



European  
Commission

# LEVEL(S)

Taking action on the  
TOTAL impact of the  
construction sector

Environment

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*The Commission's framework for sustainable buildings - Level(s) - aims to unite the whole sector value chain around a common European language for better building performance. It looks at the full lifecycle of buildings to address their huge potential for emissions reductions, efficient and circular resource flows, and supporting the health and wellbeing of those they are built to serve.*

*Level(s) will serve as a galvanising force for actors across Europe's building sector in understanding how they can collaborate to create a sustainable built environment for all Europeans. It will be a powerful source of data and insights for national policy-makers looking to build sustainability and circularity into their building codes.*

*We have an opportunity to grow Europe's sustainable building sector into a world leader, in a growth area for the construction and real estate sector globally.*

**Karmenu Vella**, European Commissioner for Environment, Maritime and Fisheries

*With half of all extracted materials and energy, and one third of the total waste generated, the construction sector represents the greatest stake in the European Union's efforts to make our economy circular. The built environment is key in responding to our economic, environmental and societal challenges over the next decades. An improved built environment for people will lead to better quality of life for all.*

*Level(s) is one means of bringing buildings into the circular economy. Now, your involvement is key to the delivery of a scheme that gives a chance to property owners, micro-enterprises, investors and financial institutions to tackle sustainability issues. Our common challenge is now to get Level(s) used and accepted by the construction sector.*

*Our vision should capture what and where the EU's built environment should be in the long term and pathways to steer this transformation. We can create opportunities for businesses but they must seize them.*

*So my challenge to you is to work with us to make Level(s) work for all. To bring buildings into the circular economy. To make buildings more sustainable. And above all, to contribute to a better built environment and improving people's lives.*

**Gwenole Cozigou**, Director, Industrial Policy and Economic Analysis, DG Growth

## LEVEL(S): THE VISION

### Taking action on the total impact of the buildings sector

The EU has boldly led global action on energy efficiency in buildings over the past decades. Across the region, a giant industry is mobilising to deliver a new generation of nearly zero energy buildings from 2021.

As we near this deadline however, leading states and industry actors are waking up to the reality that we are only addressing part of the building sector's impact. Our vision must now extend towards its total impact.

The Paris Agreement demands the building and construction sector to decarbonise globally by 2050, if we wish to avoid the catastrophic impacts of a +2 degree rise in temperature. Whilst we tackle the 28% of global emissions from building energy use, the 11% of 'embodied' emissions from construction threatens to rise dramatically due to urban growth if left unchecked (UN Environment, Global Status Report 2017).

In Europe, if we look beyond the use phase of buildings towards their full life cycle (including extraction, manufacture, transport, construction and end of life) they are responsible for:

- Half of all energy use
- 40% of all greenhouse gas emissions
- Half of all raw material extraction
- A third of all water use

For this reason, the EU has set out ambitions to move towards radical resource efficiency and circular material flows in its Circular Economy Action Plan. It is now exploring routes towards a net zero emissions economy by 2050, looking at what role buildings and related industrial sectors play.

One thing is certain: it will be impossible to meet our climate and circular economy goals unless we address the total impact of the building and construction sector.

