



Construct Innovate Technology Centre Overview

Date: 4th March 2026

Centre Director: Prof Jamie Goggins



Sectoral Context and Centre Positioning



Operating in the Construction Sector



CYCLICAL NATURE

FRAGMENTED SECTOR

LOW PRODUCTIVITY

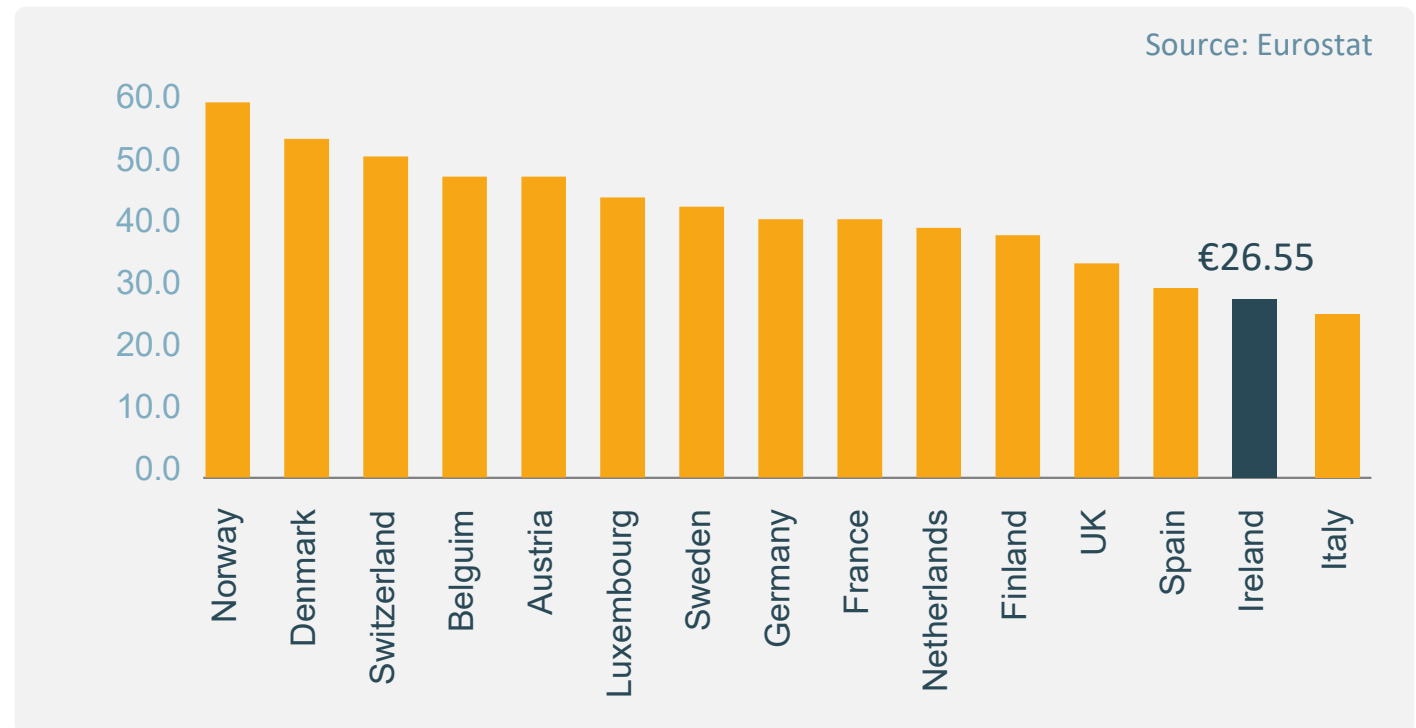
92.8%

of companies employ <6 people

99.6%

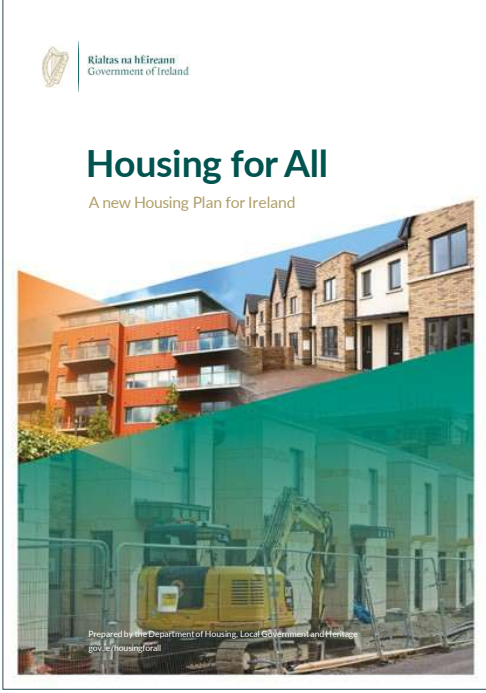
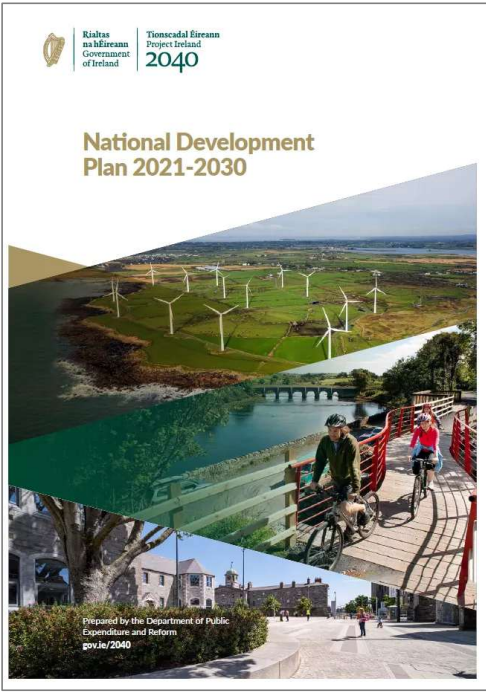
of companies employ <50 people

GVA (€/Hour) increased to €33 (2020), €30.2 (2022), €30.5 (2023), but remains low



Construction Productivity 2019 (Real GVA per hours worked)

