



BUILDING LOGBOOK STATE OF PLAY

Report 2 of the Study on the Development of a
European Union Framework for Buildings' Digital
Logbook

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July 2020



EUROPEAN COMMISSION

Executive Agency for Small and Medium-sized Enterprises (EASME)
Unit A.1.2 — Competitiveness & Internationalisation

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ISBN 978-92-9460-143-8
doi: 10.2826/519144

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CHAPTER 1: INTRODUCTION

Over the lifespan of buildings, data is routinely collected by multiple stakeholders for various reasons as many decisions rely on data availability. However, the lack of a common approach and structure among stakeholders which would make this wealth of information widely available, organised and easily accessible, makes this data often unusable as it gets discarded, forgotten or it is not compatible with other stakeholders' systems.¹ The lack of an overarching structure shared across the built environment leads to information asymmetry, lack of transparency and higher risk for investment and decisions.

Tools for information management applied to buildings have the potential to enable better decision making throughout the building lifespan: management of technical and function aspects, safety, conservation of economic value, certification², improved energy and environmental performances, etc. Organised and shared data that can be re-used would not only reduce uncertainty but also time and cost needed for recollecting missing information.

In a more simplistic concept, building logbooks are a repository developed for the management of buildings information. Overtime, due to the complexity of buildings and the number of stakeholders involved, the idea of building logbooks has developed in different ways, resulting in the creation of an array of tools and requirements across Europe and worldwide for collecting and using buildings' data.

To be able to inform future decisions and set a direction that will support the widespread use of digital building logbooks across Europe, it is important to understand what is already available, in particular what works and what doesn't, in the existing (and past) building logbooks.

¹ Et.al. "Global trends in data capture and management in real estate and construction", RICS, Nov. 2017 – see rics.org/insight

² Dejaco, M. et al. (2017) "Streamlined management of the built environment: the district and the building logbook as risk prevention tools". Re-shaping the construction industry, Maggioli Editore
<https://re.public.polimi.it/retrieve/handle/11311/1032396/227766/Building%20and%20urban%20logbook.pdf>

Project outline

Figure 1 presents the four main tasks carried out by the study on the EU-wide Framework for a Digital Building Logbook:

- Task 1: Definition of DBL,
- Task 2: State of play and review of national and sectoral initiatives promoting the use of building logbooks,
- Task 3: Gaps analysis,
- Task 4: Recommended EU Commission actions.

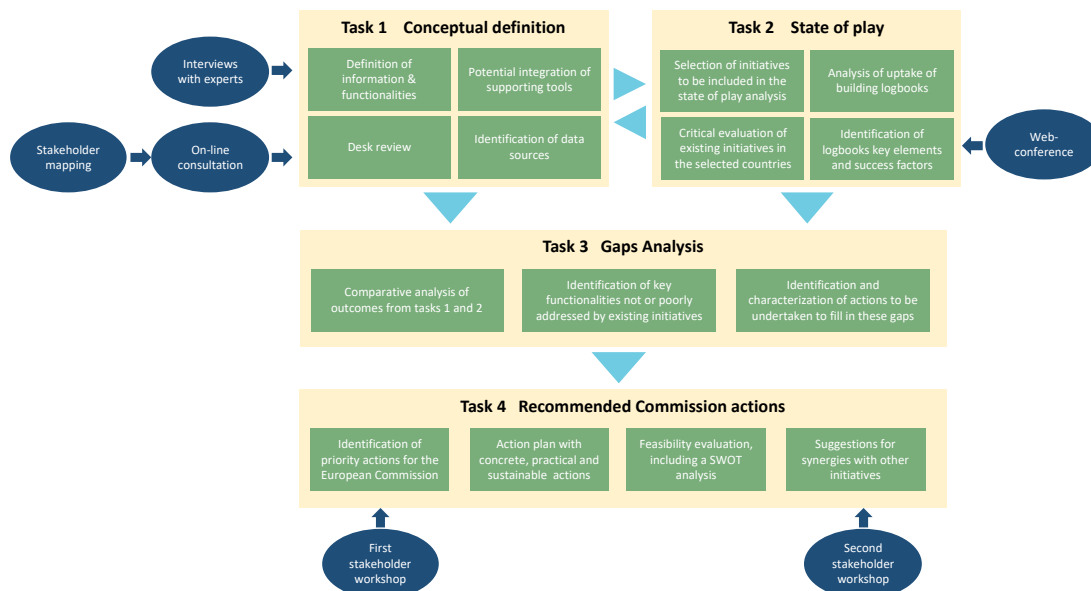


Figure 1. Overall approach and organisation of work for the study

The present report aims to present the results of the analysis of 40 building logbook initiatives in different countries. The report provides an overview of the initiatives and highlights key success factors and barriers to the implementation of building logbooks.

Structure

CHAPTER 2 describes the methodology used to identify the building logbooks and how they were reviewed. CHAPTER 3 presents the results of the analysis, followed by a summary of the outcomes of a stakeholder's webinar in CHAPTER 4. Finally, CHAPTER 5 presents the conclusions of the study.

CHAPTER 2: METHODOLOGY

The identification of the initiatives started with a thorough literature review and desk research, which was then integrated with the feedback received by the stakeholders during interviews and online survey as part of Task 1 (see Report 1 of the study).

The final list includes 40 initiatives (Figure 2): thirty-one are from EU countries, one is from Iceland (non-EU/COSME country), one from the USA and one from Switzerland (both non-EU/non-COSME countries) together with six H2020 research projects.

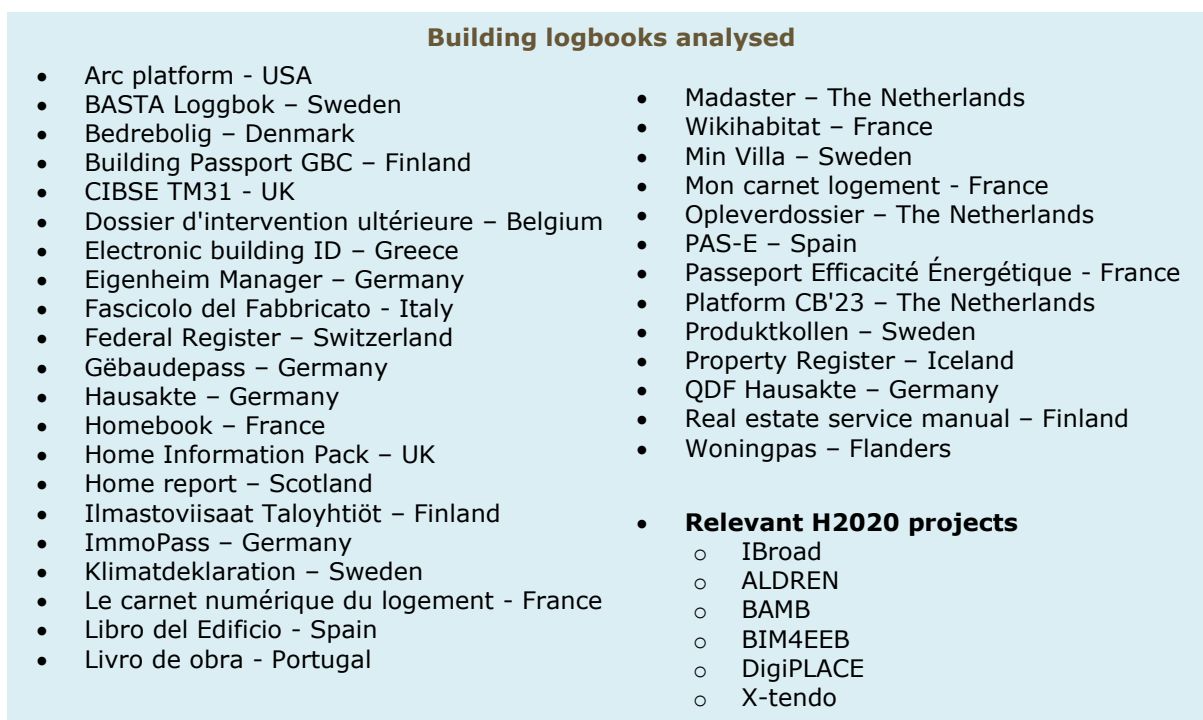


Figure 2. Building Logbook initiatives analysed

Each building logbook has been analysed using an evaluation template ([Annex A](#)), which covered several aspects:

- Description of the initiative;
- Data fields and functionalities included;
- Public or private, paper or digital, mandatory or voluntary;
- Data management approach;
- Applicability over different types of buildings and usage by different stakeholders;
- Affinity and compatibility with other European initiatives.

All the references used to complete the evaluation template are listed in the [Bibliography](#).

The results of the analysis were presented to stakeholders during a webinar during which participants answered a series of polls that were used to gain their view on barriers and benefits of the building logbooks.

Maturity Levels

During the analysis, the initiatives were further clustered based on five maturity levels: under development, tested, in place, discontinued and relevant H2020 projects. This division allowed to focus the review of the different groups on specific aspects (Table 1). The results of the analysis are presented following this clustering approach.

Table 1. Aspects for the analysis based on maturity levels

Maturity Level	Key questions for the analysis
Under development – initiatives that are planned to be implemented or not yet operational	<ul style="list-style-type: none">• What is the aim of the initiative?
Tested – initiatives piloted on a small number of buildings	<ul style="list-style-type: none">• What was the outcome of the test?• Is there going to be a follow up implementation?
In place – initiatives currently operative	<ul style="list-style-type: none">• How is the building logbook used (data included, functionalities, type of buildings, stakeholders use, etc.)?• How is data managed/reviewed/updated?• What are the success factors and barriers?
Discontinued – initiatives no longer in place	<ul style="list-style-type: none">• Why was it discontinued?
Relevant H2020 projects – projects linked with the building logbook concept	<ul style="list-style-type: none">• What is the aim of the project?• How does it connect with the building logbook?

CHAPTER 3: ANALYSIS RESULTS

This chapter presents the analysis of the initiatives divided by maturity levels.

Under development

Out of the six building logbooks presented in this level, the first three (UD1, UD2, UD3) are in their infancy compared to the latter three that are more advanced (UD4, UD5, UD6). The last initiative presented in this section will come into place later in the year.