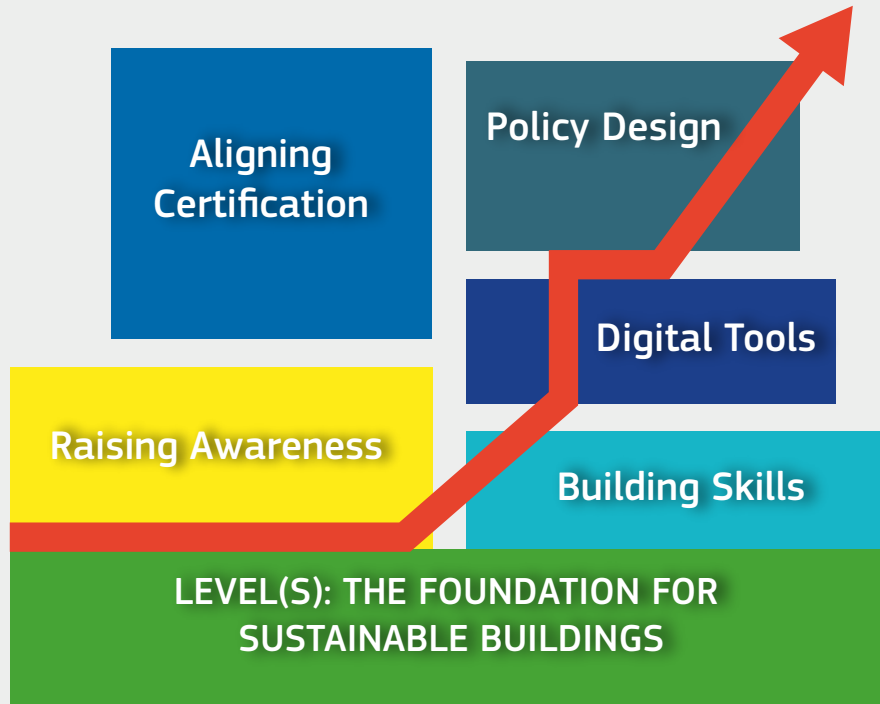
For this to happen, a huge culture shift is needed towards actions and policies that tackle the full life cycle of buildings and their impacts. We must see all the actors along the sector's value chain as a single team that needs uniting. This is a debate on which the EU must lead the world to avoid a climate crisis.

This is why the European Commission has developed Level(s); a foundational framework of common European indicators to measure the sustainable performance of buildings across their whole life cycle. It is currently in its test phase, and its ambition is to create a 'common European language' for the whole sector value chain, that can help build data, empower debate and drive action.

It focuses on six 'hotspots' for environmental impact through the whole building life cycle: greenhouse gas emissions, resource efficiency, water use, health and comfort, resilience and adaptation to climate change, and cost and value.

Hundreds of leading public and private sector organisations from across Europe have supported the design of Level(s), and are now working to build it into a strong foundation for the building sector's sustainable future.

"Level(s) provides the framework for common data on life cycle performance. Learnings can be fed back to industry so instead of designing time bombs for the future we can start investing in solutions that are systematic about targeting the things that actually have the most impact." Judit Kimpian, Architects Council of Europe



*We can look ahead to the circular economy with confidence and ambition. We know that we have a great challenge ahead, but we know that we have to work together to meet that challenge. Level(s) is of particular importance. Its testing phase is a unique opportunity for exchange of ideas, knowledge and experience.”*

**Emmanuel Acchiardi**, French Government

## LEVEL(S): STATE OF PLAY IN 2019

### Moving from a community of leaders to a mass market movement

Sustainable building practice in Europe has to a large extent been led by green building certification schemes to date. These certifications cover hundreds of millions of m<sup>2</sup> of building space and have achieved a high degree of market penetration in the non-residential sector of some European countries.

However, sustainability assessment within Europe's construction sector as a whole is far from widespread. Moreover, whole life cycle assessment is not a core part of all certification schemes, and mainstreaming it is a crucial environmental challenge for the sector.

A number of European countries have started to move towards whole life cycle assessment in their sector policy, with examples including:

- **France:** Launched its life cycle assessment based E+C- label in 2016 to prepare the ground for new regulations in 2020.
- **The Netherlands:** Established regulations in 2012 requiring new buildings above 100m<sup>2</sup> to have an environmental performance calculation report, looking at life cycle emission and resources indicators, in order to obtain a planning permit.
- **Finland:** Launched a public consultation, in late 2018, regarding the approach to be taken in whole life carbon footprinting, that will be mandatory for new buildings under construction regulations by 2025.

Many countries moving on this agenda recognise the need for a joined up European approach to how policy shapes a sustainable built environment. Many more countries and industry actors are looking for guidance on the future trajectory for the sector on sustainability.