2022 National Fit

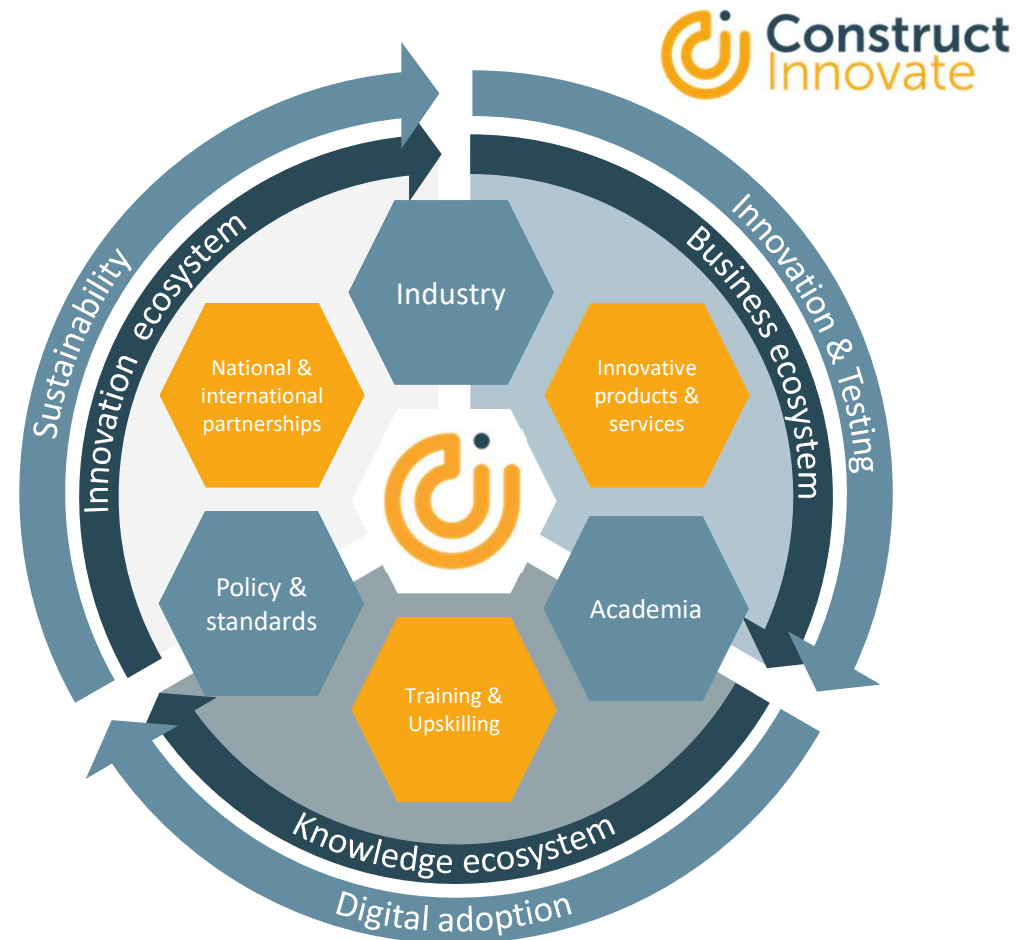


Centre Positioning and Outlook

The national industry led, industry focused construction research Centre.

The central platform for independent research with industry and academia.

- Improve the productivity, quality and sustainability of the sector
- Inform policy, standards and regulation
- Develop research expertise across both.
- Make Ireland a global leader in construction related research and practices



Research

€20M+ funding secured.

