

Seismic and energy retrofit of buildings

Overview of the pilot project

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Workshop “Integrated techniques for seismic strengthening and energy efficiency of existing buildings



European Pilot Project

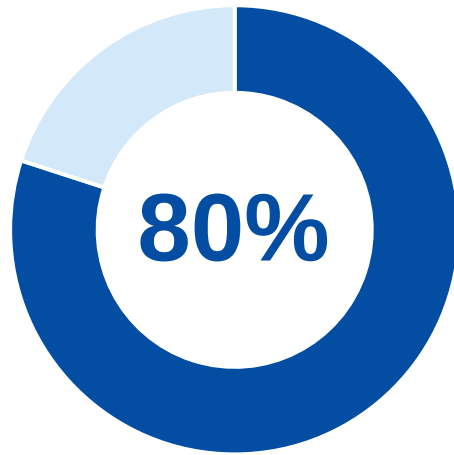
Integrated techniques for the seismic strengthening and energy efficiency of existing buildings

2018: proposed by the European Parliament

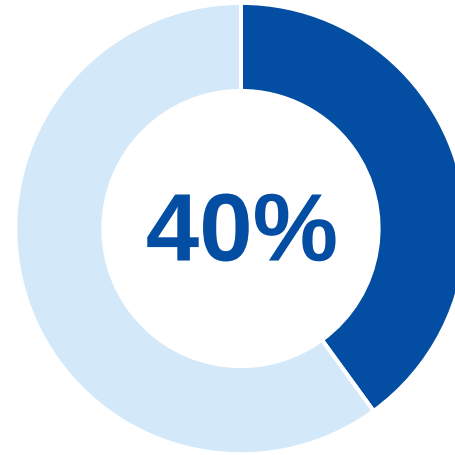
2019: financed by EU with Decision C(2019) 3874