In this sense, Level(s) represents the European consensus today on the common core aspects of sustainable buildings, bringing a focus to key aspects of environmental performance beyond energy consumption during the use phase of buildings.

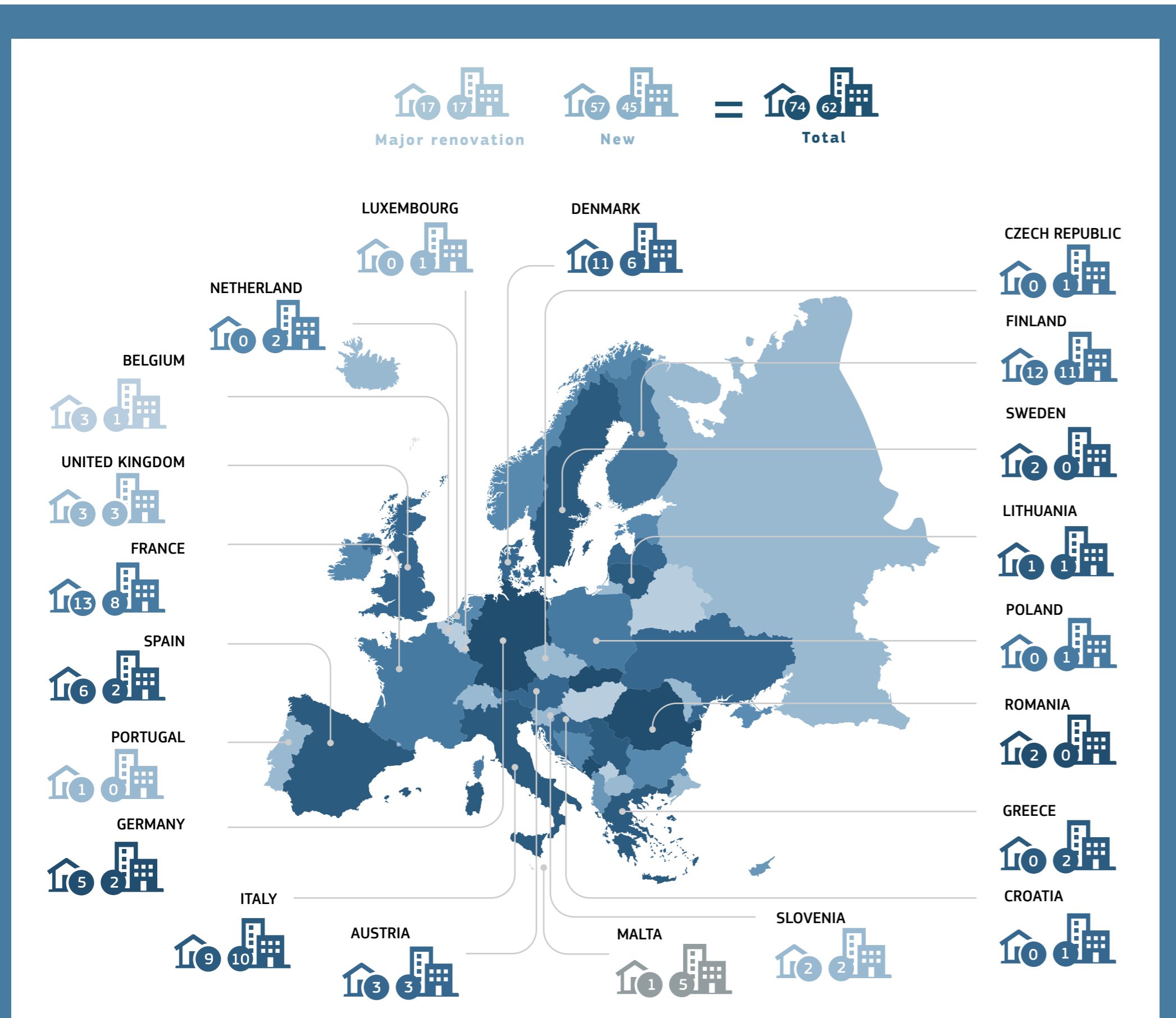
Since the European Commission officially opened the two-year testing phase for Level(s) in 2018, 136 building projects have registered to test Level(s) in 21 countries. Of the projects testing Level(s), 74 are residential and 62 are non-residential. This provides important balance in terms of the community shaping Level(s).

