

1. PUBLISHABLE SUMMARY

Summary of the context and overall objectives of the project (For the final period, include the conclusions of the action)

The METABUILDING LABS project is a five-year Horizon 2020 EU funded Innovation project whose main objective is to unlock potential, improve competitiveness and boost market impacts of the European construction sector's small and medium sized enterprises (SMEs) offering an Open Innovation Test Bed (OITB). Through a Single Entry Point, which is reflected in an Open Innovation Digital Platform (metabuilding.com), SMEs will have access to a powerful innovation ecosystem with more than 100 testing facilities across 12 EU countries : AUSTRIA · BELGIUM · FRANCE · GERMANY · HUNGARY · IRELAND · ITALY · POLAND · LUXEMBOURG · SPAIN · SWEDEN · TURKEY. A large consortium of 40 partners across 13 countries have joined forces to provide the whole construction sector with easy access to this wide network of high value testing facilities including Laboratories, Test Benches, Pilot Buildings, Living LABS and innovative services allowing stakeholders to develop and test their innovations and building envelope solutions for next generation buildings.

The METABUILDING LABS OITB can leverage on the innovation ecosystem that has being kickstarted and set-up in its sister project METABUILDING (INNOSUP H2020) and advertise its services on the METABUILDING digital multi-sided platform which is conceived as the meeting point of the innovation ecosystem for the enlarged built environment sector bringing together innovation actors, clusters and platforms on regional, national and European level. Especially, the integration of regional clusters is an important feature to reach potential clients, notably SMEs. Both projects make a proactive use of the metaclustering and innovation ecosystem concepts to disseminate and relay the OITB offer. metabuilding.com platform will be the ubiquitous digital backbone for the enlarged built environment EU innovation ecosystem, including cross-sectoral representation and backed by several EU high-level industrial platforms like notably ECTP (European Construction Technology Platform), European Aluminium (the association representing the EU aluminium industry) and other entities partner of METABUILDING.

In order to reach the COP21 goal of nearly-zero energy, zero emission buildings, which is essential for climate change mitigation and adaption, sustainable building solutions are required. To boost the rather slow-paced innovation and unleash the full potential of innovation in construction, it is crucial to strengthen SMEs as one of the most important innovation motors.

To achieve this aim, various specific objectives have been defined for the project:

- Build a future-proof, upgradable, competitive, sustainable, and inclusive European Construction Sector Innovation Ecosystem and OITB network.
- Stimulate investments in building-envelope innovations and new technologies by providing test beds evidence on material and system performance for companies and investors.
- Contribute to the enhancement of technical and environmental quality of building products in Europe, by providing innovation support to technology developers.
- Unlock the potential of SMEs by providing access to prototyping, testing and certification services and infrastructures, in order to improve the quality of new products and solutions.
- Test user acceptance and environmental requirements of products and co-develop solutions implementing a “pilots as Living Labs” strategy
- To fully implement a metaclustering approach in the 12 countries represented in the METABUILDING LABS project as the pro-active solution of how to bring SMEs into the OITB ecosystem

- To harmonize and upgrade lab test framework and facilities in a holistic set of adapted services for a better readability of envelope materials; technical characterisation adapted to the new smart generation of technologies.
- To develop a standardized, high quality, fast, affordable, replicable, Open Source, Open Access, Open Data 1:1 scale, real conditions building envelope testbed.

Work performed from the beginning of the project to the end of the period covered by the report and main results achieved so far (For the final period please include an overview of the results and their exploitation and dissemination)

The main results achieved so far by the Metabuilding Labs project are:

- the founding of the Metabuilding Association and the design of the Metabuilding Labs ecosystem business models
- the development of outcome-oriented communication materials and related activities as initial step for raising awareness about the services of the OITB to bring new clients,
- the expansion of the innovation ecosystem of the sister Metabuilding project (INNOSUP) with more than 1900 organizations from 13 countries,
- the adaptation of the TRL scale for the construction sector as a way to best structure the OITB technical offer and improve its legibility,
- the definition of nine Metabuilding Labs digital services modules, user scenarios and system component workflow specifications to be integrated in the Metabuilding platform,
- the delivery of the two first modules beta versions of these modules
- the design of an innovative testing facility that will be replicated across Europe as an Open-Access, Open-Data, Open-Source Building Envelope Testbed (O3BET), resulting to a first delivered version of the O3BET and the launched of replication for 6 other O3BETs across Europe,
- the development of a common digital services platform focusing on the exploitation of the O3BET data and related activities to allow an optimal exploitation and to ease the overall management of the O3BET,
- the development, test and prototyping of six innovative technologies for building envelope using the Metabuilding Labs services and expertise
- the definition and implementation of the Metabuilding Labs Living Lab methodology to design, implement and test innovative envelope technologies developed on real buildings
- the delivery of a checklist for marketing and use of envelope systems and components based on the current EU & national requirements on building envelope
- the analysis of the Metabuilding Labs OITB catalogue of testing infrastructures and services
- the launch of a series of acquisition of new infrastructures or upgrading of existing ones,
- a proposal for minimum requirements for tests offered on the Metabuilding platform and the establishment of the OITB training program.

