to more detailed information, the system requires authorisation for individuals accessing the data. He also mentioned that due to security concerns in their region, new constraints are being imposed on certain sources of information to prevent potential unfriendly access. This includes revising public services, restricting access to sensitive information, and discussing measures to limit access for individuals and companies the authorities consider unfriendly, especially for sensitive buildings.

Mr PROKEŠ reiterated the goal of the Czech DBL is to connect various databases to consolidate information. He emphasised that certain certificates, such as those for sprinkler or fire alarm systems, are not highly sensitive, and they intend to make these certificates openly accessible to building owners and operators. However, he stated that compliance with the Data Governance Act will be ensured.

Ms HESSELINK offered a different perspective. She stated that the government collects a significant amount of personal and private data related to buildings. She explained that releasing this data in an aggregated form, where individual buildings cannot be identified but only seen at a block level, can make the data public. As long as it cannot be traced back to an individual or specific use, it remains public data. However, once data can be linked to specific information like energy use or insulation data for a house, it is considered private data. Ms HESSELINK indicated that the aim is to make even this private data accessible through authorisation.

Topic #6: Economic, legal and other considerations for implementing DBLs

Mr. Martin VAN DER ENDE, Project Manager, Ecorys

Mr Martin VAN DER ENDE presented the economic, legal and other considerations that need to be taken into consideration when implementing DBLs. First, he summarised five **economic considerations**:

First, there is a need for a team comprised of members of various backgrounds contributing to DBL implementation: project manager; software architecture specialist; knowledge manager; legal expert; platform engineer; IT management and support team; team of data modellers; team of software engineers; and team of data managers.

Second, it is important to consider the resource intensity of activities connected to the DBL building. Table 1 below estimates the intensity based on research. It is also suggested that DBL projects begin

with collecting data on new buildings, then on buildings being renovated, and finally legacy data (unless it has already been digitised).

Table 1 Resource intensity scores of DBL-related activities

Activity	Intensity score
Collecting data on existing buildings	82%
Verification of data	69%
Development of an online platform	67%
Developing a semantic model	65%
Agreement about data norms with stakeholders	59%
Costs for licensed data	42%
Developing a dictionary	41%

Third, it is necessary to consider the capability of the authority that wants to begin a DBL project and set achievable targets in terms of time management taking into account the following considerations:

- Prototype DBL (ontology, dictionary, testing on one or two buildings) should be done in two years;
- Involve key stakeholders (e.g., municipalities, notaries, large construction firms) about data norms from the start;
- Assessing compliance with GDPR and formulating legislation much easier based on concrete building data;
- Online platform: Development 6-12 months; maintenance and extensions are continuous activities;
- Cost estimates vary widely – depending on the quality and digitisation of legacy data, number of buildings, etc.

Fourth, it is necessary to consider hardware considerations. These are not as financially intensive as others; however, they bring their own limitations. For instance, it is important to consider the data storage capacity that will be required. It is estimated that about 2 GB will suffice for a million buildings, however, if this includes signed documents, 200 GB per million buildings will be required. It is imperative to consider the available platform options. Infrastructure as a service (IaaS) will necessitate some configuration to suit your case but has 500 GB data storage capacity. Software as a Service (SaaS) requires less configuration as the product can self-sufficiently read data from multiple sources, however, it is a more expensive option than IaaS.

Finally, the last economic consideration concerns software. Four types of software are necessary to accommodate the needs of building and sustaining DBLs – all already available on the market. The required software includes a tool for the development of a semantic model (e.g., Protégé, CKAN); to make the semantic model available online, a hosting tool is necessary (IaaS and SaaS alternatives); next, software to structure, search and store data is essential to keep the data updated; and lastly, an API software to collect and/or share data will enable end-users to interact with the database.

To complement economic considerations, **legal considerations** must also be accounted for. Mr VAN DER ENDE introduced six legal concerns and factors.

First, it is imperative to differentiate between types of legal risks. These are summarised in Table 2 below. To deal with the risks, guidelines need to be put in place. This entails organising the processing

of personal data, classifying the degree of privacy sensitivity, and dealing with commercially confidential data. Mr VAN DER ENDE introduced and elaborated on all three guidelines.