UD1 - Building Passport GBC – Finland
 UD2 - Klimatdeklaration – Sweden
 UD3 - PAS-E – Spain
 UD4 - Platform CB'23 – The Netherlands
 UD5 - Ilmastoviisaat Taloyhtiöt – Finland
 UD6 - Electronic building ID – Greece

In Finland, the Green Building Council (GBC) is developing the **Building Passport**, which aims at extending the information provided by current schemes such as EPC³, BREEAM⁴ and LEED⁵ into a unique building's performance indicator set in a simple and accessible way.

The **Klimatdeklaration**, if implemented, will introduce the requirement of climate declaration for new buildings from January 2022 as part of the Swedish Government plan to reduce climate impact from buildings during construction.

PAS-E is a new Spanish project which is creating a network of professionals that will develop a strategy to align with the EU directive 2018/884 by developing building's passports that will improve living conditions and reduce the environmental impact of the buildings' lifecycle.

The **CB'23** (Circular Construction 2023) is a Dutch national platform initiated by Directorate-General for Public Works and Water Management, the Central Government Real Estate Agency and Netherlands Standards Institute which will provide guidelines and packages to develop building logbooks in a circular prospective for the construction sector.

As part of the **Ilmastoviisaat Taloyhtiöt** (Climate-Wise Housing Corporation) GBC Finland in partnership with private companies is currently testing how data can be used to reduce energy consumption and GHG emissions by analysing data collected through IoT sensors.

From July 2020 an **Electronic building ID** will be required for any property transaction in Greece, in accordance with the legal framework set out in Law 4495/2017⁶. By 2025, all buildings in the country, both public and private, will be required to have the Electronic building ID. The Electronic building ID will be a collection of documents (building permit, energy efficiency, construction inspection certificate, floor plans, etc.) that will be kept in hard copy in the building. Upon collection of all the information, an authorised engineer will issue a "Certificate of Completeness of Electronic Identity" with a unique identifier given by the Electronic Register. The Government is planning to inspect 3% of the buildings that have an Electronic ID every year and fine owners and engineers that have included false information⁷. The initiative aims at collecting the data of the entire building stock into a platform managed by the Ministry of Environment, Energy and Climate Change.

³ EPC – Energy Performance Certificate

⁴ BREEAM - Building Research Establishment Environmental Assessment Method <https://www.breeam.com/>

⁵ LEED - Leadership in Energy and Environmental Design <https://www.usgbc.org/leed>

⁶ Buildingir.gr (n.d.) Ταυτότητα Κτιρίων: Λίγα λόγια για τις σχετικές διατάξεις. Retrieved from: https://www.buildingid.gr/?fbclid=IwAR2V30iLaRj9hHczZBxUbdhl4mUVVqy_2apDsqI6mZSy_ZYpGSTrcNXc22_Y

⁷ Myconstructor.gr (n.d.) Ηλεκτρονική Ταυτότητα Κτηρίου. Retrieved from: https://myconstructor.gr/blog/ilektroniki-tautotita-ktiriou/?fbclid=IwAR2q47S_fBvgT4x6Xva0INfjYrRXBF0MkJBHNDm-aSopsUqQFC_H2OHLFI

Tested

“Passeport Efficacité Énergétique”

is an experiment targeting individual houses led by Association Expérience P2E. The members include: The Shift Project (think tank), industrials specialised in renovation and/or in energy (EDF, Schneider Electric, Saint-Gobain), associations in quality or building sectors (Qualitel, Promodul/INEF4, Promotelec, Effinergie, Soliha), regions (Centre Val de Loire, Grand Est). It has been running since 2016. The project is based on the intervention of an expert (called "Passeporteur"), who first conducts an audit; then, the tool processes the inputs from the audit, delivers a tailored set of renovation actions and translates it into a renovation roadmap. The roadmap indicates the phasing of the works, the performance to be achieved on each technical lot and the estimated associated costs to facilitate the renovation process for households.

T1 - Passeport Efficacité Énergétique – France
 T2 - Homebook – France
 T3 - Le carnet numérique du logement – France
 T4 - Mon carnet logement – France
 T5 - Wikihabitat – France

Additionally, in 2016, France launched a call for the development of digital building logbook solutions through experimental projects as part of the “Plan Transition Numérique dans le Bâtiment” (Digital Transition Plan in Buildings) in accordance with the “Energy transition for a green growth” law (2015-992⁸). The purpose of the project was to promote the uptake of digital building logbooks and use the lessons learned to write an implementation decree to make digital building logbooks mandatory. The eleven projects selected, including T2, T3, T4 and T5, provided different solutions with varied functionalities and produced 3,040 digital building logbooks for different types of buildings, mainly dwellings, both new and existing (Figure 3)⁹.




	Habitat individuel 	Habitat collectif 	Tertiaire 	Neuf	Existant
BAZIMO - Bazimo		●	●		●
Be-in-Home - PMB Software	●	●		●	●
Le carnet numérique du logement - Bureau Veritas		●		●	●
CANEL - Intent Technologies		●			●
CasBâ - Energies Demain	●	●			●
Carnet numérique du logement - VILOGI	●	●			●
Homebook - Cozy Cloud, EDF	●	●		●	●
IMMOBOX - COSTIC	●	●		●	●
Mon carnet logement - Qualitel	●	●		●	●
Mon logement numérique - EIRENO	●				●
Wiki-Habitat - Novabuild	●	●		●	●

Figure 3. Summary of French initiatives tested

Despite the positive feedback from the stakeholders who reviewed the initiatives and the interest from the public authorities, the implementation decree that would have made digital building logbooks compulsory in France has not been published hence the law is not applied.

⁸ Légifrance (2015) LOI n° 2015-992 du 17 août 2015 relative à la transition énergétique pour la croissance verte. Retrieved from:

<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000031044385&categorieLien=id>.

⁹ PlanBim 2022 (n.d.) Le carnet numérique. Retrieved from: <https://plan-bim-2022.fr/actions/plan-bim-2022-ptnb-axe-b/le-carnet-numerique/>

In 2018, the “Evolution du Logement, de l'Aménagement et du Numérique” law 2018-1021 on the Evolution of Housing, Planning and the Digital Sector¹⁰ proposed the development of digital building logbooks with the aim of understanding the state of the buildings, their operational information and progressively improve their environmental performance. The building logbook should have been mandatory for all new buildings from January 2020 and for all existing buildings subject to ownership transfer as of January 2025. However, the implementation decree that was expected in December 2019 was never published. The “Conseil d'Etat”, the French body in charge of advising the Government on legal matters, has issued a negative opinion on the draft decree with arguments including:

- The absence of a clear public interest that justifies a strong obligation which might be an infringement of liberties;
- The risk of blocking the transfer of property by a large number of possibly not well-defined documents, which would create a significant risk of litigation and liability for notaries;
- The infringement of liberties and the risk of discrimination linked to the obligation to keep documents in a digital folder managed by a third party.¹¹

The French Government is currently working on a new concept of the building logbook called “Carnet d'information du logement” which mainly focusses on the content of the building logbook and not on the digital format, which should be mandatory for all new buildings as of January 2022.

In place

A brief description of each of the initiatives in place is included in [Annex B](#).

Out of the 21 initiatives¹² currently operational, 14 are public and 7 are private, with most of the public initiatives (10) being mandatory and most private initiatives being voluntary (6).

The split between paper-based and digital initiatives is almost equal (10 and 11). However, most of the mandatory initiatives are paper based whilst the digital ones are mainly voluntary, showing a more “static” and classical approach of the public sector (see Figure 3 in the next page).

The analysis highlighted that there is currently very little affinity between existing building logbooks and other European initiatives, with the only exception of some building logbooks that

IP1 - Arc platform – USA
IP2 - BASTA Loggbok – Sweden
IP3 - Bedrebolig – Denmark
IP4 - CIBSE TM31 – UK
IP5 - Dossier d'intervention ultérieure – Belgium
IP6 - Eigenheim Manager – Germany
IP7 - Fascicolo del Fabbricato – Italy
IP8 - Federal Register – Switzerland
IP9 - Gebäudepass – Germany
IP10 - Hausakte – Germany
IP11 - Home report – Scotland
IP12 - Libro del Edificio – Spain
IP13 - Livro de obra – Portugal
IP14 - Madaster – The Netherlands
IP15 - Min Villa – Sweden
IP16 - Opleverdossier – The Netherlands
IP17 - Produktkollen – Sweden
IP18 - Property Register – Iceland
IP19 - QDF Hausakte – Germany
IP20 - Real estate service manual – Finland
IP21 - Woningpas – Flanders (Belgium)

¹⁰ Légifrance (2018) LOI n° 2018-1021 du 23 novembre 2018 portant évolution du logement, de l'aménagement et du numérique.

Retrieved from:

<https://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000037639478&categorieLien=id>

¹¹ Le Moniteur (n.d.) Le carnet numérique. Retrieved from: <https://www.lemoniteur.fr/article/le-carnet-numerique-du-logement-fait-son-retour-a-la-faveur-du-projet-de-loi-sur-la-reecriture-du-cch.207875>

¹² For Fascicolo del Fabbricato (Italy), out of the three regions that apply it we have considered the implementation in the region Lazio.

include the EPC and can be used for developing renovation roadmaps.

Overall, there is no common approach regarding stakeholder usage and access by third parties: 15% of the initiatives are for public use only whilst 55% are made available to other actors of the supply chain or potential buyers. However often interested parties can only access the information on site because the paper-based building logbooks are kept there.

Costs are generally linked with collecting, and where applicable validating, the information, however, there is no clear business model for private initiatives that emerge and that can be replicated.