Working with **49** industry partners

Knowledge

70+ webinar sessions held across 3 years with **210** average attendees

Skills and Talent

20+ graduates placed in industry.
46 researchers on industry projects

Membership Composition



1 Patron member

114 Associate members



12 RPO members



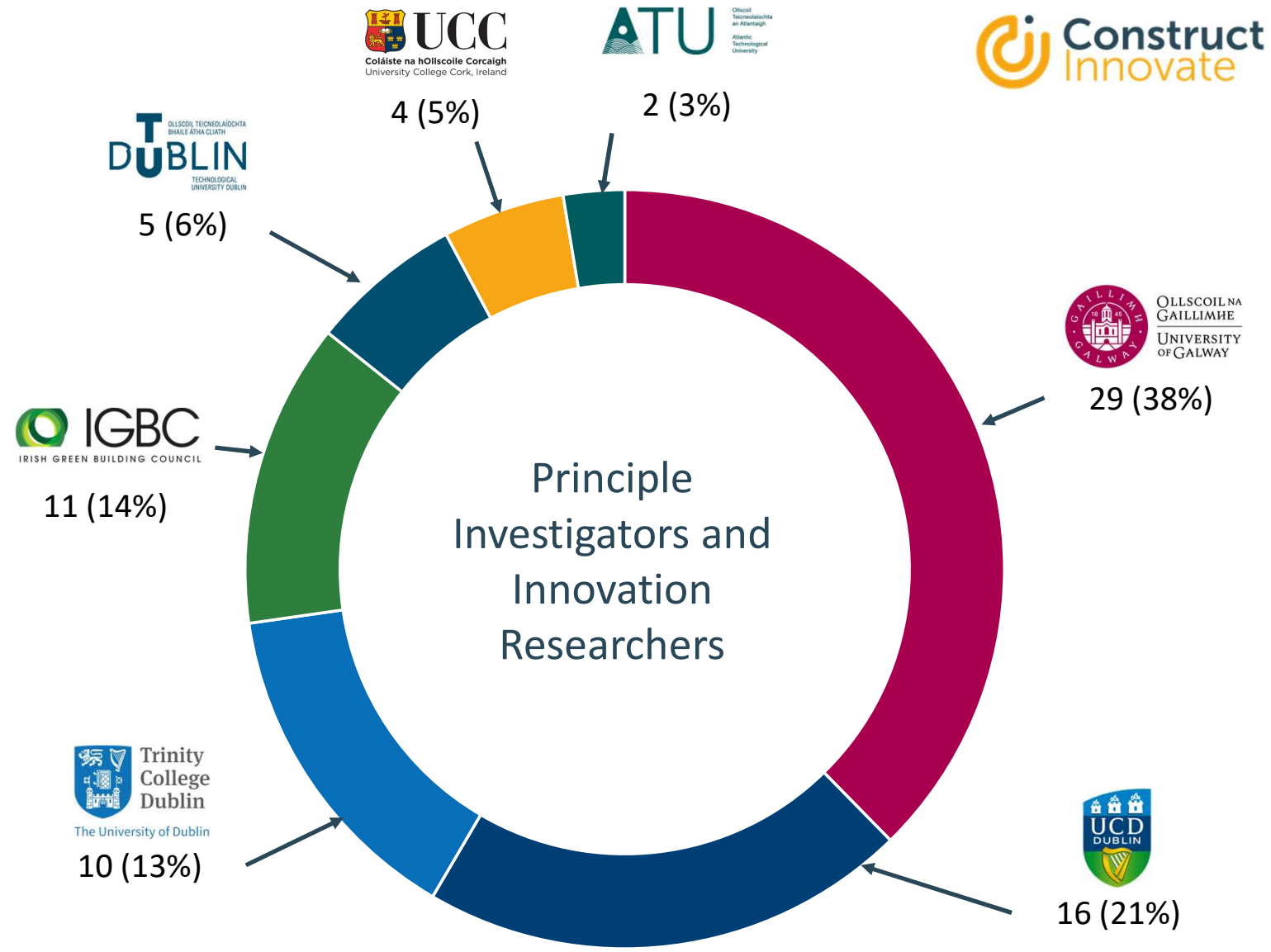
Research Team

5

Centre Strategic Pillars

76

Principle Investigators and Innovation Researchers



Engagement Model and Success Stories



Engagement Model



Collaboration & Networking

Connect. Collaborate. Create Impact.

*Access an ecosystem of innovators,
researchers, and industry leaders
working together to shape the
future of construction.*

Developing Industry-led Research Proposals



Workshops & networking
Av. 90 attendees

May 2023: University of Galway
October 2023: Trinity College, Dublin
April 2024: UCD, Dublin
March 2025: Athlone, Co. Westmeath

The Seed Fund calls are aimed to promote

