Building Renovation Passports (BRPs), renovation roadmaps and Digital Building Logbooks (DBLs): potential "game changers" for deep renovation of the EU building stock

Horizon 2020 iBRoad project's Final Conference highlights key tools in the context of the Renovation Wave

Building Renovation Passports (BRPs)[i], renovation roadmaps and Digital Building Logbooks (DBLs)[ii] have the potential to become "game changers" for the much-needed deep renovation of the EU building stock, complementing and enhancing current Energy Performance Certificates (EPCs); this is one of the key conclusions of the Horizon 2020 iBRoad project's Final Conference that took place on Tuesday 24 November.

The Conference reviewed the iBRoad project's achievements during its 3,5 years of implementation, while opening the broader discussion on Building Renovation Passports and related tools, particularly in the context of the Renovation Wave Strategy.

Participants had the opportunity to review and discuss topics such as:

- The relation of Building Renovation Passports (BRPs), renovation roadmaps and Digital Building Logbooks (DBLs) with Energy Performance Certificates (EPCs)
- The past, present and promising future of these tools
- Why public authorities would choose to adopt them and why citizens would want them
- What policies can turn Building Renovation Passports into catalysts for investments in renovation

iBRoad's guest panellists included representatives from the European Commission, public authorities, research institutions, the financial sectors and other relevant EU-funded projects.

"Creating trust is key to implementing the Renovation Wave Strategy and achieving the decarbonisation objectives of the European Union; the Digital Building Logbook and Building Renovation Passports contribute immensely towards this direction, as they offer information to the end users and help plan the investment action", noted **Karlis Goldstein**, Member of Cabinet with the EU Commissioner for Energy. *"When one looks at the decision-making chain of the Renovation Wave, it all starts with the lack of information, and this is the most important aspect that is addressed by the Building Renovation Passports and Logbooks."*

"In the context of the Renovation Wave, Digital Building Logbooks are the 'digital gateways' to other relevant tools and indicators", explained **Ilektra Papadaki**, Policy Officer at DG GROW, European Commission. *"A Digital Building Logbook should follow a building throughout its lifetime; construction is recognised as a priority sector in the Circular Economy Action Plan adopted earlier this year, for which Logbooks are also relevant."*

Presenting analysis conducted on the long-term renovation strategies (LTRS) that have been submitted, **Mariangiola Fabbri**, Head of Research at the Buildings Performance Institute Europe (BPIE) remarked that, *"many of the strategies we have analysed have included or mention Building Renovation Passports as a chosen measure to achieve the decarbonisation of the building stock"*

"A building renovation is a complicated process; a plan is needed, as is a repository of information – the Building Renovation Passport, renovation roadmap and Digital Building Logbook", noted **Alexander Deliyannis**, Head of Consulting at Sympraxis Team and Coordinator of the iBRoad project. *"These kinds of tools are being explored more and more throughout Europe. For their realisation and integration in energy policies, iBRoad has developed, tested and proposed a specific modular concept combining renovation roadmaps and digital logbooks, a full audit procedure and supporting methodologies."*

"The modularity of iBRoad tools means that authorities can select those that complement their own approaches; in Bulgaria, Poland and Portugal both the roadmap and logbook were tested, whereas in Germany the iBRoad logbook was tested next to the existing national roadmap", noted **Peter Mellwig**, Institute for Energy and Environmental Research (ifeu), presenting a summary of the iBRoad field test. *"Both homeowners and auditors provided positive feedback during the tests. Most auditors understood the step-by-step plan and, thus, the long-term perspective of renovations; when each step follows the 'best possible' principle and each step builds upon the previous ones, the result is deep renovation."*

A panel of iBRoad project partners from the countries that pilot tested the tools, moderated by **Horia Petran**, National Institute for Research and Development in Construction, Urban Planning and Sustainable Spatial Development, Romania, highlighted the value added by a Building Renovation Passport: **Marcin Dluzewski** (KAPE, Poland) focused on its facilitating energy efficiency upgrades, avoiding lock-ins; **Rui Fragoso** (ADENE, Portugal) noted that it provides comprehensive guidance to implementing the building renovation measures, while the Digital Building Logbook conveniently stores all building data in one place; **Dragomir Tzanev** (EnEffect, Bulgaria) remarked that a building renovation roadmap provides security to a process that is very complicated.

According to the panel, the critique that EPCs alone suffice and that step-by-step renovation slows down the renovation process is unfounded. *"Existing tools cannot reach A-class renovation"*, noted **Dragomir Tzanev**; *"Building Renovation Passports offer superior renovation, especially from a financial and a market perspective"*. *"When done step by step, it can be divided into smaller investments, and this makes it more affordable",* added **Marcin Dluzewski**. *"For EPCs, the interaction between the expert and the client is limited, and they do not look into the long-term perspective; this is something that the Building Renovation Passport could complement"*, added **Rui Fragoso**.

Marion Jammet, Programme Manager for the Irish Green Building Council (IGBC), shared the motivation and key learnings of the additional iBRoad pilot which IGBC implemented in Ireland. *"The majority of renovations in Ireland are shallow renovations; deep renovation is needed"*. The Irish iBRoad pilot took place in 20 single-family houses. *"Both building auditors (78%) and homeowners (89%) involved in the project perceived the roadmap as a useful tool to drive energy renovation.*

Homeowners felt that the roadmap was really motivating; close to 90% of them stated that they would be ready to implement some of the recommendations during the next 5 years".