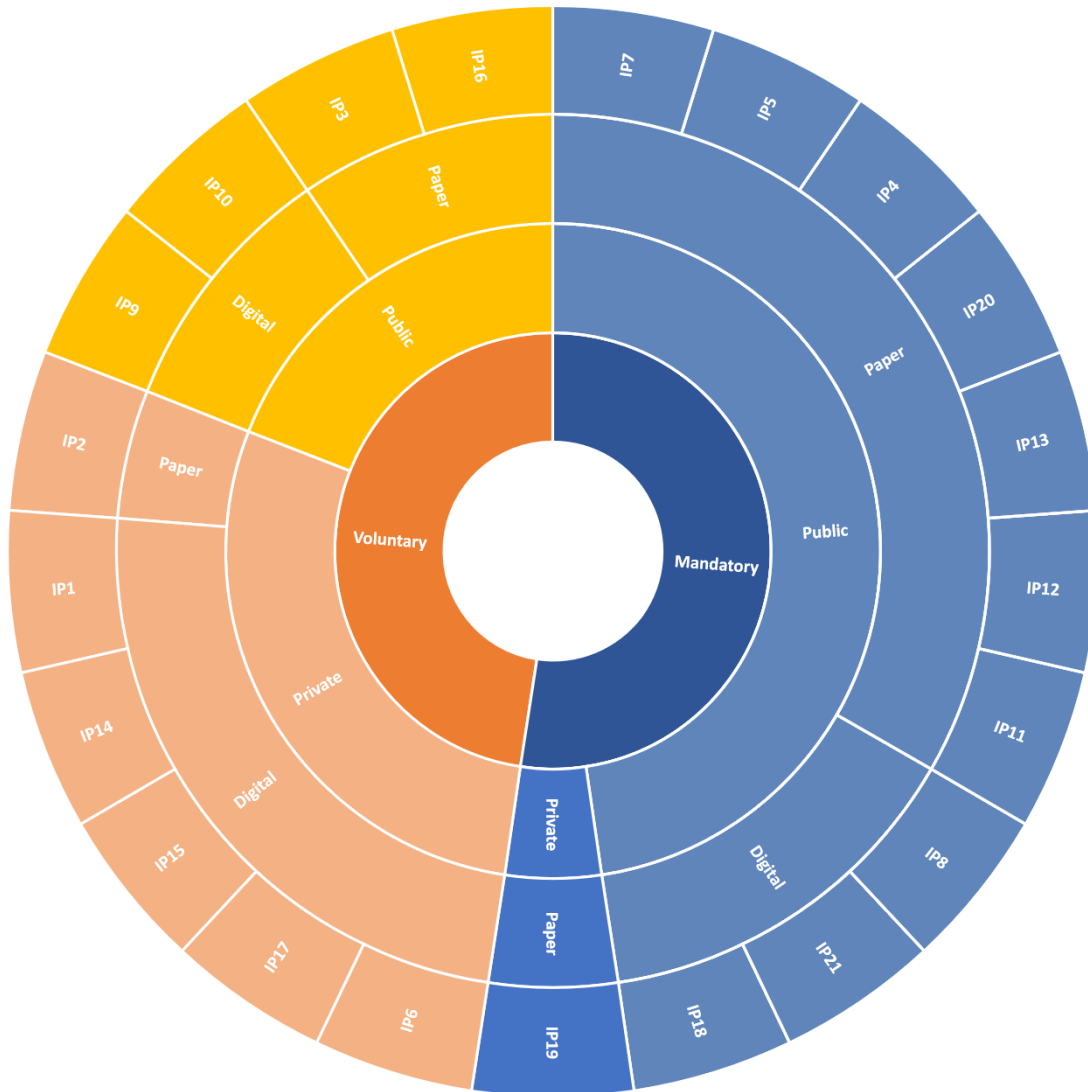


Figure 4. Mandatory / Voluntary initiatives

When we look at the market uptake for each initiative, the number of buildings where the building logbooks are used, there is obviously a clear distinction between the mandatory, which in theory should be always widespread, and the voluntary, which are more limited in numbers. However, it is clear that even among the mandatory initiatives there are differences: countries like Spain and Italy have a fragmented approach, where the regions are responsible for the definition and implementation of building logbooks, which leads to very specific cases and smaller numbers of buildings where building logbooks are used. In Italy only three regions out of twenty (Campania, Lazio and Calabria) require the

development of the Fascicolo del Fabbricato whilst in Spain all seventeen regions require to complete the Libro del Edificio however the level and type of information included vary from region to region.

In terms of applicability over different type of buildings (Figure 5), most of the initiatives in place focus on dwellings, with only two of them (CIBSE TM31 and Fascicolo del Fabbricato) which are not usable for dwellings. 48% are applicable for office, industrial and public buildings, with a similar percentage when comparing to mandatory (45%) and voluntary (50%) building logbooks.

The requirement for when the building logbook should be implemented in the mandatory initiatives differs: four are mandatory for new buildings and renovations, two for new buildings only and one when selling the property whilst the real estate service manual, the Woningpas, the Federal register and the property register are applicable for the entire building stock (Figure 6).

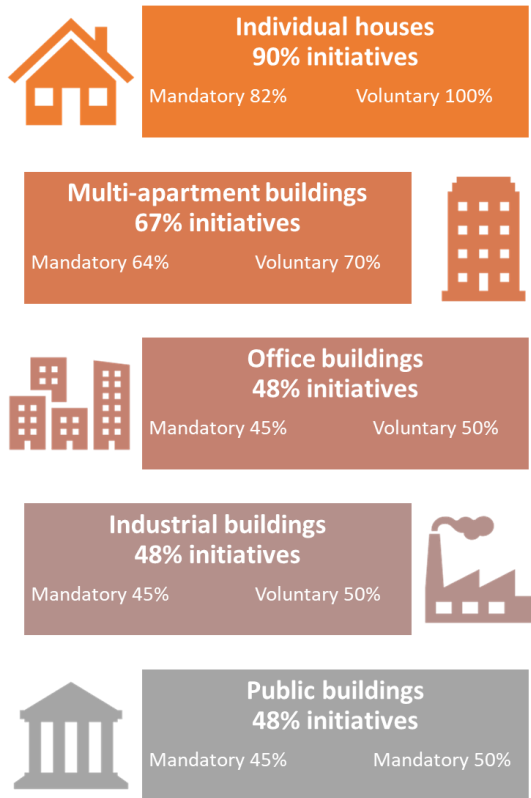


Figure 5. Applicability different types of buildings

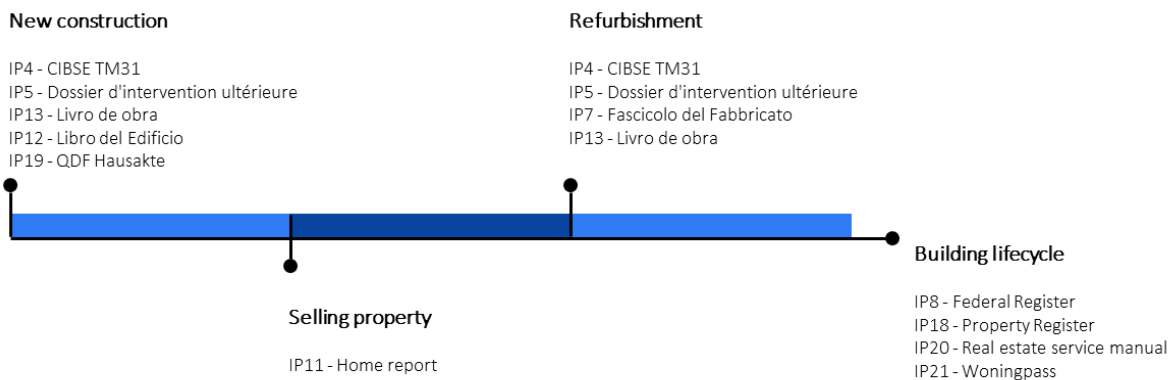


Figure 6. Implementation timeline mandatory building logbooks

The 21 initiatives analysed have different levels of digitalisation (Figure 7): the one located in the bottom left part the less advances because either fully paper based or developed through non-technical software (i.e. Excel) and accessible only in hard copies. On the opposite side, the initiatives in the right top part of the graph are not only developed through more advanced tools but are also accessible online.



Figure 7. Implementation timeline mandatory building logbooks

Data fields and functionalities¹³

The map of the data fields included in each building logbook¹⁴ (Figure 8) shows that the data mostly present across the building logbooks are related to general administrative information together with building characteristics and information on building operation and use. It is interesting to notice that Madaster, Opleverdossier and Arc platform (all voluntary) include the largest number of data fields compared to the others.

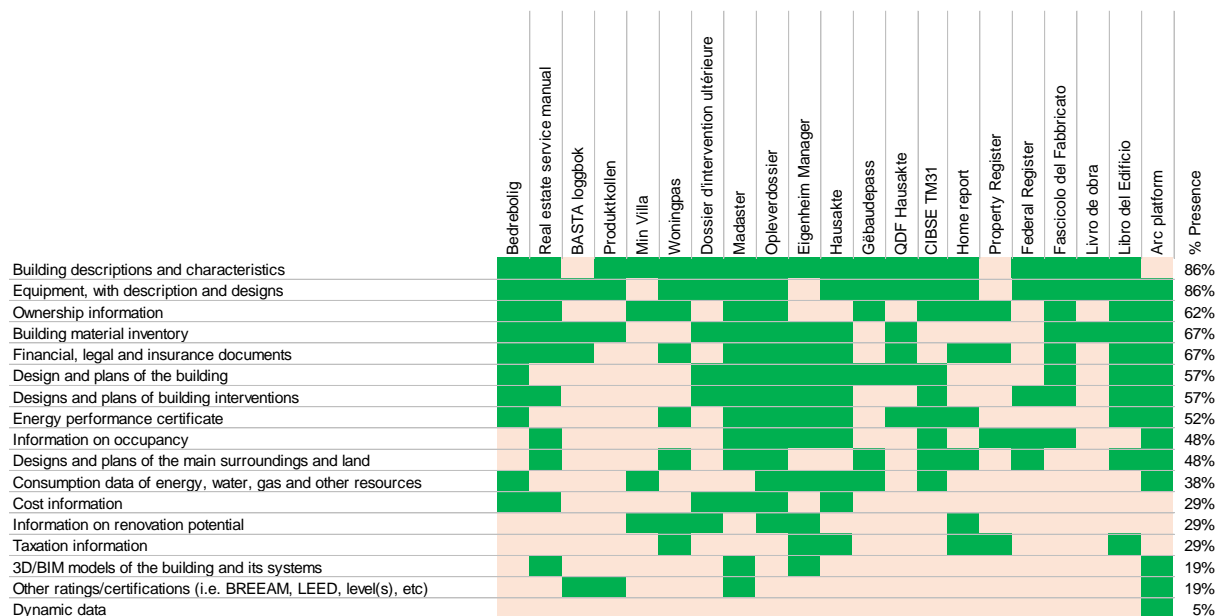


Figure 8. Data fields building logbooks in place

¹³ The lists of data fields and functionalities presented in this section are not fully aligned to those identified in Task 1. This is due to the timing of the two activities: the list presented in Report 1 of the study was further developed based on the feedback received by the stakeholders.