2019 - 2022: led by the JRC

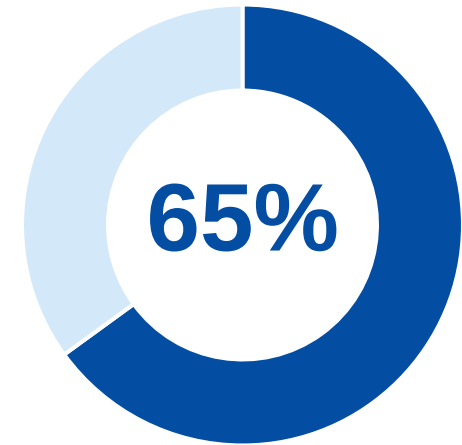
European building stock



**Buildings in EU
constructed
before 1990**



**Buildings in EU
located in seismic
regions and
designed with
inferior safety
requirements**

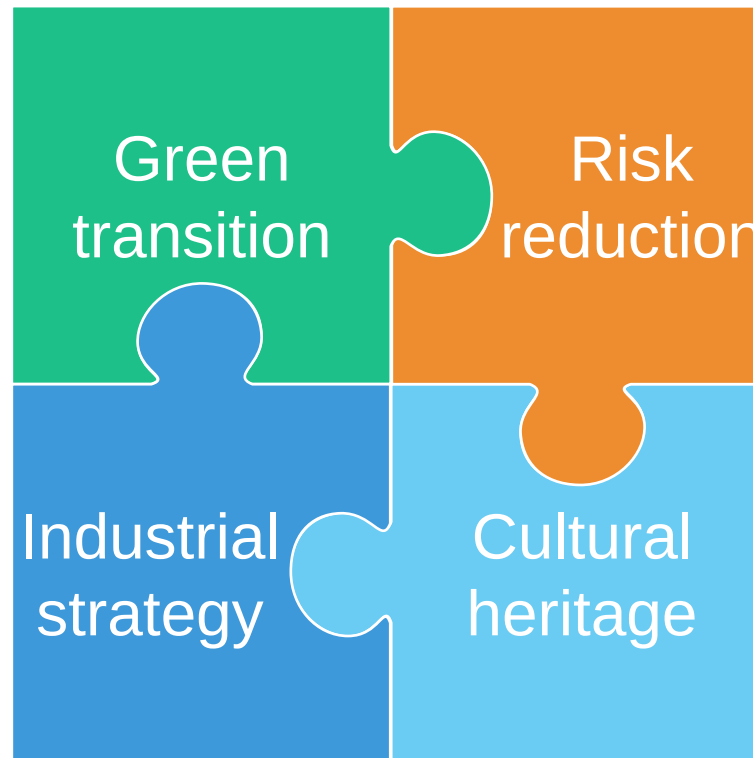


**Buildings in
seismic regions
need both energy
and seismic
retrofit**

Policy goals

Green Deal
Renovation wave
New European Bauhaus
Energy Performance of
Buildings

New Industrial Strategy for
Europe
New Circular Economy
Action Plan



Action Plan on the Sendai
Framework
Sustainable Development
Goal 11

European Framework for
Action on Cultural Heritage
European Agenda for
Culture

A photograph of a building's exterior during renovation. The facade is covered in yellow insulation panels, which are secured with dark circular fasteners. A metal scaffolding system is erected against the building, providing access to the work area. A window with a white frame is visible through the scaffolding.

Scope

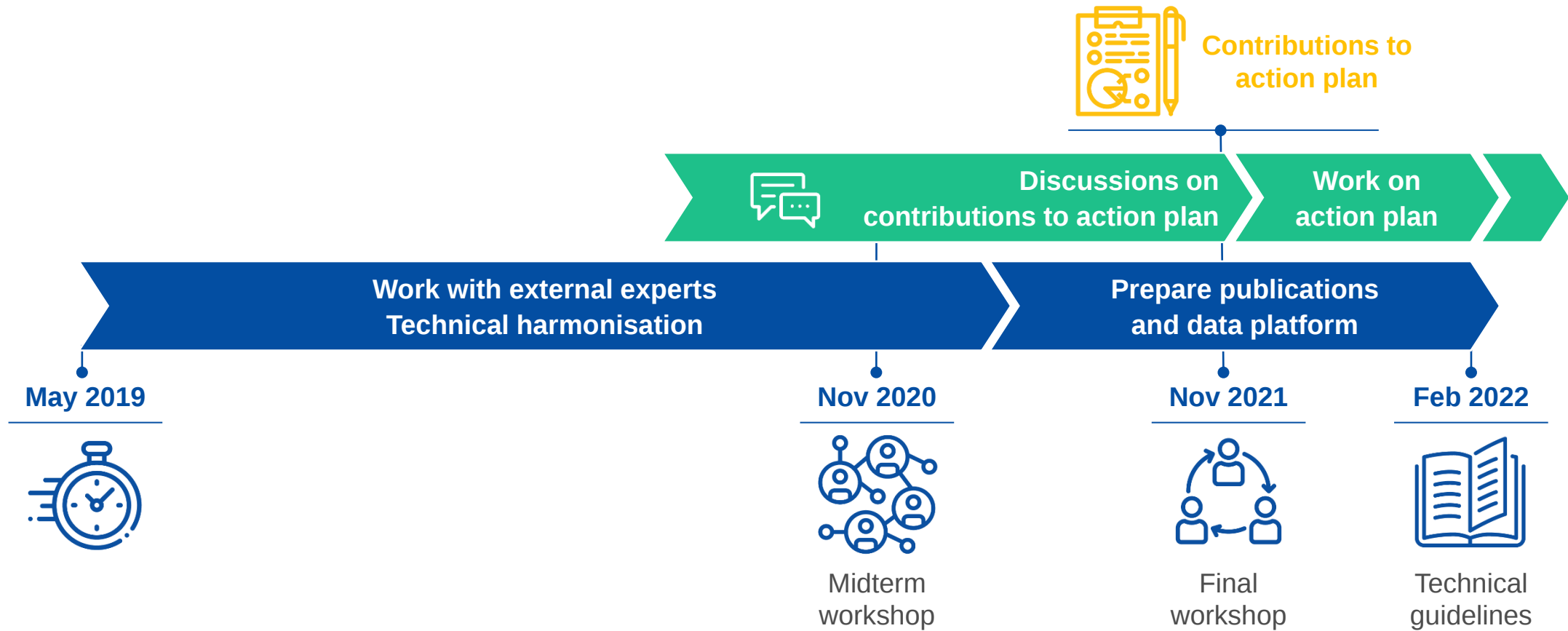
Define solutions that, at the same time and in the least invasive way, can both reduce seismic vulnerability and increase energy efficiency in such a way to produce a significant positive environmental impact.