Ander Bilbao Figuero, Cíclica, shared Cíclica's work on a Building Renovation Passport for multi-family buildings, PAS-E, to upgrade Spain's buildings to energy-efficient standards. *"We believe that the Building Renovation Passport is a key element to overcome operational, financial, as well as social barriers", he noted, while* "t*he Community Support Plan included in PAS-E aims to enable the uplifting of social barriers to building renovations by promoting the active participation and improving the energy habits of the community".*

Sarah Fletcher, Greater London Authority, noted that the Authority looked into Building Renovation Passports, as the historic trajectory of carbon savings from energy efficiency installations in London is insufficient to meet the 2050 decarbonisation target. *"The authority commissioned a review of several Building Renovation Passport schemes, where iBRoad was deemed appropriate in terms of depth, (ongoing) engagement and the level of detail needed"*. *"We are now working on a comprehensive proposal that can be supported by a broad range of stakeholders in view of London's ambitious energy goals."*

"How can we ensure that the Building Renovation Passport becomes a policy instrument which contributes an important share of policy action to the Renovation Wave, guaranteeing that by 2025 we will be moving towards a fully decarbonised building stock?", *"What is the relationship of Building Renovation Passports with existing EPCs"*, and *"Where will we be with the building renovation roadmap in 2025?"* asked **Oliver Rapf**, Executive Director of the Buildings Performance Institute Europe (BPIE) moderating another session.

In this context, **Martin Pehnt**, Scientific and Managing Director of the Institute for Energy and Environmental Research (ifeu) presented potential policy instruments to surround and support Building Renovation Passports. *"It is a very interesting tool, but it is not a stand-alone silver bullet; we need a bigger story, we need a narrative for it". "A major issue is its cost, which is significantly higher than that of an EPC, but will pay for itself in the long term; so specific approaches can be followed to cover the cost. We should also be careful to not make Building Renovation Passports mandatory or a prerequisite for funding before ensuring that there is suitable expertise in the auditor workforce to provide quality Building Renovation Passports."*

Jennifer Johnson (EMF), representing the Horizon 2020 EeMAP and EeDaPP projects, and the Energy Efficient Mortgage Initiative, provided the financial industry perspective on Building Renovation Passports and related tools: "C*ontrary to the EPC, which is largely administrative and static at least for the time being, the logbook allows the creation of a track record," while "roadmaps define what renovation to do and when, which is very useful for the financial industry". "Building Renovation Passports and related tools can become game-changers."*

"EPCs are not primarily made for offering advice on retrofitting activities; an EPC is primarily an instrument to inform the building owners of the condition of the building in terms of energy performance", noted **Lukas Kranzl**, TU Wien, and coordinator of the Horizon 2020 project X-tendo, *"while the Building Renovation Passport goes much deeper into recommendations, mentioning specific activities and measures, and also considering the personal situation of the building owners". "The cost of a Building Renovation Passport is quite negligible compared to the initial costs of mandatory minimum energy performance standard. I hope that there will be a clear move in energy policy, strengthening the Building Renovation Passport as a tool."*

Stefan Thomas, Wuppertal Institute for Climate, Environment and Energy, and coordinator of the Horizon 2020 project QualDeEPC, noted that *"the link between the EPCs and the Building Renovation Passport is easy if there is a good energy audit required for the EPC, so EPC data and recommendations can be used to produce a Building Renovation Passport. If there is no energy audit for the EPC, the renovation recommendations should at least be sorted to a preliminary roadmap. In any case, it is important that data from the EPC is fed into the Digital Building Logbook". "Member States should ensure that all buildings have a comprehensive energy efficiency information tool, such as the Building Renovation Passport."*

Raquel Díez, Spanish Green Building Council (GBCe) and Horizon 2020 BUILD UPON2 project, considers that *"many features of Building Renovation Passports are adequate for boosting the renovation rate and facilitating a change in the way buildings are renovated". "They could include other elements, such as accessibility, health, water management, comfort and indoor air quality". "Building Renovation Passports, along with Digital Building Logbooks can be tools that centralise, structure and organise information in a very clear way, which now is scattered, to follow-up and evaluate local renovation initiatives, and guide policy decision-making.*"

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[i] As foreseen by the EPBD, **Building Renovation Passports** will provide a clear roadmap for staged renovation over the lifetime of a building, helping owners and investors plan the best timing and scope for interventions: "*… an optional building renovation passport that is complementary to the energy performance certificates, in order to provide a long-term, step-by-step renovation roadmap for a specific building based on quality criteria, following an energy audit, and outlining relevant measures and renovations that could improve the energy performance.*" (Source: DIRECTIVE (EU) 2018/844 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency)

[ii] *A **digital building logbook** is a common repository for all relevant building data. It facilitates transparency, trust, informed decision making and information sharing within the construction sector, among building owners and occupants, financial institutions and public authorities.*

A digital building logbook is a dynamic tool that allows a variety of data, information and documents to be recorded, accessed, enriched and organised under specific categories. It represents a record of major events and changes over a building's lifecycle, such as change of ownership, tenure or use, maintenance, refurbishment and other interventions. As such, it can include administrative documents, plans, description of the land, the building and its surrounding, technical systems, traceability and characteristics of construction materials, performance data such as operational energy use, indoor environmental quality, smart building potential and lifecycle emissions, as well as links to building ratings and certificates. As a result, it also enables circularity in the built environment.

Some types of data stored in the logbook have a more static nature while others, such as data coming from smart meters and intelligent devices, are dynamic and need to be automatically and regularly updated. A digital building logbook is a safe instrument giving control to users of their data and the access of third parties, respecting the fundamental right to protection of personal data. Data may be stored within the logbook and/or hosted in a different location to which the logbook acts as a gateway.

(Source: DEFINITION OF THE DIGITAL BUILDING LOGBOOK, Report 1 of the Study on the Development of a European Union Framework for Buildings' Digital Logbook https://op.europa.eu/en/publication-detail/-/publication/cacf9ee6-06ba-11eb-a511-01aa75ed71a1/language-en/format-PDF/source-164959934)