¹⁴ During the analysis, a partial inclusion of information has been considered as a green square.

The analysis of the functionalities confirms what shown for the data fields: among the initiatives currently in place, building logbooks are mainly used as collector of administrative and construction information together with operational maintenance and use. Only some of the more “advanced” functionalities (benchmarking with similar buildings, alerts on performance/condition, environmental impact, or compatibility with 3D/BIM models) listed at the bottom of Figure 9 are available in few voluntary initiatives.

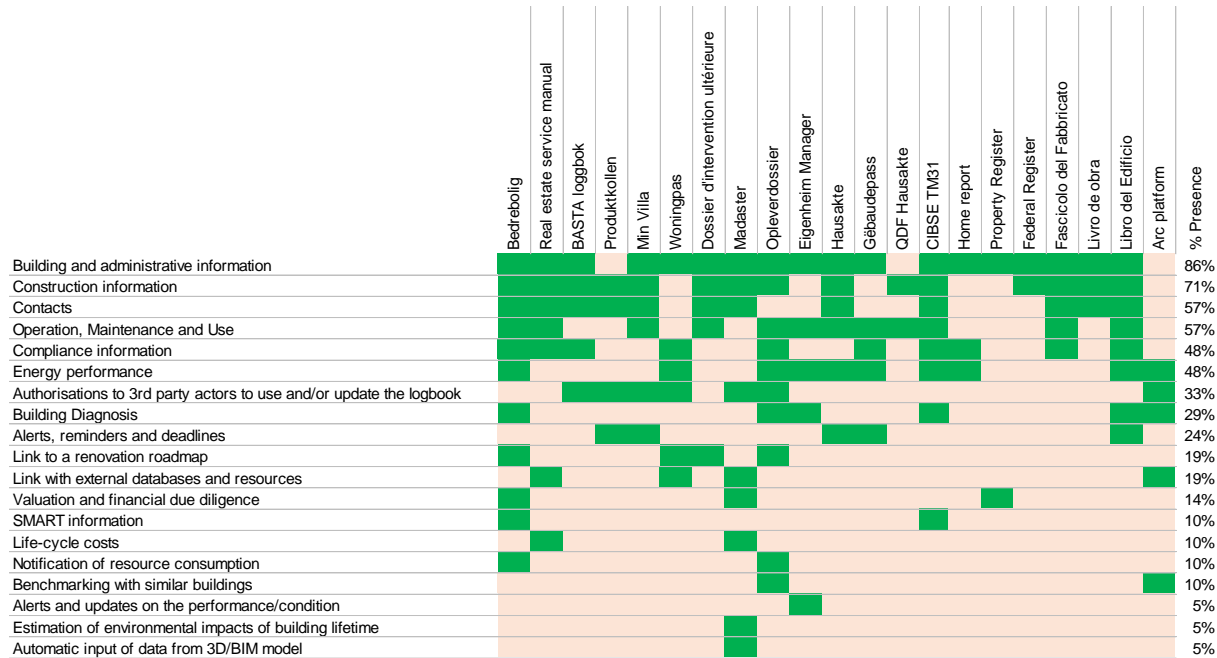


Figure 9. Functionalities building logbooks in place

Data management

70% of the initiatives have a structured approach to data which are collected following a multi-categories’ cataloguing, 10% present macro-categories only whilst 20% do not use any type of structure but just list documents that should be included. By dividing again the initiatives between mandatory and voluntary, it is clear that almost all mandatory initiatives have a structured approach, with specific data fields to be included in the building logbook, whilst voluntary tend to work mostly with macro-categories, which define at higher level what information should be included. The responsibility for populating the building logbooks is generally with the building owner or, in case of a new development or refurbishment, with the building constructor.

The Property register, the Federal register and the Woningpas are three exceptions where information is updated and collected by the municipalities/public authorities with the Woningpas being automatically updated as it links with other existing databases and platforms. Seven out of the eleven mandatory initiatives have no process for data validation with the following exceptions:

- The Ministry of Environment of Finland and Portuguese local municipalities are entitled to verify the information provided and inspect the properties;
- Iceland requires the verification of information and has a price list for the validation;
- In Switzerland, the Federal Statistical Office defined a set of rules and processes for quality control and checks to be carried out on the information collected to ensure correct updates of the data;
- In Italy, the “Fascicolo del Fabbricato” is validated by a registered technician (engineer, architect, etc.).

Success factors

The building logbooks analysed mainly aim at ensuring access to information, support better decision-making, market transparency, and simplify the construction process. As part of the review the following key success factors were identified (Figure 10).

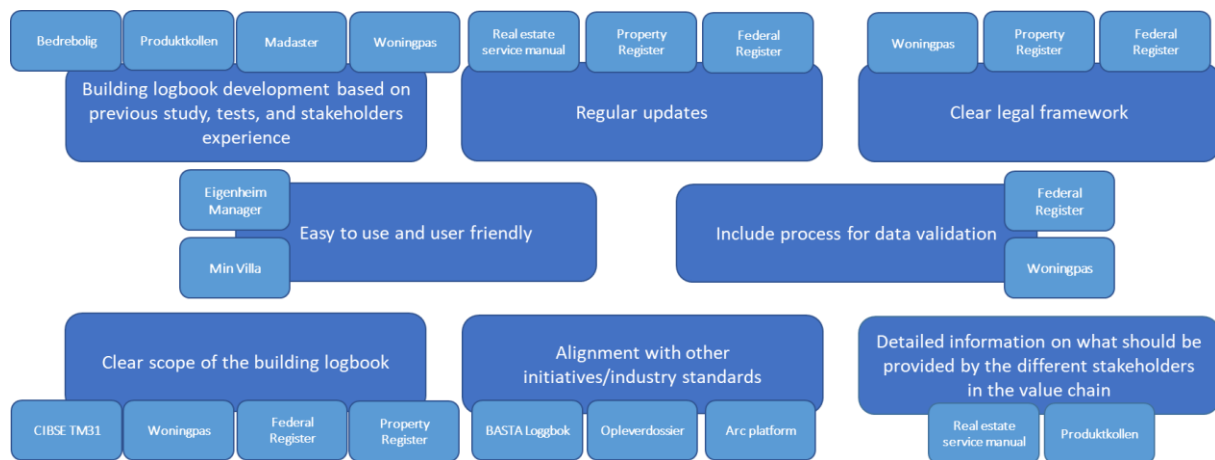


Figure 10. Building logbooks success factors

Discontinued

D1 - Home Information Pack – UK
D2 - ImmoPass – Germany

The **Home Information Pack (HIP)** was introduced in 2007 for building transactions with the aim of making more information available at the beginning of the home buying/selling process and reduce the time between offer and sale¹⁵. The information pack included mainly administrative documents (a property information questionnaire, EPC, sale statement, evidence of title) that were generally kept by the agent and shared with potential buyers. After several changes in scope and motions to revoke, the HIP requirement was suspended in May 2010 following General Election. During the 2010 political campaign HIP became part of different parties' manifestos, with pledges like "Abolish Labour's expensive and unnecessary Home Information Packs which increase the cost and hassle of selling homes" and "Scrap burdensome Home Information Packs, retaining the requirement for homes to have an energy performance certificate".

The **ImmoPass** was a private initiative developed in 2000 by HypoVereinsbank and Dekra which created a building assessment process with over 130 evaluation criteria divided in thematic areas (building, open space, healthy living, environment, and energy, building services and construction). The aim of the evaluation was to provide a transparent assessment of the quality of the properties during planning and construction, support communication between all stakeholders¹⁶ and rectify defects at early stage of the construction phase to reduce costs for corrections.¹⁷ The cost of the review was €3.300 which included three audits at the site and pollution measures. Stakeholders involved in the initiative confirmed that ImmoPass no longer exists however they did not provide an explanation on why it was suspended.

¹⁵ House of Commons (2010) "Home Information Packs: a short history"
<https://commonslibrary.parliament.uk/research-briefings/rp10-69/>

¹⁶ DEKRA SE (2000) "Innovationspreis für den ImmoPass Neutrale Qualitätsaussage hilft dem Immobilienkäufer"
<https://www.presseportal.de/pm/6647/192259>

¹⁷ UmweltDialog (2007) "ImmoPass: Kostenersparnis für Mensch und Umwelt"
https://www.umweltdialog.de/de/verbraucher/leben-und-wohnen/archiv/2007-02-14_HVB_ImmoPass.php

Barriers to implementation of building logbooks

The analysis of the initiatives tested, in place and the discontinued building logbooks highlighted different barriers that prevent or slow down the uptake (Figure 11).