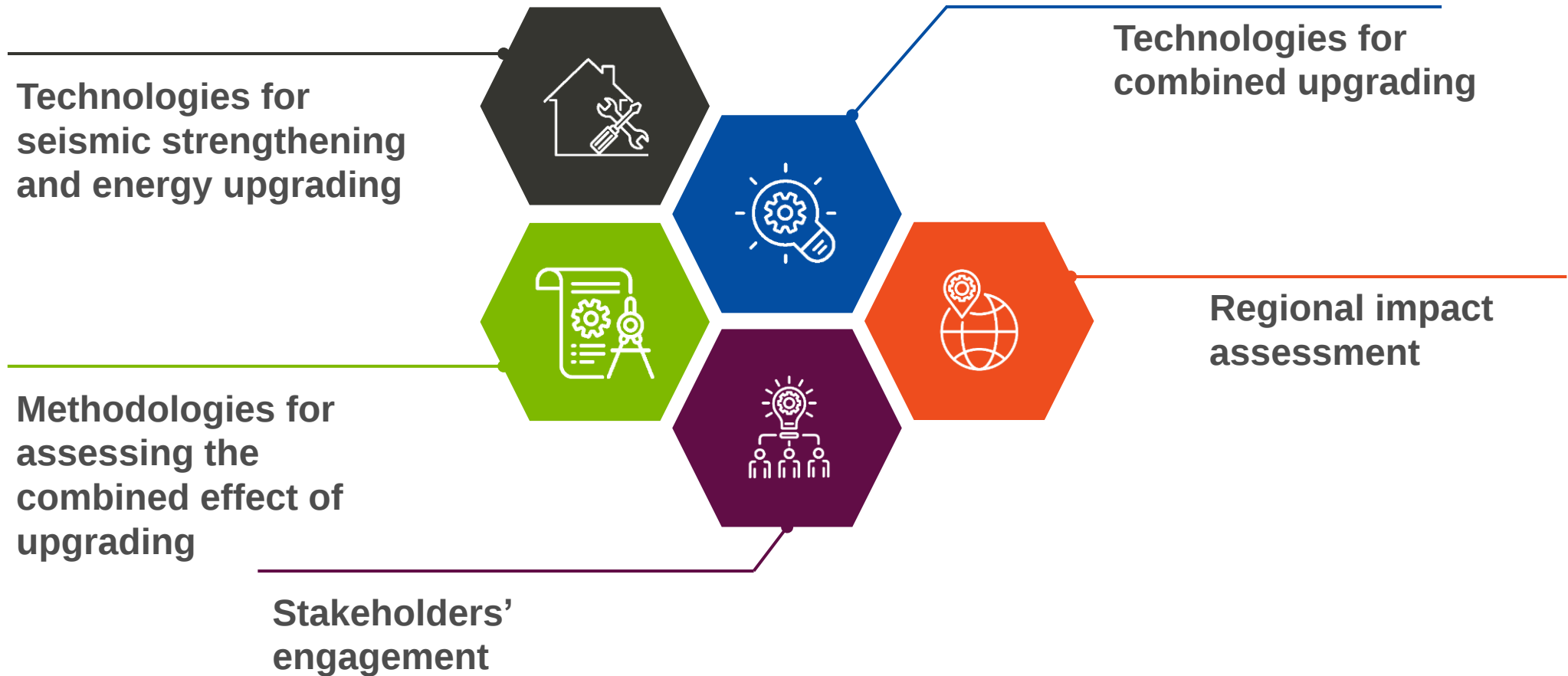
Objectives

- Define tools and guidelines
- Stimulate the use of integrated solutions
- Create awareness
- Increase resilience of the built environment

Timeline



Pilot project actions



Action 1

Overview and classification of technologies for seismic strengthening and energy upgrading of existing buildings



Identification of **building typologies** that require renovation



Review of technology options for the **seismic upgrading** of existing buildings



Review of technology options for the **energy upgrading** of existing buildings

Action 2

Analysis of technologies for combined upgrading of existing buildings



Review of **technology options** for combined seismic and energy upgrading



Analysis of **novel technologies** for combined seismic and energy upgrading

Action 3

Methodologies for assessing the combined effect of upgrading



Review of **methods to assess improvement** of seismic safety and energy efficiency



Definition of a method for a combined assessment of the upgrading



Implementation of methods on **case studies**

Action 4

Regional impact assessment and proposals in support of an action plan



Identify **priority regions for renovation** based on risk and socio-economic indicators