Table 2 Summary of types of legal risks

Main legal risks (scoping survey)	Most relevant EU law in DBL context
Personal data rights	GDPR (General Data Protection Regulation)
Data security aspects & responsibility	GDPR and DGA (Data Governance Act)
Commercially confidential data	Dir 96/9/EC (Legal Protection of Databases Directive)

Mr VAN DER ENDE strongly recommended that when *processing personal data*, it is important to enshrine the need in law. This means that the legal justification for the use of any data in the DBLs will be shared and will follow the principles of the General Data Protection Regulation (GDPR) that pertain to it. By enshrining the need for certain personal data to be publicly available, it is important to consult a relevant supervisory data privacy body as well as conduct a data protection impact assessment. If both conditions have been met, it is then not necessary to obtain consent from involved parties as that will have already been waived. Table 3 summarises the articles that must be accounted for.

Table 3 GDPR articles about processing personal data

GDPR	Art. 6(1)	No consent for processing personal data needed under one of certain conditions, including: (c) "processing is necessary for compliance with a legal obligation to which the controller is subject"
	Art. 36(4)	For legislation, Member States shall consult a supervisory body
	Art. 35(10)	Data protection impact assessment is needed either to adopt the law or by the data controller
	Art. 14(5)(c)	No need to inform individuals if in addition certain conditions apply: "[...] appropriate measures to protect the data subject's legitimate interests" What are legitimate interests, differs between EU countries, e.g., presence of asbestos
	Art. 17(3)	Data subject's right to be forgotten does not apply under one of certain conditions, including: "data processing is necessary to comply with Union or Member State law [...]"
	Art. 21(1)	If data subjects object to data processing, data processing shall stop in certain situations. There are fewer situations if the need to process data is enshrined in law as in Art. 6(1)(c)

Even once consent to obtain and hold personal data is given, the impacted parties may object to data processing for direct marketing purposes and to automatic profiling in the context of the use of information services. Therefore, Mr VAN DER ENDE recommends *defining four degrees of privacy/security sensitivity*. The degrees of sensitivity are summarised as:

0. Not sensitive (e.g., building data);
1. Somewhat privacy sensitive (e.g., name of owner, annual energy consumption);
2. With a risk of automatic profiling (e.g., email address, real-time energy consumption);
3. Data that should not be in a DBL at all (e.g., information that affects national security).

In response to the most requested feature of DBLs – bulk extraction of data – Mr VAN DER ENDE proposed that for somewhat privacy-sensitive data, bulk access should be limited. Access should also be limited to selected authorities in the case of avoiding the risk of automatic profiling.

Another legal consideration is that of data security and responsibility. The European Union law defines the responsibility for personal data as summarised below. For the commercially confidential data and in the desktop building logbook context, it is the authority that manages the DBL data that is responsible.

Table 4 Summary of data security and responsibility

Personal data protection:

GDPR	Art. 24 & 28	Data processor and data controller (e.g., DBL managing authority) are responsible
	Art. 37-38	Public authorities or bodies must designate an expert in data protection law as data protection officer
	Art. 32(1)	Need to consider the state of the art and the cost of implementation
	Art. 46(11)	Measures required against direct access to personal data from unapproved countries

Protection of commercially confidential data: Data Governance Act

DGA, Art. 5(3)	The public body holding these data (e.g., DBL managing authority) is responsible
DGA, rest of Art. 5	Various requirements to protect such data This includes compliance with intellectual property rights

Mr VAN DER ENDE also broached the subject of copyrights and sui generis rights. He differentiated between the two concepts to ensure that a baseline for applying the terms in practice was created. **Copyright** entails that no part may be reproduced, translated, adapted, arranged, or otherwise changed, distributed, communicated, displayed or performed without authorisation from the author (creator). **Sui generis rights** entail that the database may not be extracted, re-utilised or evaluated in whole or substantial part, and insubstantial parts may not be repeatedly and systematically extracted or re-utilised if that conflicts with normal exploitation or otherwise unreasonably prejudices the legitimate interests of the maker of the database.

The consideration of information rights directly applies to the last guideline, dealing with commercially confidential data. An essential recommendation is to use standard licenses so that users of the data may share the data for free for publicly owned data in DBLs. For copyright-protected data in DBLs, Mr VAN DER ENDE advised using a declaration on pre-existing rights that specifies under which conditions the data may be accessed, shared, and more.