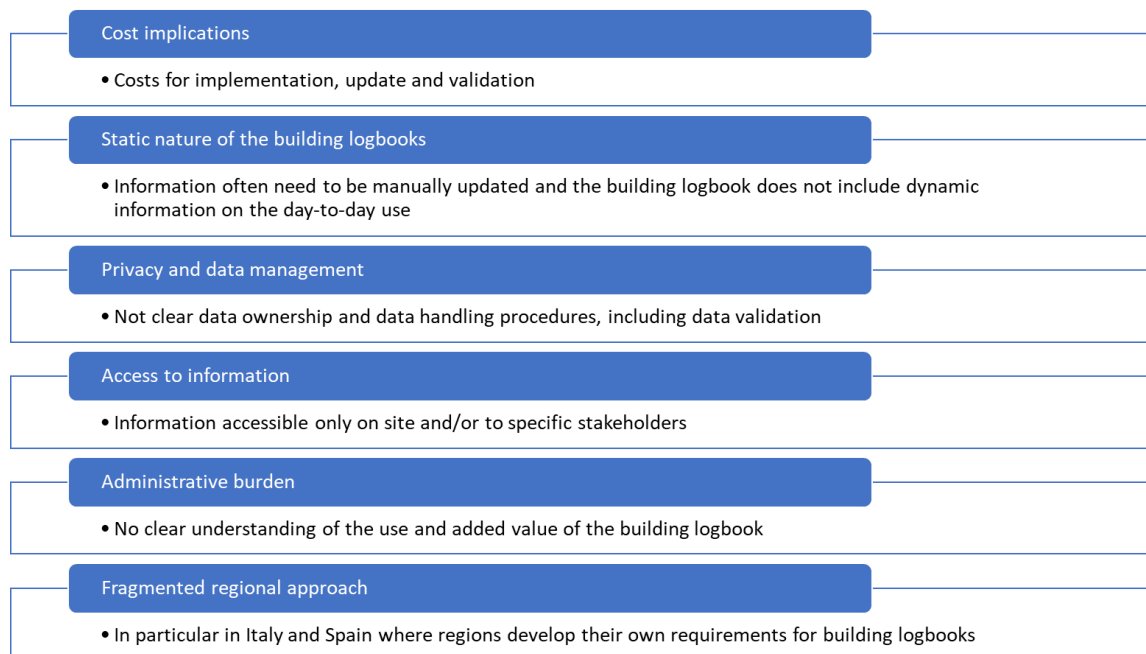


Figure 11. Barriers implementation building logbooks

Relevant H2020 projects

There is a growing number of projects focussing on building logbook or similar concepts financed through the H2020 programme. Those projects have been selected through different H2020 call topics, showing the connection of building logbooks with many areas of research and innovation. This review includes the most relevant.

iBRoad aims at creating a tool for the development of individual building renovation roadmaps for single-family houses: the combination of occupant’s needs together with the building information will allow the development of a long-term renovation plan that will consider the building as a whole. In the optic of the project, the building logbook can provide an insight on the building status and be used to formulate the renovation roadmap.

ALDREN focuses as well on renovation with the aim to “achieve higher renovation rates and better quality, overcoming marketed barriers and preparing the ground for investments”¹⁸ through the development of building passports. From the investment side, a systematised and optimised framework for capturing and processing information, such as a building logbook, can be used as support for investment decision making and create opportunities for innovation.

The aim of **BAMB**, project now concluded, was to move the construction industry towards a circular economy by preventing construction and demolition waste and reduction of virgin resource consumptions. The material passport framework developed by the project can

¹⁸ Sesana, M.M. and Salalai, G. (2018) “A review on Building Renovation Passport: Potentialities and barriers on current initiatives”. *Energy & Buildings* 173 (2018)

potentially be included in building logbooks to extend buildings life span and enable disassembling components at the end of the building life.

In **BIM4EEB** the digital building logbook is part of the project. The aim of the project, currently ongoing, is to foster the renovation industry by developing an attractive and powerful BIM-based toolset able to support the supply chain over the life span of a building. The project envisions that augmented reality and the digital building logbook will be used by public and private owners for decision making and asset management.

DigiPLACE is a “framework which allows the development of future digital platforms as common ecosystems of digital services that will support innovation, commerce, etc.”¹⁹ The project is aiming at creating a digital platform that will integrate technologies, applications and services of the digital construction industry. Building logbooks could be potentially part of the work for EU wide data spaces²⁰.

X-tendo will support public authorities

to transition to next-generation energy performance certification schemes, including improved compliance, reliability, usability, and convergence. One of the key outputs of the project will be the X-tendo toolbox, which will contain 10 innovative EPC features ranging from a smartness and a comfort indicator to building logbooks and how to improve EPC databases. For the building logbooks, together with all the other features of the toolbox, the project will provide: 1) solution concepts and good practice examples, 2) description of methodological approaches, 3) calculation tools, and 4) implementation guidelines and recommendations.

- Topic EE-11-2016-2017 - Overcoming market barriers and promoting deep renovation of buildings
 - **RP1 - IBroad** - *Individual Building Renovation Roadmaps: running from June 2017 to May 2020*
 - **RP2 - ALDREN** - *ALliance for Deep RENovation in buildings: running from Nov. 2017 to April 2020*
- Topic WASTE-1-2014 - Moving towards a circular economy through industrial symbiosis
 - **RP3 - BAMB** - *Buildings As Material Banks: run from Sept. 2015 to Feb. 2019*
- Topic LC-EEB-02-2018 - Building information modelling adapted to efficient renovation
 - **RP4 - BIM4EEB** - *BIM based fast toolkit for Efficient rEnovation in Buildings: running from Jan. 2019 to June 2022*
- Topic DT-ICT-13-2019 - Digital Platforms/Pilots Horizontal Activities
 - **RP5 - DigiPLACE** - *Digital Platform for Construction in Europe: running from Sep. 2019 to Feb. 2021*
- Topic LC-SC3-EE-5-2018-2019-2020 - Next-generation of Energy Performance Assessment and Certification
 - **RP6 - X-tendo** - *eXTENDING the energy performance assessment and certification schemes via a mODular approach: running from Sep. 2019 to Aug. 2022*

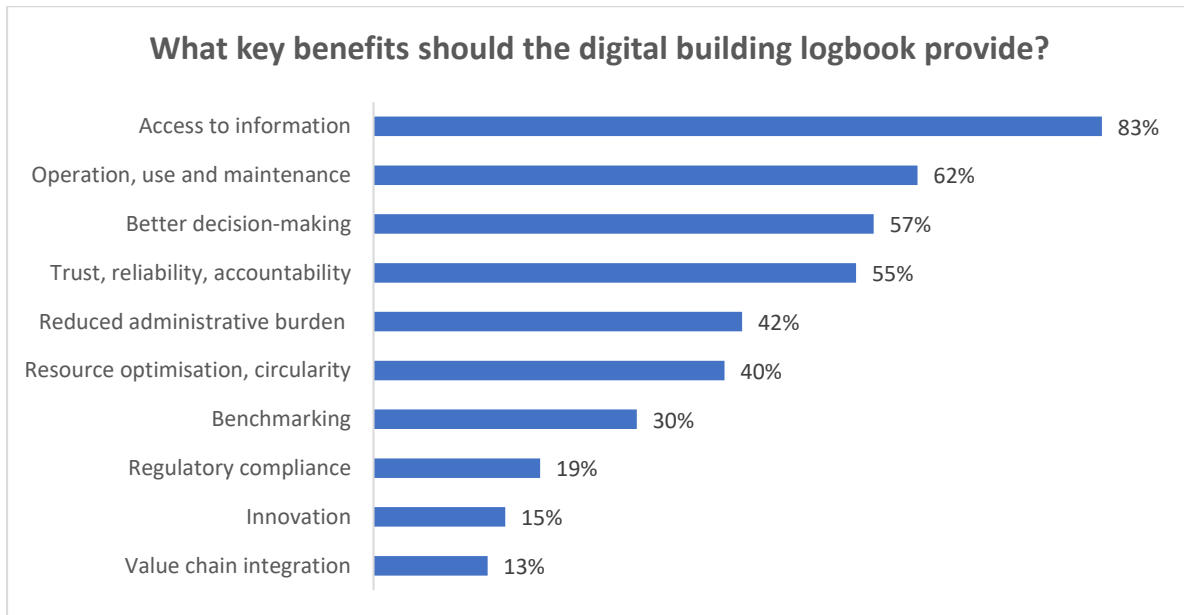
¹⁹ DigiPLACE (n.d.) Retrieved from: <https://www.digiplaceproject.eu/>

²⁰ EBC Construction (2019) Introducing the Digiplace project, a digital platform for construction in Europe. Retrieved from: <https://www.ebc-construction.eu/2019/09/06/introducing-the-digiplace-project-a-digital-platform-for-construction-in-europe/>

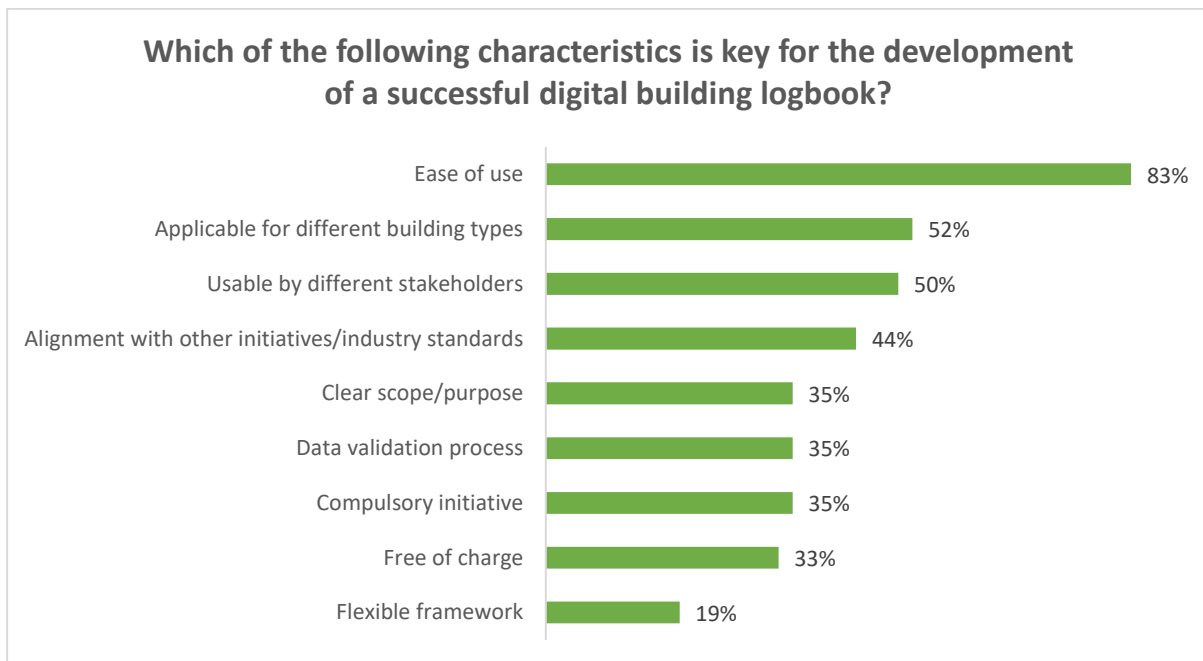
CHAPTER 4: WEBINAR RESULTS

The B-LOG consortium organised a webinar on the 13th May 2020 to share the results of the activities carried out in the initial phases of the project. The 68 participants represented different stakeholders' groups, with almost an equal presence from Academia/Research (26%), Associations (21%), Government/Public administration (19%) and Industry (19%). Overall, there was strong stakeholder engagement, 100% of registered participants attended the call.