Review **implementing measures**



Identify and compare **scenarios for intervention**

Action 5

Stakeholders' engagement



Involvement during the project through workshops on technical and policy issues



Dissemination and outreach



Open and free data to support regional policies

Output

- ▶ Building typologies most needing upgrading
- ▶ Classification of technologies
- ▶ Selection of best combined renovation technique
- ▶ Method to assess the benefits gained from integrated retrofit

Output

- ▶ Regions where renovation can achieve highest impact
- ▶ Retrofit scenarios and impact analysis
- ▶ Web platform for sharing data, knowledge and best practices

The JRC Pilot Project team

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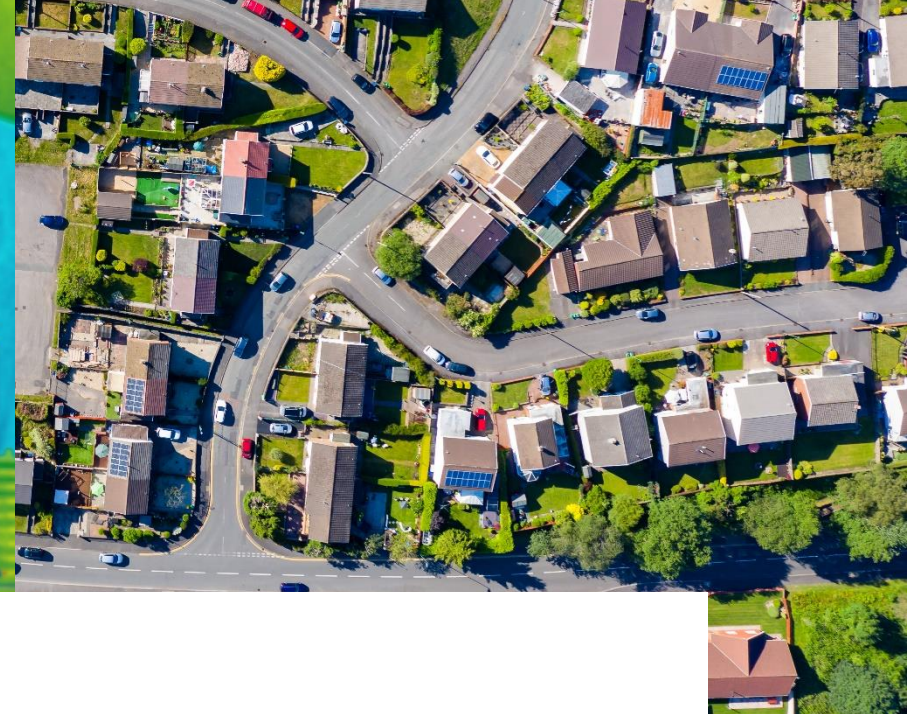
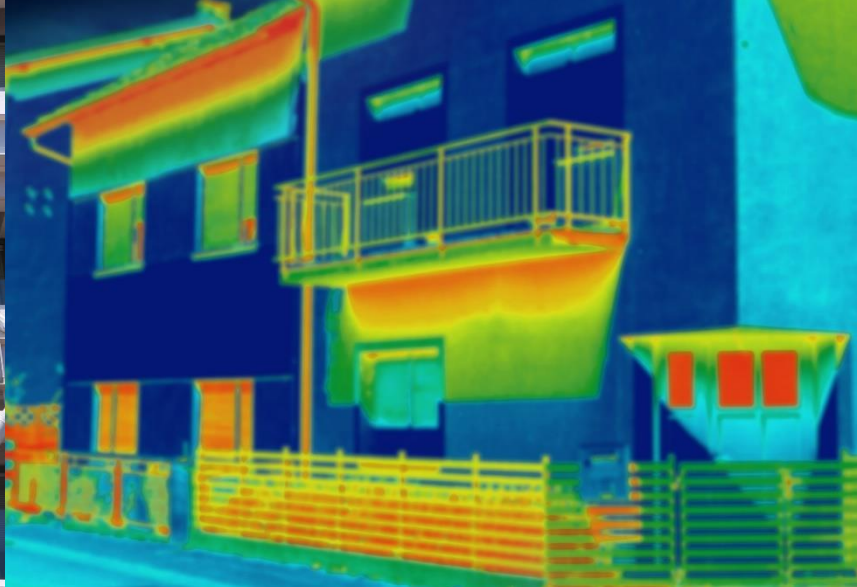
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Thank you



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