The aim of the testing phase is to support stakeholders across the construction and real estate value chain, from investors, to developers, designers and manufacturers; in testing the Level(s) indicators on their building projects. The feedback from the testing phase will inform the final version of the Level(s) framework - to be launched in spring 2020.

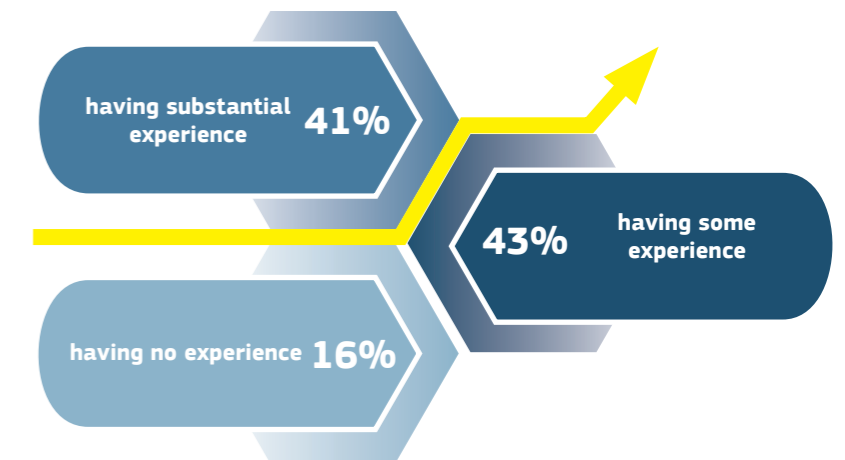
The testing phase will also help us identify many of the challenges that we will need to find solutions to if we are to ensure widespread take up of Level(s) upon its launch. Level(s) aims to take life cycle thinking mainstream, to build the data the sector needs to move forwards on this important agenda.

## LEVEL(S): OVERVIEW OF THE TESTING PHASE

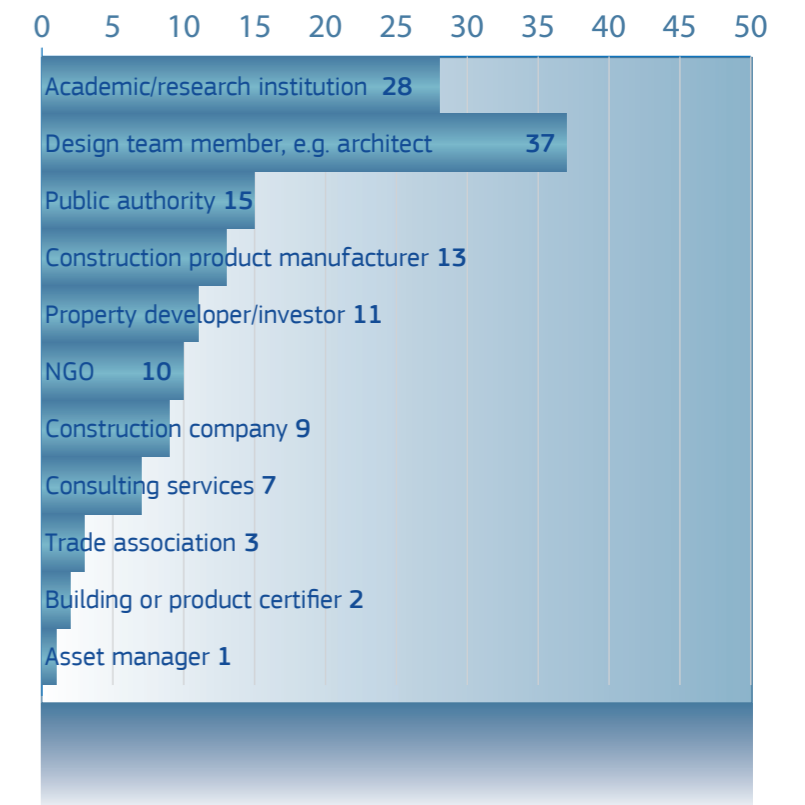
Of the projects testing Level(s), 74 are residential and 62 are non-residential - which provides important balance in terms of the community shaping Level(s).