**collaborative
impactful
projects**

Initiated by industry members

Opportunities for innovation through research.

Project Grant available of up to

**€50,000 per
project**



SEED FUND CALL 2025 "INNOVATION AND IMPACT"



Seed Fund Success Stories



Mass Timber
Demonstrator Site



Demonstrators

Home User
Guide



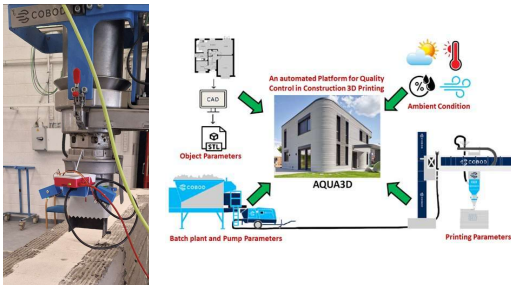
Guidance

Indoor Acoustic
MetaMaterials



Materials

3D Concrete Printing
Quality Control



Technologies

Pathway to impact

- Description** Developed national methodology for calculate and disclose the life-cycle global warming potential (GWP) of buildings
- Action** Develop methodology and tool to calculate and disclose the life-cycle global warming potential (GWP) of buildings.
- Impact** Adopted by SEAI in national methodology for calculate and disclose the life-cycle global warming potential (GWP) of buildings, as required by EU Energy Performance of Buildings Directive (EPBD) – Recast (EU) 2024/1275