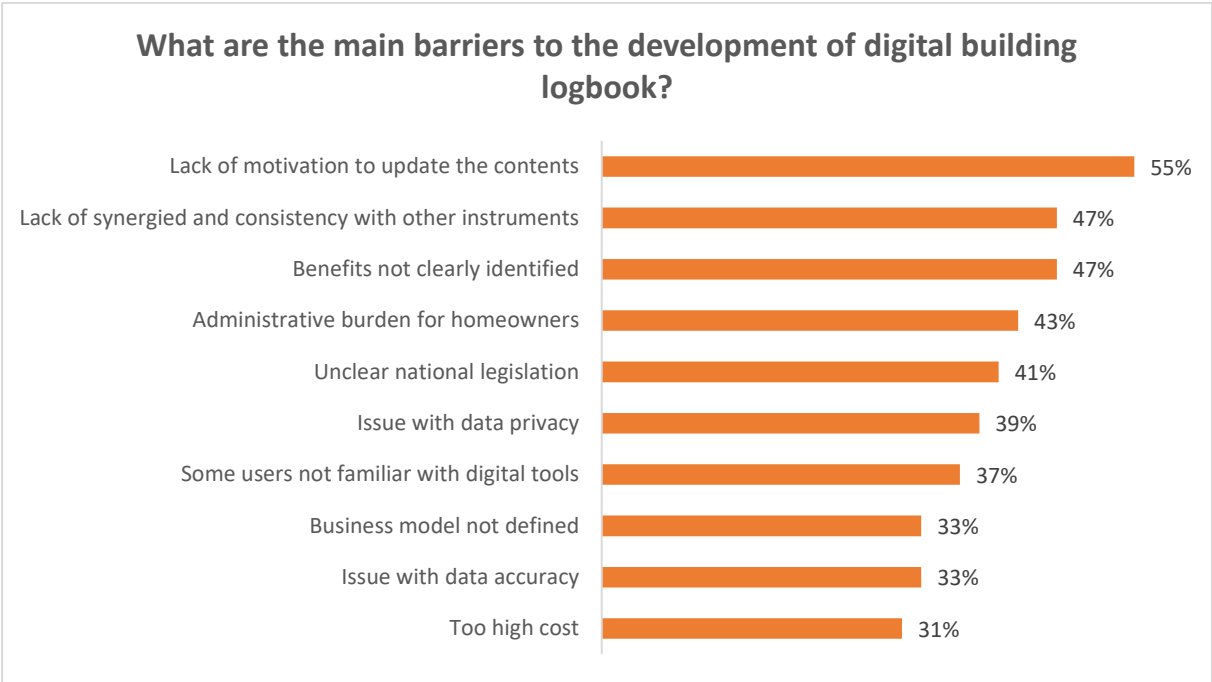
During the webinar participants were asked to respond to three questions on benefits, success factors and barriers to the development of buildings logbooks.



The results of the poll show that, from the participant perspective, a building logbook should be an information repository that can support decision making, all the activities linked with the building operation and use and enhance trust, reliability and accountability.



From the responses it is clear that for the participants ease of use is the key priority in the development of a successful building logbook, with over 20% more votes than other important aspects such as applicability over different type of buildings and usability by different stakeholders (all above 50%).



Stakeholders did not identify a single main obstacle in the development of building logbooks but rather a mix of different aspects that can all prevent the success of the implementation.

CHAPTER 5: CONCLUSIONS

The analysis of the state of play of the building logbooks shows that the basic concept underpinning the initiatives, although with different facets, are similar, particularly for the mandatory ones. Building logbooks are used to collect administrative information, together with building characteristics and operational data.

The number of countries where building logbooks are tested or currently under development confirm a growing interest on the topic with public authorities and private companies that are developing tools to meet the requirements and needs of the build environment users and stakeholders. Although not a single building logbook included in the analysis encompasses the full array of data fields and functionalities, the most recent initiatives in place are integrating the “classical” information and functions with more advance features, which make the building logbook a dynamic tool that can better respond to different stakeholders’ requests and needs (energy, LCA, BIM, certification, etc.). The potential to push building logbooks even beyond their current scope emerged in the analysis of the H2020 projects: building logbooks can become enabling tools for initiatives such as the renovation roadmaps or for investment decision making and can also be enriched with details that can support circular economy.

Both the analysis and the feedback received from the stakeholders during the webinar showed that ease of use is the key element for a successful building logbook. Different countries (France, UK, specific regions in Italy) defined building logbooks as burdensome after the implementation/test, which results in the suspension of the initiatives. Only a clear understanding by the users of the usefulness of the building logbook together with an easy to implement approach would push the uptake and potentially create a business interest for private companies.

From the analysis, we can identify two different approaches aimed at simplifying the process of implementation: the Woningpas, which links with existing databases and gets automatically updated, and the Federal Register together with the Property Register, where the public authorities are responsible for collecting and controlling the information. It is interesting to note how Greece is trying to create, with the Electronic building ID, a full database of all properties in the country (similarly to Iceland and Switzerland), pushing however the effort of collecting the data on the building owners. This should be reviewed in the future, once the ID is operational, to see how it evolves. The (slow) approach of the construction industry towards technology is confirmed by the presence of many paper-based initiatives. The paradox of the industry is that working collaboratively by sharing information that are collected in a single point would solve some of the issues in construction (silos working, lack of collaboration, etc.); however, due to the nature of the industry itself it is not easily achievable. All the issues related with data, including quality assurance, lack of standardisation, privacy, accuracy can influence the utility and utilisation of the building logbook. Not validated/updated building logbooks lose their purpose and make the whole process an onerous and time-consuming exercise with very little benefits, which is one of the barriers to the implementation/uptake emerged from the analysis. It therefore appears that the natural evolution of building logbooks, to be able to overcome some of these barriers, is the digital environment, however it is important to clearly define the scope and functionalities to ensure success. Moving toward a digital building logbook does not imply to simply include file created electronically into the building logbooks but rather the development of integrated instrument that not only provides accurate and up-to-date information but also enables analysis, based on the different users’ needs, on how to manage, maintain and improve the building.

ANNEXES

Annex A. Evaluation template

Initiative ID

Name of the initiative

Name of organisation/ministry/company responsible

Country/Countries involved

Brief description of the initiative (max 200 words)

What data fields are included - indicate Y to the relevant data fields

<i>Ownership information</i>	Yes/No
<i>Information on occupancy (i.e. current use and past uses, lease terms)</i>	Yes/No
<i>Building descriptions and characteristics (i.e. age, construction type as well as main elements and their style)</i>	Yes/No
<i>Design and plans of the building (blueprints)</i>	Yes/No
<i>3D/BIM models of the building and its systems</i>	Yes/No
<i>Designs and plans of the main surroundings and land (i.e. pedestrian road, access, elevation, soil composition, vegetation, passages, sealed areas, etc.)</i>	Yes/No
<i>Designs and plans of building interventions (vertical and horizontal extensions, renovations, internal and external re-arrangement of spaces etc.)</i>	Yes/No
<i>Equipment, with description and designs (heating, cooling, connectivity, insulation, shades, ventilation and general control of interior environment, with data/certifications on their maintenance)</i>	Yes/No
<i>Consumption data of energy, water, gas and other resources</i>	Yes/No
<i>Dynamic data (smart meters and sensors, including real time energy consumption)</i>	Yes/No
<i>Building material inventory, information on construction products</i>	Yes/No
<i>Cost information - material, products, equipment, etc</i>	Yes/No
<i>Information on renovation potential (such as a building renovation passport)</i>	Yes/No

<i>Financial, legal and insurance documents, including building costs/value (annual rent, maintenance charges, property value, etc)</i>	Yes/No
<i>Taxation information and obligation linked to ownership and tenure</i>	Yes/No
<i>Energy performance certificate</i>	Yes/No
<i>Smart readiness indicator score</i>	Yes/No
<i>Other ratings/certifications (i.e. BREEAM, LEED, level(s), etc)</i>	Yes/No
<i>Other (please indicate)</i>	

Functionalities

<i>Building and administrative information</i>	Yes/No
<i>Construction information (materials, suppliers, etc.)</i>	Yes/No
<i>Compliance information</i>	Yes/No
<i>Energy performance</i>	Yes/No
<i>SMART information</i>	Yes/No
<i>Building Diagnosis</i>	Yes/No
<i>Alerts, reminders and deadlines</i>	Yes/No
<i>Contacts</i>	Yes/No
<i>Operation, Maintenance and Use</i>	Yes/No
<i>Life-cycle costs</i>	Yes/No
<i>Alerts and updates on the performance/condition of the building (heat, frost and temperature envelope and elements, earthquakes, flooding, etc.)</i>	Yes/No
<i>Notification of resource consumption (energy, water, gas, etc.)</i>	Yes/No
<i>Link to a renovation roadmap</i>	Yes/No
<i>Estimation of environmental impacts of building lifetime</i>	Yes/No
<i>Valuation and financial due diligence</i>	Yes/No
<i>Benchmarking with similar buildings</i>	Yes/No
<i>Link with external databases and resources</i>	Yes/No
<i>Authorisations to 3rd party actors to use and/or update the logbook</i>	Yes/No
<i>Automatic input of data from 3D/BIM model</i>	Yes/No

Is the initiative voluntary/compulsory for the following types of buildings (please indicate if for new buildings or existing buildings as well)

Office buildings

Individual houses

Multi-apartment buildings

Public buildings

Industrial buildings

Other (please specify)

If compulsory, are there sanctions for not compliances/not presence?