A question was raised whether the DBL development team should include architects and engineers, to which the response was that these should be consulted as key stakeholders. After the final event meeting, the Consortium agreed that it makes sense to set up a steering committee in which architects and engineers participate, but that the type of high-level information in the DBL does not require their involvement in the day-to-day development.

Closing of the event

Mr. Andreas PAUER, Ecorys, Project Director

To conclude the session, Mr PAUER expressed gratitude to everyone for their active participation throughout the session. The objectives for the day included presenting the technical guidelines, exploring relevant EU initiatives, exchanging ideas about DBL development, and learning about Member States' activities. He also acknowledged and thanked everyone for the extensive and insightful discussions that took place.

Additionally, Mr PAUER highlighted the attendees' commitment and contributions to the past workshops, recognising their role in the event's success. He thanked the European Commission for their excellent collaboration and trust in the consortium and expressed personal gratitude to his colleagues.

Ms. Katharina KNAPTON-VIERLICH, Head of Unit, Construction (GROW.H.1)

In her closing remarks, Ms KNAPTON-VIERLICH expressed her gratitude to all participants for their time and engagement with the topic and the panellists. She also thanked the organising team for their cooperation, event organisation and moderation. Ms KNAPTON-VIERLICH highlighted the event's success, with discussions focusing on the future of DBLs within and beyond the EU. She further emphasised the broad spectrum of topics covered by the panel discussions especially data input and quality, increasing data availability, improving accessibility to existing buildings, and leveraging existing processes to make DBLs a valuable resource for all.

Ms KNAPTON-VIERLICH also praised the intriguing presentations by the Member States, such as the Netherlands' focus on data sharing and Lithuania's approach to data-driven decision-making. She emphasised the importance of keeping communication channels open for continued collaboration on DBLs, fostering interoperability and helping modernise the building industry across the EU.

List of participating organisations

Organisations	
Apoprojekt	Joint Research Centre
Arcadis	Karlsruhe Institute of Technology
BDH	Knauf Gips KG
Boverket	Ministero delle infrastrutture e dei trasporti, Italy
Build Up Portal	Ministry of Climate, Estonia
Buildings Performance Institute Europe (BPIE)	Ministry of Energy and Mineral Development, Uganda
BuildingSMART Czech Republic / czBIM	Ministry of Environment, Belgium
Buildwise	Ministry of Environment, Lithuania
CCOO del Hábitat	Ministry of Physical Planning, Construction and State Assets, Croatia
Chimni	Ministry of Regional Development and Public Works, Bulgaria
CICLICA ARQUITECTURA SCCL	Ministry of the Interior and Kingdom Relations of the Netherlands
Cleopa GmbH	MPO
CML Construction Services GmbH	National Board of Housing, Building and Planning, Sweden
Cobuilder International	One Team srl
Construction Products Europe	Paradigm
Copper Alliance	Porto University
Czech Standardization Agency	PU Europe
De Twee Snoeken	Public Waste Agency of Flanders (OVAM)
Department of Civil and Industrial Engineering, University of Pisa	R2M Solution
Deutsches Institut für Bautechnik (DIBt)	Ramboll Finland
Dublin City University	RVO Netherlands Enterprise Agency
Ecorys	Siemens
Eindhoven University of Technology (ITeC)	Sika
Enterprise for Large International Architecture (ELIA)	Spanish Standardisation Association
EUROLUX	Svenskt trä (Swedish Wood)
European Commission	SZTAKI (Institute for Computer Science and Control)
European Federation for Construction Chemicals (EFCC)	Tata Steel
European Research Center for Technologies Design and Materials	Technical Committee for BIM
European Union of Electrical Wholesalers (EUEW)	Technical Research Centre of Finland (VTT)
Federal Institute for Research in Building, Urban Affairs and Spatial Development (BBSR)	Technical University Delft
Flemish Institute for Technological Research (VITO)	Technical University Wien
Forum for European Electrical Domestic Safety (FEEDS)	TNO
Foster and Partners	Ulrich Paetzold EU-Consulting
German Energy Agency (DENA)	UniBs, Italy
German Environment Agency	University of Architecture and Urbanism, Romania
Government Offices of Sweden	University of Edinburgh
Honeywell	Vysocina Region, the Czech Republic
Ing. Baratono - Consiglio Superiore dei lavori pubblici	Walt + Galmarini AG

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