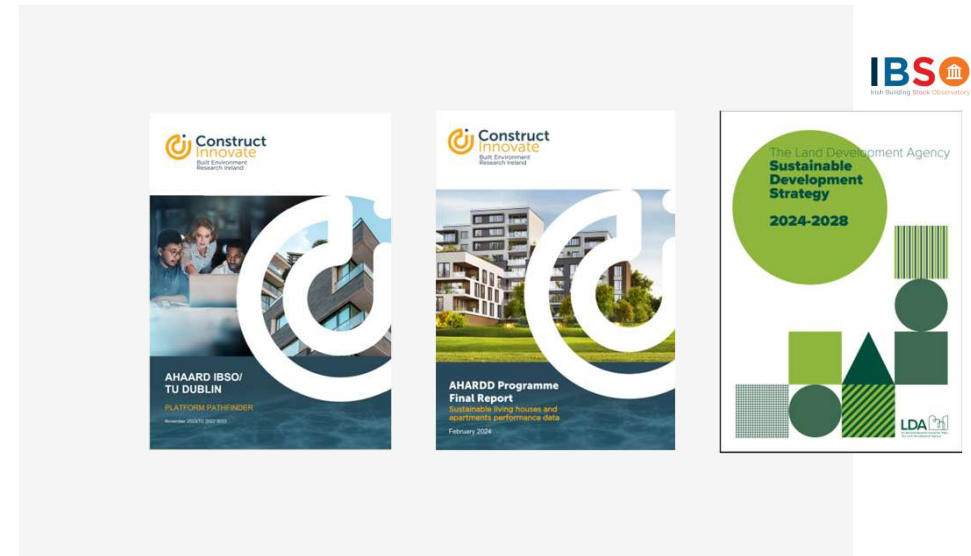


Pathway to impact

Description LDA along with Cairn Homes and Construct Innovate established a post-occupancy monitoring research project for 96 apartments supported by AAHARD funding

Action Review and update building design, construction and operation strategies to reduce operational carbon, improving water stewardship and supporting tenant wellbeing. This includes establishment of an accurate set point temperature for its homes to be comfortable for residents and influence energy and carbon emissions.

Impact Key enabler of evidence driven policy making for affordable housing delivery



Success Story: Support industry to influence policy



	Irish Standard I.S. 440:2009+A1:2014
Timber frame construction, dwellings and other buildings (including amendment 1, consolidated)	
Light Gauge Steel construction, dwellings and other buildings	
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An Roinn Tithíochta,
Rialtais Áitiúil agus Oidhreacht
Department of Housing,
Local Government and Heritage

Success Story: Supporting building regulations review

Overview

- This report presents the results of an investigation of the effectiveness of the provisions of Technical Guidance Document J (TGD J) regarding flue outlet locations for solid fuel burning appliances at preventing smoke particles entering the dwelling or neighbouring dwellings.

Outcome

- The findings confirms that tracer gas concentrations disperse by 99% within less than one metre of the flue outlet in parallel and oblique wind directions, with dispersion impacted by different local environmental and physical parameters.



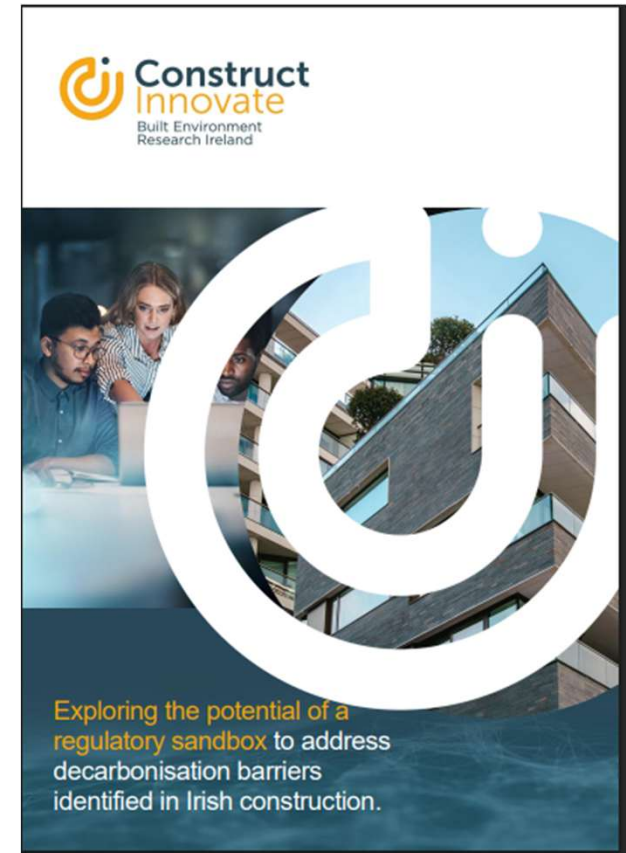
Testing the Regulatory Sandbox Approach in Ireland to Support Innovation in the Construction Industry

Overview

- First used in fintech, regulatory sandboxes are a tried and tested instrument used in more than 50 countries. They allow innovative businesses to test new business ideas and products in a certain time frame under regulatory supervision of the relevant authorities. They bring together innovators and regulators to cooperate, test, and learn about innovative processes/materials in a controlled setting.

Outcome

- Building upon the learnings of regulatory sandboxes for green construction run by the Austrian Ministry of Climate, and in close cooperation with government and industry, the project is developing a concept of a regulatory sandbox that can be piloted in Ireland. By doing so, it will contribute to addressing regulatory areas of tension in the green building sector.