Is the initiative digital or paper based?

Is it a public or private initiative?

What is the cost for participation?

Barriers to the implementation / success factors to implementation

Is the information accessible by third parties?

Is the information accessible online?

What is the cost for accessing?

Are updates mandatory? If yes, how often?

How is the data collected/collated?

Who is responsible for collecting/collating the data

Is the data validated?

Where is the information stored?

Does the initiative include evaluations/certifications by third parties? (BREEAM, LEED, EPC, WELL, Levels...). If yes, please indicate which

Any other useful information (e.g. plan to make it compulsory, partial application, etc.)

Evaluation Matrix - Delete all the options not relevant

Market penetration

- 1 - Test initiative (less than 100 buildings involved)
- 2 - less than 10% of the building in the country participating in the initiative
- 3 - Between 10% and 40%
- 4 - Between 40% and 70%
- 5 - More than 70% of the building in the country are participating in the initiative

Applicability over different types of buildings

- Applicable only to one type of building
- Partially applicable to multiple but specific types of buildings
- Partially applicable to all types of buildings
- Applicable to multiple but specific types of buildings
- Applicable with no limitation to all type of buildings

Usage by different stakeholders

Stakeholder groups (owners&tenants, public authorities, construction&building professionals, facilities&asset managers, investors&banks&insurances)

- Usable only by one type of stakeholder
- Usable by two types of stakeholders
- Usable by three types of stakeholders
- Usable by four types of stakeholders
- Usable by more than five types of stakeholders

Indicate which stakeholders adding to the list above if not mentioned

Affinity and compatibility with other European initiatives

- Not compatible with any other European initiative
- Partially compatible with other EU initiatives without automatic pull/push of information
- Partially compatible with other European initiatives (data can be partially pulled/pushed)
- Fully compatible with other EU initiatives without automatic pull/push of information
- Fully compatible with other EU initiatives (all relevant data can be pulled/pushed)

Which other European initiatives are affine and compatible?

Structured data collection and cataloguing method

- Data collected and catalogued without a structured approach
- Macro-categories are used for cataloguing buildings' data
- Macro-categories are used for cataloguing buildings' data with minimum required data
- Structured data base is used with multi-categories' cataloguing
- Structured data base is used with multi-categories' cataloguing with minimum required data

Level of digitalization of the initiatives (paper based/online access)

- Initiatives completely paper based
- Limited information available online
- Key information available online
- Majority of information available online
- All the information is available online

Level of digitalization of the information included (digital files/BIM/Digital twin compatibility)

All information included is paper based

Some information is digital and created digitally through non-technical software (i.e. Excel)

Some information is digital and created digitally through CAD software

All information is digital and created digitally CAD software BIM Maturity Level 0/1)

All information included is digital and created digitally through models integration using technical software (BIM Level 2 and 3 Maturity)

How accessible is the information? (i.e. "easy" to get)

Information is not accessible/only accessible on site

Limited information accessible

Key information accessible

Majority of information accessible

All the information is accessible

How readily is the information accessible?

Information is not accessible/only accessible on site

More than two weeks are required to access the information

Between one and two weeks are required to access the information

Less than a week is required to access the information

Information is accessible at the time of request

Annex B. Summary of initiatives in place

Name of the initiative	Arc platform
Name of organisation / ministry / company responsible	US Green Building Council (USGBC) and Green Building Certification Inc (GBCI)
Country / Countries involved	Global (USA Based)
Mandatory/Voluntary	Voluntary
Type of buildings²¹	All types of buildings
Paper/Digital	Digital
Brief description of the initiative	Arc is a private initiative developed by USGBC and GBCI. The ARC digital platform "uses data to help measure and improve sustainability performance across the built environment, from buildings to cities and beyond." ²² Through a performance score ARC help achieve continuous and incremental improvement and buildings can be benchmarked to achieve higher performances.
Website	https://arcskoru.com/

Name of the initiative	BASTA loggbok
Name of organisation / ministry / company responsible	BASTA non-profit company
Country / Countries involved	Sweden
Mandatory/Voluntary	Voluntary
Type of buildings	All types of buildings
Paper/Digital	Paper
Brief description of the initiative	BASTA loggbok private logbook service targeted at the construction manager. In Sweden, a logbook is a prerequisite to get miljocertifikat (environment certificate) , which is common for commercial and public buildings , as well as for larger residential building owners. BASTA is a web-based tool that enables the user to easy store information on construction materials, which make it possible to trace certain materials , contributing to Sweden's environmental goal of "Non-toxic environment"
Website	https://www.bastaonline.se/

Name of the initiative	Bedrebolig
Name of organisation / ministry / company responsible	The Danish Energy Agency
Country / Countries involved	Denmark
Mandatory/Voluntary	Voluntary

²¹ For the purpose of the analysis buildings were classified into: individual houses, multi-apartment buildings, office buildings, public buildings and industrial buildings

²² GBCI (n.d.) About Arc. Retrieved from: <https://gbc.org/press-kit-arc>

Type of buildings	Individual houses and multi-apartment buildings
Paper/Digital	Paper
Brief description of the initiative	BedreBolig is a public scheme destined to facilitate energy-efficient renovation measures by offering a holistic view of the process. BedreBolig focuses on homeowners by helping them to create an energy plan including facts about the current energy consumption of the home, priority lists of most relevant measures to be undertaken, tips for energy-efficient behaviour and financial planning. It also includes a network of certified advisers that propose different quotes and interventions to the user as well as information regarding subventions opportunities
Website	https://sparenergi.dk/forbruger/vaerktoejer/bedrebolig

Name of the initiative	CIBSE TM31
Name of organisation / ministry / company responsible	Chartered Institution of Building Services Engineers
Country / Countries involved	UK
Mandatory/Voluntary	Mandatory
Type of buildings	Office buildings, public buildings and industrial buildings
Paper/Digital	Paper
Brief description of the initiative	The TM31 supports the development of building logbooks which are mandatory in England and Wales as part of Part L of the Building Regulation for new and refurbished buildings and for existing buildings where significant changes have been made. TM31 explains the process of developing logbooks providing templates and examples based on different size/types of building . The scope is to give access to information on the design, commissioning and energy consumption of the building , including the metring strategy implemented. "The Building Log Book is a single copy of a separately produced document and is not to be confused with any other documents required for building works e.g. the Operation and Maintenance (O&M) manuals or the Health and Safety File. The provision of a Building Log Book is a Statutory Requirement of the Building Regulation 2010, Approved Documents L2A and L2B." ²³
Website	https://www.cibse.org/Knowledge/knowledge-items/detail?id=a0q20000008I7eiAAC

Name of the initiative	Dossier d'intervention ultérieure
Name of organisation / ministry / company responsible	Belgian Federal Government
Country / Countries involved	Belgium
Mandatory/Voluntary	Mandatory
Type of buildings	Individual houses and multi-apartment buildings
Paper/Digital	Paper

²³ Cornwall Council (2012) The building Log Book. Retrieved from: <https://www.cornwall.gov.uk/media/3631504/The-Building-Log-Book-V10.pdf>

Brief description of the initiative	<p>The DIU contains the useful elements for safety and health which must be taken into account during any building intervention (renovations, extensions, repair, maintenance) and that is adapted to the features of the structure. The house owners must hand it over to their future purchaser at each sale. The notary must mention the delivery of the document in the deed.</p> <p>The file is comparable to a maintenance book of a car. It's aim is to ensure safety and health during future renovations by a better knowledge of the materials used during the previous installations, of the location of the hidden pipes in the walls, etc.</p>
Website	https://www.vlaanderen.be/postinterventiedossier-pid

Name of the initiative	Eigenheim Manager
Name of organisation / ministry / company responsible	Eigenheim Manager
Country / Countries involved	Germany
Mandatory/Voluntary	Voluntary
Type of buildings	All types of buildings
Paper/Digital	Digital
Brief description of the initiative	<p>The Eigenheim Manager is an online app that support home owners by registering information and helping achieving specific goals within the house. The app can be used, for example, to reduce consumption, costs or as maintenance booklet by showing information in a clear manner.</p>
Website	https://eigenheim-manager.de/faq/

Name of the initiative	Fascicolo del Fabbricato
Name of organisation / ministry / company responsible	Regional Government based on national requirement
Country / Countries involved	Italy
Mandatory/Voluntary	Mandatory
Type of buildings	Public buildings
Paper/Digital	Paper
Brief description of the initiative	<p>Fascicolo del Fabbricato is a dossier containing information about:</p> <ul style="list-style-type: none"> - the construction of a building and its appartenances - any change made to the original project - any work carried out on the building and systems <p>Fascicolo del Fabbricato is a tool for monitoring the built environment conservation with the aims of minimising risks and plan over time maintenance and refurbishment</p>
Website	n.a.

Name of the initiative	Federal Register of Buildings and Dwellings
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Name of organisation / ministry / company responsible	Federal Statistical Office (FSO)
Country / Countries involved	Switzerland
Mandatory/Voluntary	Mandatory
Type of buildings	All types of buildings
Paper/Digital	Digital
Brief description of the initiative	The Federal Building and Housing Register (Federal REA) was established on the basis of the Federal Census of the population in 2000 and it now contains data on all kinds of buildings in Switzerland. RDB data provides a view of the current buildings and dwellings stock of Switzerland, continuously updated by communal building departments . The catalogue of attributes provides a description of the data recorded in the RDB and an overview of its structure and content (not available in English). In addition to the identifiers of buildings and dwellings (EGID and EWID), unique at national level, it detects the main basic data on buildings such as address, coordinates, year of construction, number of floors and type of heating , as well as the number of rooms and the surface of the houses . The register also includes information on construction projects. The RDB has statistical, research and planning purposes, as well as for the execution of legal obligations at the level of the Confederation, cantons and the communes.
Website	https://www.bfs.admin.ch/bfs/en/home/registers/federal-register-buildings-dwellings.html

Name of the initiative	Göbaudepass
Name of organisation / ministry / company responsible	Bundesministerium für Verkehr, Bau und Wohnungswesen (BMVBW)
Country / Countries involved	Germany
Mandatory/Voluntary	Voluntary
Type of buildings	Individual houses
Paper/Digital	Digital
Brief description of the initiative	The Göbaudepass provides a description of the key features and characteristics of a property , focussing on the technical information of the dwelling. The Gebaeudepass is a voluntary initiative that is also included in the Hausakte, which contains information on the state of the building when it has been completed.
Website	n.a.