The experience with sustainable building rating tools or lifecycle assessment varies between the organisations testing Level(s)



The type of organisations leading Level(s) testing projects moreover varies across the construction and real estate value chain.







**LEADERSHIP CASE STUDIES**

## CASE STUDY: EXPERIENCE CENTRE - Knauf Insulation



SLOVENIA - Offices



### What was the key driver for your organisation to test Level(s)?

Knauf Insulation has experience contributing to building regulations and their implementation at EU and national level. Today's focus on energy remains a priority, but it is not enough, and a holistic approach encompassing all key sustainability topics is the direction we want to move in. Level(s) is about creating common assessment methods and reporting systems, a flexible and accessible tool for all with priorities and targets set locally. An assessment method that can potentially be applied to all buildings through regulations. We were also keen to understand the assessment method, process, and cost for Level(s).

### How are you testing Level(s)?

The project was already in its construction phase and pursuing Slovenia's first DGNB certification (DGNB Platinum achieved). We therefore decided to test the Level(s) indicators at Level 1 to allow us to jump in quickly. We did Level(s) reporting in parallel with DGNB CORE 14 and its 2018 version, which already incorporates Level(s) reporting. Along the process we found we could also test some indicators at the higher levels, 2 and 3.

### What impact could Level(s) have on your sustainability strategy?

We have been working in close partnership with the Slovenian government and Green Building Council to use the testing as a learning process for local green public procurement approaches. The workshop organized on site showed some appetite for such development in Slovenia but also the challenges to face. We see that Level(s) could support the development of policies like green public procurement that help grow the market for sustainable buildings and products.

### What support is now needed to drive Level(s)?

In a country with few certified green buildings, this was a fantastic learning experience but a challenge. To collect the bill of materials was difficult, and availability of supporting evidence of product performance such as EPDs was another challenge - so more focus on this data is critical. There was no common language between architect, assessor, contractors, suppliers on what they wanted to achieve, meaning communicating Level(s) widely so that common goals start to emerge is key.

## CASE STUDY: LIGHTHOUSE JOENSUU - Stora Enso



FINLAND - Residential



### **What was the key driver for your organisation to test Level(s)?**

The building sector must decarbonise to meet climate targets, so must mature beyond its use stage energy efficiency focus towards a life cycle approach regarding total emissions. We believe Level(s) is a key tool to ensure cooperation on life cycle performance across the whole industry value chain. We also want to demonstrate the performance of massive wood structures over their life cycle, in terms of improved carbon, resource and circular performance, but also optimised life cycle cost and value.

### **How are you testing Level(s)?**

We are testing using the Level(s) guidance and a tool, One Click LCA, which has Level(s) calculation integrated into the tool. Material information is transferred via BIM with material data from EPDs or other datasets, and then automated calculations are made for the Level(s) indicators.

### **What impact could Level(s) have on your sustainability strategy?**

Level(s) supports our strategy to go beyond its focus on product level impacts towards the life cycle performance of our products in buildings.

### **What support is now needed to drive Level(s)?**

Cooperation across the construction value chain will be key. Benchmark buildings are needed to verify performance, and the guidance and reporting will need to be streamlined so information is all brought into once place and is more user-friendly. Digital tools will also be needed to simplify Level(s) reporting.

## CASE STUDY: Headquarters of the Ministry of Territory and Sustainability of the Catalan Government and the Housing Agency of Catalonia



SPAIN - Office



### What was the key driver for your organisation to test Level(s)?

The world faces challenges and action is needed from all levels of government. As regional authorities we want to be at the front of the action. Transposing Europe's 2020 strategy has meant creating many new policies in Spain, and to have Level(s) summarising all key aspects of this in just one tool for the building sector is extremely helpful. Level(s) focuses on the central issues for buildings, including the users of the buildings; we like its three pillar approach to sustainability.

