

OBJECTIVES

- ◆ Develop a cognitive robot platform that address the complete chain of shotcrete application for autonomous construction, maintenance, and monitoring activities of infrastructures.
- ◆ Develop an advanced high-precision and real-time infrastructure perception system through AI- enabled technologies and multimodal sensor fusion.
- ◆ Develop cognitive and adaptable human-robot collaboration control schemes for dexterous execution of construction and maintenance tasks.
- ◆ Release advanced modelling tools tailored to the Building and Construction Information Models for the fast and greener implementation of automated construction activities.
- ◆ Develop cognitive Digital Twin and simulation environments for construction monitoring, diagnostics, and orchestration activities.
- ◆ Commercialization and exploitation in application cases with economic impact in European construction industry.



PARTNERS

RoBétArmé project emerged from a consortium made of 19 high-profile European partners from 12 European countries including Greece, Denmark, Switzerland, Belgium, Germany, Spain, Bulgaria, Italy, Portugal, Austria, France and Ireland.



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**INGENIEROS
ASESORES**

BOUYGUES

UNI
UN MONDO FATTO BENE

DigiSys 4eU
EPFL

**montanhas
de investigação**

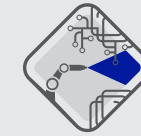
ICE
Information
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**Christiansen
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RoBétArmé
collaborative construction mobile manipulators

**Human-robot
collaborative
construction system
for shotcrete
digitization and
automation through
advanced perception,
cognition, mobility and
additive
manufacturing skills**



**Funded by
the European Union**

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101058731

PROJECT CONTEXT

According to the World Economic Forum, the construction industry currently accounts for about 6% of the world gross product (GDP) and is expected to reach around 14.7% in 2030, which means that the construction sector plays a key role in any country's economy in this sense the importance of construction automation has grown rapidly worldwide.

To achieve the desired level of automation, analogous to the Industry 4.0, breakthrough technologies have been adapted for construction applications and this transformation has been called as Construction 4.0.

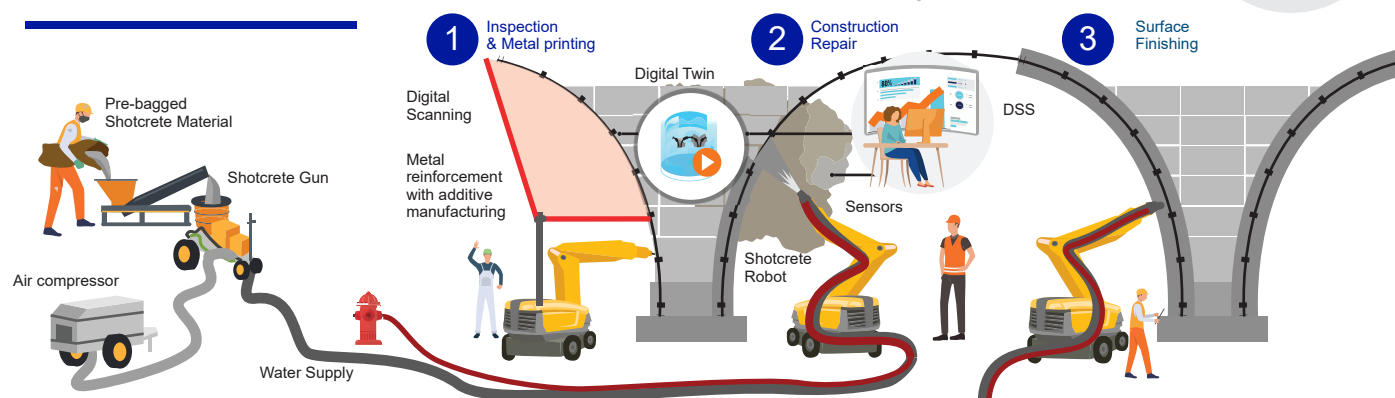


RoBétArmé will develop collaborative construction mobile manipulators

The RoBétArmé Vision

**Inspection
Reconnaissance
manipulator (IRR)** to address fast, high precision modelling and rebar reinforcement through metal additive manufacturing in the preparatory phase;

**Shotcrete and
Finishing mobile
manipulator (SFR)** to address autonomous shotcrete application and surface finishing during the construction and finishing phase, respectively.



RoBétArmé aims toward a step-change in **Construction 4.0** by automating particularly laborious construction tasks in all phases of shotcrete application.

Project Facts

Consortium: 19 partners from 12 European countries

Program: HORIZON

Start: June 2022

Gant Agreement: N° 101058731

Duration: 42 months



www.robetarme-project.eu