Name of the initiative	Hausakte
Name of organisation / ministry / company responsible	Bundesminister für Verkehr, Bau- und Wohnungswesen
Country / Countries involved	Germany
Mandatory/Voluntary	Voluntary
Type of buildings	Individual houses

Paper/Digital	Digital
Brief description of the initiative	<p>In the Hausakte all important documents from the planning and construction phase are collected. This is where the owner stores all information for later repairs, extensions and modernisations. It also documents the most important changes in the lifecycle of the building.</p> <p>Together with the Gebäudepass, the house file ensures the quality of construction and consumer protection when buying a building. The Hausakte enables builders and buyers to better compare quality and prices on the property market.</p> <p>Hausakte contains Gebäudepass (first chapter) and the Energy Performance Certificate (second chapter)</p>
Website	n.a.

Name of the initiative	Home report
Name of organisation / ministry / company responsible	Scottish Government
Country / Countries involved	Scotland (UK)
Mandatory/Voluntary	Mandatory
Type of buildings	Individual houses
Paper/Digital	Paper
Brief description of the initiative	<p>Houses for sale in Scotland have to be marketed with a Home Report. This is a pack of three documents: a Single Survey, an Energy Report and a Property Questionnaire. The Single Survey contains an assessment by a surveyor of the condition of the home, a valuation and an accessibility audit for people with particular needs. The Energy Report contains an assessment by a surveyor of the energy efficiency of the home and its environmental impact. It also recommends ways to improve its energy efficiency. The Property Questionnaire is completed by the seller of the home. It contains extra information about the home, such as Council Tax banding and factoring costs that will be useful to buyers.</p>
Website	https://www.gov.scot/policies/homeowners/home-reports/

Name of the initiative	Libro del Edificio
Name of organisation / ministry / company responsible	Regional Government based on national requirement
Country / Countries involved	Spain
Mandatory/Voluntary	Mandatory
Type of buildings	Individual houses and multi-apartment buildings ²⁴
Paper/Digital	Paper
Brief description of the initiative	<p>The "Libro del Edificio" is a collection of all the documentation that comprises the history of the buildings including technical, judicial, administrative incidences. Its finality is to make owners aware of all the information, data</p>

²⁴ In some Spanish regions is also mandatory for all type of buildings.

	and instructions needed to improve the utilisation of the building , its construction elements and its installation . The documentation is also aimed at providing decision support in the execution of refurbishment, fixing or rehabilitating spaces and elements . It is also used to ensure legal obligations are complied with.
Website	n.a

Name of the initiative	Livro de obra
Name of organisation / ministry / company responsible	Ministry of Environment, Territorial Planning and Regional Development, and Ministry of Public Works, Transportation and Communication.
Country / Countries involved	Portugal
Mandatory/Voluntary	Mandatory
Type of buildings	Individual houses, multi-apartment buildings, office buildings and industrial buildings
Paper/Digital	Paper
Brief description of the initiative	<p>According to the Law for urbanisation and building, the "livro de obra" contains:</p> <p>1 - All relevant facts related to the execution of licensed construction or object of prior communication must be registered by the respective construction director in the "livro de obra", to be kept at the place of its execution for consultation by the municipal officials responsible for the supervision of works.</p> <p>2 - In addition to the respective start and completion dates, all the facts that imply stopping or suspending them, as well as all relevant changes made to the licensed or communicated project, are mandatorily registered in the "livro de obra".</p> <p>3 - The model and other records to be entered in the "livro de obra" are defined by a joint ordinance of the members of the Government responsible for public works and land planning, which also sets out the characteristics of the electronic "livro de obra".</p>
Website	n.a.

Name of the initiative	Madaster
Name of organisation / ministry / company responsible	Madaster Foundation
Country / Countries involved	The Netherlands
Mandatory/Voluntary	Voluntary
Type of buildings	All types of buildings
Paper/Digital	Digital
Brief description of the initiative	The Madaster Platform is designed as a public, online library of materials of the built environment . The Madaster Platform facilitates registration, organisation, storage and exchange of data . It links the identity of materials to a location and registers this in a material passport . Through the materials passport, materials keep

	their identities, changing every building into a depot of materials with a certain value.
Website	https://www.madaster.com/en

Name of the initiative	Min Villa
Name of organisation / ministry / company responsible	Villaagarnas Riksforbund
Country / Countries involved	Sweden
Mandatory/Voluntary	Voluntary
Type of buildings	Individual houses
Paper/Digital	Digital
Brief description of the initiative	Min Villa is a private service provided by the house owner association for homeowners to store and track the buildings performance . "My Villa is a digital service that helps you keep track of how your house is doing. Create a maintenance plan for your house - an easy and convenient way to keep track of what has been done and what needs to be done on the house. With the advice of our experts on how to check and correct any deficiencies, you will have a safer residential life. ²⁵ "
Website	https://minvilla.villaagarna.se/

Name of the initiative	Opleverdossier
Name of organisation / ministry / company responsible	Ministerie van Binnenlandse Zaken en Koninkrijksrelaties (Ministry of Internal Affairs)
Country / Countries involved	The Netherlands
Mandatory/Voluntary	Voluntary
Type of buildings	Individual houses and multi-apartment buildings
Paper/Digital	Paper
Brief description of the initiative	An Opleverdossier is a dossier of information on a residential property that provides insight into the technical quality of that property or building , as well as guidance on maintenance . The objective is to make the housing market more transparent and to help homeowners to fulfil their responsibility to maintain their dwelling, by creating better insight into housing quality and the requirements their dwelling has to meet, in the form of a maintenance manual. In addition, local authorities also lack insight into housing quality and need better information about their housing stock in order to develop specific policies concerning quality.
Website	n.a.

Name of the initiative	Produktkollen
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²⁵ Villaagarna (2019) "Min Villa - tar tempen på ditt hus" Retrieved from: <https://www.villaagarna.se/formaner/tjanster/min-villa/>

Name of organisation / ministry / company responsible	ProduktKollen AB
Country / Countries involved	Sweden
Mandatory/Voluntary	Voluntary
Type of buildings	All types of buildings
Paper/Digital	Digital
Brief description of the initiative	ProduktKollen is a digital logbook that documents all products and ensures the quality of the work done. Builders, municipalities and authorities receive comprehensive final documentation as well as instructions on how to maintain the building . ²⁶ .
Website	https://www.produktkollen.se/

Name of the initiative	Property Register
Name of organisation / ministry / company responsible	Registers Iceland
Country / Countries involved	Iceland
Mandatory/Voluntary	Mandatory
Type of buildings	All types of buildings
Paper/Digital	Digital
Brief description of the initiative	The Property Register is a data and information system run by Registers Iceland. The register contains information on real properties and their attendant rights . The Property Register is a single, comprehensive register for multiple authorities, replacing the municipal property registers and district commissioners' property registration files. The Property Register contains all basic information on land, lots and strips of land , as well as the buildings on them. It also contains information on the size of lots and buildings, information on building material and a description of the building in question, as well as the property valuation and fire insurance value . The Property Register also contains information on registered rights , e.g. owners, mortgages and encumbrances.
Website	https://skra.is/english/individuals/real-properties/about-the-property-register/

Name of the initiative	QDF Hausakte
Name of organisation / ministry / company responsible	Bundesverband Deutscher Fertigbau e.V.
Country / Countries involved	Germany
Mandatory/Voluntary	Mandatory

²⁶ ProduktKollen (2020) PRODUKTKOLLEN EN LOGGBOK FÖR BYGGNADER. Retrieved from: <https://www.produktkollen.se/>

Type of buildings	Individual houses
Paper/Digital	Paper
Brief description of the initiative	The house file serves as the central documentation system for the building owner of prefabricated houses, including all the features of the house. From 2016 the QDF Hausakte is mandatory by the Federal Association of German Prefabricated Housing to certify that the house has been building according to the requirements. In the house file you can see the representation, updating and archiving of property information by the owner in the foreground. It can be useful in many ways as the life cycle of the building.
Website	n.a.

Name of the initiative	Real estate service manual
Name of organisation / ministry / company responsible	Government/Ministry of Environment
Country / Countries involved	Finland
Mandatory/Voluntary	Mandatory
Type of buildings	All type of buildings
Paper/Digital	Paper
Brief description of the initiative	The Land Use and Building Act of Finland requires that " Operations and Maintenance Instructions " are drawn up for each building used for permanent living of work (section 153 - 5). This includes the maintenance and operation of the energy supply system , which must be in such a condition that it meets the energy efficiency requirements defined in other laws (section 166). The maintenance manual must include the intended use and properties of the building, building elements, building equipment and information about proper maintenance and operation practices . Building projects cannot be completed without the manual. The Finish Environmental Administration has drafted specific recommendations for what needs to be included in the manual.
Website	n.a.

Name of the initiative	Woningpas
Name of organisation / ministry / company responsible	Flemish Energy Agency (VEA), Public Waste Agency of Flanders (OVAM), Environment and Housing Departments Flemish Government
Country / Countries involved	Flanders region (BE)
Mandatory/Voluntary	Mandatory
Type of buildings	Individual houses and multi-apartment buildings
Paper/Digital	Digital
Brief description of the initiative	The Woningpas is a unique integral digital file of each individual building. The file can be retrieved by the building owner and by stakeholders who have been authorised access . The logbook features energy performance, renovation advice, the housing quality (such as stability, humidity, safety), data on the environment and in the future other building aspects such as durability ,

	<p>water, installations and building permits. The Woningpas will make it possible to track the evolution of each individual building.</p> <p>A first version of the Woningpas (Woningpas Light) was launched late 2018, followed by a series of upgrades in the following years.</p>
Website	https://woningpas.vlaanderen.be/

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