### How are you testing Level(s)?

We are following the guidelines and using the testing project to analyse and compare it with other projects that we have in our pipeline. We want to compare Level(s) to other building assessment initiatives we are working on. So much information is needed it is hard sometimes to organise the information that is really needed and is important, but Level(s) is helping us with this. We will try to cover as much of Level(s) as possible but we recognise that existing buildings are a challenge, and LCA is not our daily business so aspects such as the bill of materials will be tricky.

### What impact could Level(s) have on your sustainability strategy?

At beginning of the Level(s) test we realised the way we collected data was not the way Level(s) required it; even things like the number of people in our buildings. It has already been useful as sometimes it helps you understand the way you have approached these issues is not the most appropriate. It helps you rethink the way you are doing things, having European best practice approaches as a base for comparison. Public entities want to be leaders, we want to be able to benchmark our properties' sustainability and see how we are progressing in relation to other countries. Level(s) will help.

### What support is now needed to drive Level(s)?

For a beginner, Level(s) involves significant effort, but we want to replicate its roll out across our existing buildings. Currently there is a lack of standardisation of the data we need - this is super important - to be able to benchmark and have a picture of your building stock and the definition of processes, products, equipments and systems in existing buildings - but this is the future and this is what Level(s) can provide.

## CASE STUDY: ECOPARC MICHEVILLE - Bouygues Construction



FRANCE - Residential



### What was the key driver for your organisation to test Level(s)?

Our clients' expectations towards environmental performance is increasing. We see growing demands for performance guarantees asking us to show our environmental performance calculations are aligned with real performance. We believe in the need for a common reporting format with common indicators around themes such as environment, health and wellbeing, and in the need for comparability of performance on these thematic. We also wanted to compare the framework to a building assessment framework we have developed internally.

### How are you testing Level(s)?

We tried to apply Level(s) asking ourselves the question: if we had to apply Level(s) on all our projects tomorrow, how different would our practices have to be? How much would we have to change? We tried to test all the indicators at Level 2 as we think this is the most interesting level - to try to be able to make comparisons between buildings. We used the Elodie software

and the French EPD database to support us, which is one of the stronger product databases in Europe. The building also pursued French E+C-certification.

### What impact could Level(s) have on your sustainability strategy?

Level(s) gives visibility to the full sustainability performance of a project across its whole life cycle - we believe our industry needs to move this way. We are going to adjust our own internal project assessment system to align with parts of Level(s) that we feel have been very useful for us.

### What support is now needed to drive Level(s)?

We would suggest that the reporting format needs to be made more user-friendly, building on modern digital tools, and that reference buildings are proposed (possibly by country) to help set benchmarks. This is the true goal behind Level(s) for us. Level(s) also needs to think carefully through differences with national methodologies.