Progress beyond the state of the art, expected results until the end of the project and potential impacts (including the socio-economic impact and the wider societal implications of the project so far)

Overall, METABUILDING LABS project partners aim to deliver a large positive impact on the innovation performance of SMEs in the development of high quality and innovative building envelopes. In this perspective, the consortium structures the innovation process by carrying out several activities necessary to enhance the availability, accessibility, quality and cost of testing facilities across Europe from TRL 4 to TRL 8. When this overall impact is achieved, the innovation capacity of the EU

will be strengthened and will generate direct economic impacts with the creation of new professions and other economic growth.

Address (URL) of the project's public website

<https://metabuilding-labs.eu/>

Metabuilding Labs consortium

THE PROJECT

METABUILDING LABS main objectives are to unlock the innovation potential, improve competitiveness and boost market impact of the small and medium-sized enterprises (**SMEs**) in the European construction sector.

The metabuilding.com platform will serve as a **Virtual Single-Entry Point**, giving access to a powerful innovation ecosystem, including a wide network of **testing facilities**:

Laboratories / Test Benches
Pilot Buildings / Living Labs

allowing stakeholders to develop and test innovative systems and solutions for next generation buildings.

METABUILDING LABS in numbers:

- **5 years project**
- **40 partners**
- **100 testing facilities**
- **12 countries**



The **METABUILDING LABS network of testing facilities** will extend across the following countries:

AUSTRIA · BELGIUM · FRANCE · GERMANY
HUNGARY · IRELAND · ITALY · POLAND
LUXEMBOURG · SPAIN · SWEDEN · TURKEY

INNOVATION SUPPORT ECOSYSTEM

METABUILDING LABS project reaches out to **SMEs** as part of the project consortium representing the main stakeholder group and provides them with access to **Open Innovation Testbeds (OITB)**. Through **test driving** their innovations, SMEs help tailor testing and associated services to their specific needs, fostering the creation of a high value **innovation support ecosystem**.

The OITB help to accelerate SMEs' innovation, allowing them to become more competitive against the big industry players.

For the OITB grow and expansion stage, the **METABUILDING LABS O3BET** (Building Envelope Testbeds) will be designed and developed across Europe.

At least **9** innovative, standardised, full-scale, physical installations will enable affordable testing of building systems and solutions in real conditions.



OPEN INNOVATION DIGITAL PLATFORM

METABUILDING LABS project is closely related to **METABUILDING** project (G.A. N° 873964, www.metabuilding-project.eu) that has put in place the first layer of the **METABUILDING ecosystem** by involving 6 target countries and created the platform as a foundation for the innovation ecosystem in the construction sector. This platform will be consolidated and enlarged through the **METABUILDING LABS** project.

METABUILDING LABS OBJECTIVES



Build a future-proof, upgradable, competitive, sustainable, and inclusive European Construction Sector Innovation Ecosystem and OITB network.



Stimulate investments in building-envelope innovative technologies by providing testbed evidence on material and system performance.



Contribute to the enhancement of technical and environmental quality of building products, by providing benchmarking testing facilities and innovation support to technology developers.



Unlock the innovation potential of SMEs by providing access to prototyping, testing and certification services and infrastructures.



Test user acceptance and environmental requirements of products and **co-develop** solutions in living labs.



Metabuilding Labs presentation

PROJECT PARTNERS

RTOs / Testbed Providers



Building Envelope Technology Developers



ICT & Construction Industry



Exploitation / Communication



PROJECT PARTNERS

Project Coordinator (RTO)



Clusters / Industrial Associations



Residential Building Owners



Universities



Living Labs



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EU wide network of Testing facilities & Innovation services for new building envelope technologies & products



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