Energy Efficient Buildings & NEB Matchmaking and Study Visit

11-13 MARCH 2026
BRUSSELS

HORIZON europe

NCBR
National Contact Point
for EU Research Programmes

Industry Contact Point
Low-emission Technologies and Clean Energy

NCBR
National Centre for Research and Development

HORIZON europe

- **Łukasiewicz-PIAP - Industrial Research Institute for Automation & Measurements**
- Main areas of activity and expertise: Robotics & Automation for: In construction, **Bio-based** & On-Site **3D construction printing** for building renovation and fabrication; Intralogistics, De/Remanufacturing, Manufacture as a Service (MAAS), DT, Flexible, **specialized grippers for industrial robots,** robotics & sensors platform, Foresight
- **RTO**, system integrator, **mobile robots producer/integrator**, 300 workers.
- **3D Scanning/Printing/Fast delivery of spare parts**

Digital Innovation HUB. **ADRA**, INSIDE member. EIT-ManufaturingHub Poland

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2 – Project Idea

Selected Topic: → HORIZON-CL5-2027-05-D4-05 On-site robotic and automated techniques for building renovation and new construction

❑ Name and subject of the project idea.

Renovation And Construction Through Robotics 3d Printing Precesses

❑ Main objectives and innovative aspects.

- Select, characterize, and optimize **multi-functional sustainable materials** for tailored integration of **robotic** and 3D-printing systems in the **Sustainable Construction**
- Apply optimized design to structural subcomponents to **maximize environmental performance**, structural efficiency, and compatibility with automated workflows
- Define **human-robot interaction** requirements and best practices **for on-site construction**. Evaluate safety, ergonomics, and **sustainability uptake**, and provide recommendations for collaborative workflows in real environments.

❑ Expected results and impacts.

Develop, validate, and deploy **AI-enabled, robotic construction systems** integrated with **sustainable construction processes and materials**, capable of operating in real on-site environments for both **renovation and new-build applications**.

Demo

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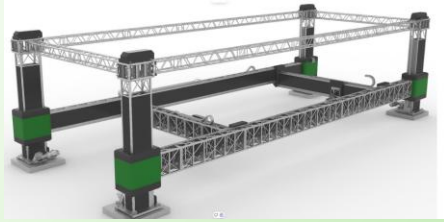
3 – Expression of Interest



❑ Areas of expertise you bring to the project

Data-driven control of on-site **robotic systems** across diverse renovation and **construction scenarios**.
The approach will fuse **BIM-derived geometry**, as-built **reality-capture data from** LiDAR/3D scans, RFID tracking, and embedded sensor data to create a fully synchronized closed-loop Digital Twin, directly linked to robot execution. **Assembly and Disassembly Sequence Plans** (ASP/DSP) automatically generated, optimized,

- ❑ **Contribution proposed: technology provider, pilot site: large scale printing to concrete, Continuous glass/carbon fiber reinforcement**, Insulation retrofits (bio-based with conopy**), bio-concrete**