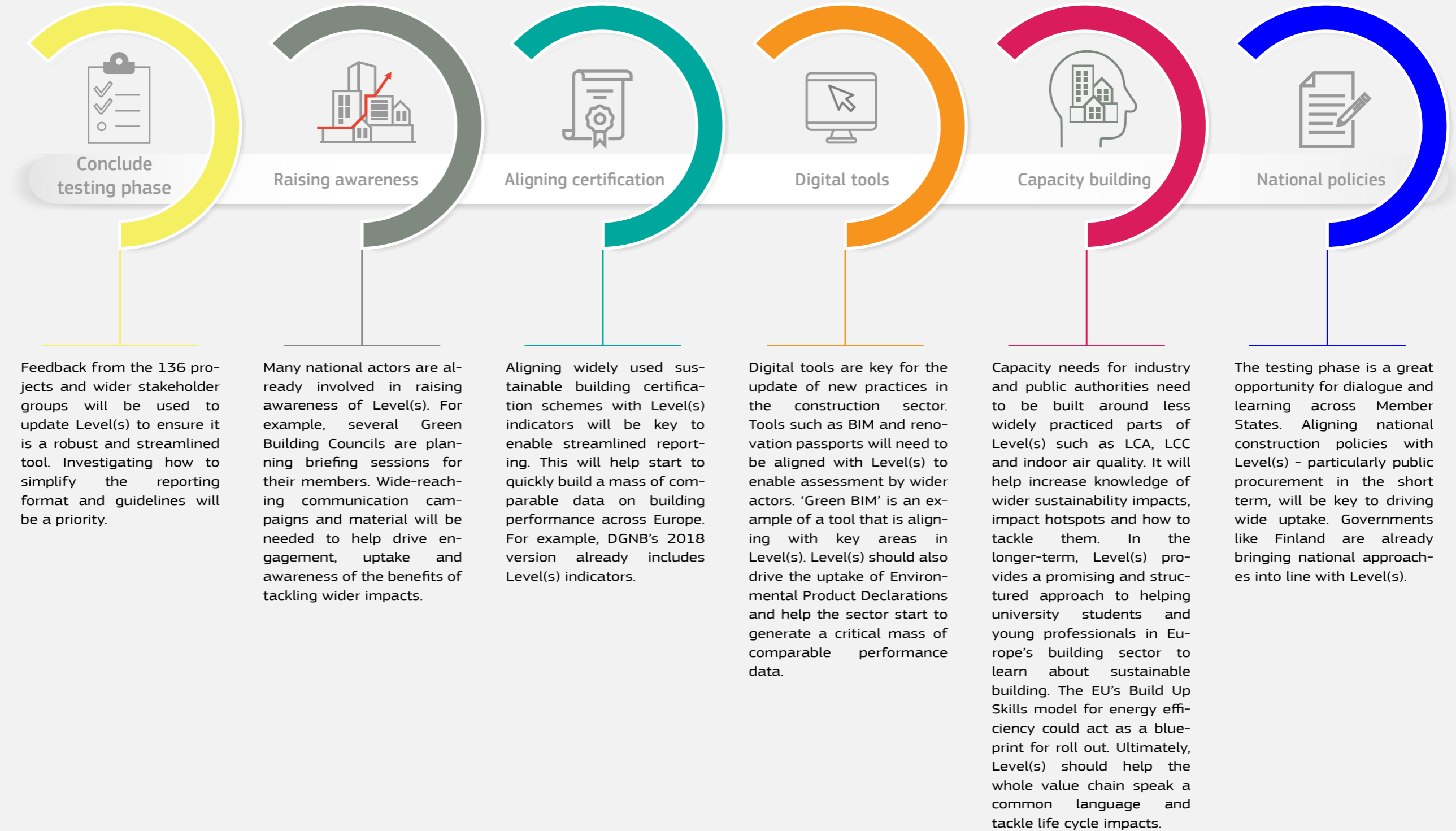
## **LEVEL(S): FUTURE ACTION ROADMAP**

### **Mainstreaming action on the total impact of the buildings sector**

We can look at Level(s) as the promising child, and the stakeholders who have created it as its extended family. Its mother wants it to be a doctor, its father a sportsman, and there is a risk of overwhelming it if we ask it to be all things to all people all at once: SME friendly, digital, aligned with local building regulations and so on. This child has great potential, but has a long road to travel. We need to ensure we allow it to develop step by step. We need to start by ensuring it is taken up by the industry. Where then does it need to go? It needs to support policy design. What are the future 'educational' priorities for this child to develop into a future leader?

The European Commission is starting to work with the stakeholder community to build a clear roadmap of the future actions needed to support the mainstreaming of sustainable building and life cycle assessment. These initial recommended actions are in large part based on things that are already happening, but not yet at scale. We invite you to work with us on this roadmap, identifying challenges and solutions, as well as taking up your role in this journey towards a sustainable built environment for Europe.

## ROADMAP



**APPENDIX: Level(s) – the framework with its indicators**