Marina Jammet (Marion@igbc.ie) :

3DREDO: Development and 3D Printing of 3D Reinforcement from Waste Composites For Concrete Structures

Overview

- Investigated the applicability and potential of utilising 3D printed polymer composite lattices as internal reinforcing materials in cementitious composites.

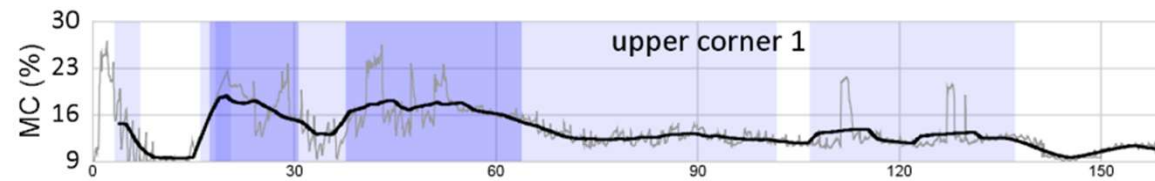
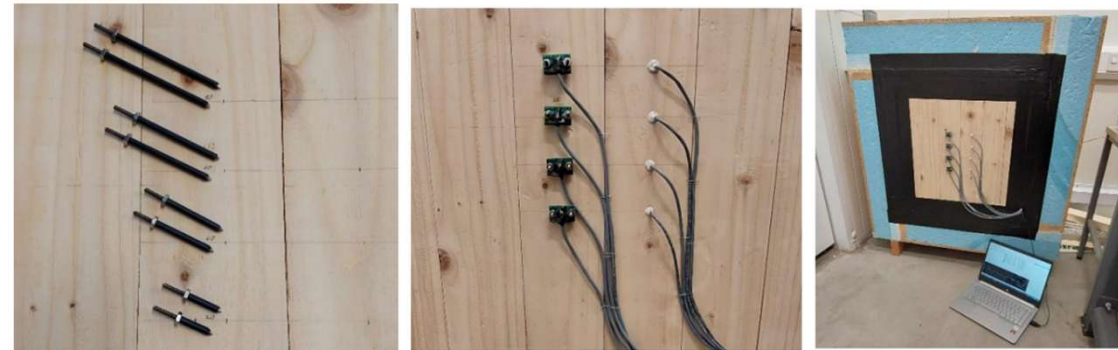
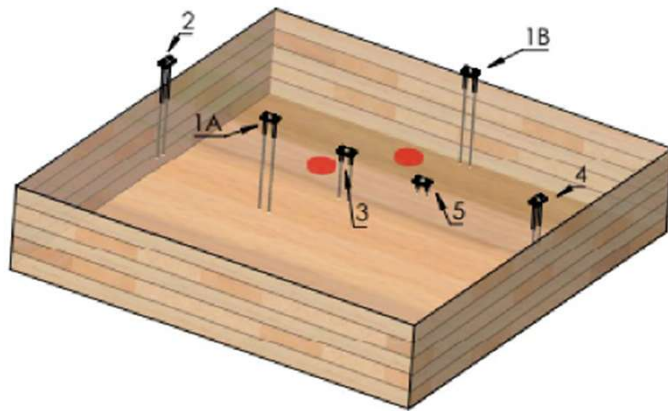
Outcome

- Polypropylene (PP) and High-Density Polyethylene (HDPE) reinforced with 15 wt% chopped carbon fibres provided the best balance of tensile strength and printability.



Structural Health Monitoring

- Monitoring **Mass Timber** construction in an Irish Climate
- CLT and Glulam elements instrumented
 - Moisture content (MC) probes at various depths
 - MC profile will be examined over time
 - Construction & Commissioning Phase
- Results - Inform policy and stakeholders



Schmidt, E., Riggio, M. (2019) **Monitoring Moisture Performance of Cross-Laminated Timber Building Elements during Construction, Buildings.**

Dr Conan O'Ceallaigh: conan.oceallaigh@atu.ie

Optimising Slot and Stud Panel Connectors for Light Gauge Steel Framing Systems: Development and Testing

Overview

- Improve constructability, speed of assembly, and structural performance compared to conventional screw-based connections

Objectives

- Develop multiple novel integrated connection geometries formed directly within cold-formed steel sections.
- Perform experimental testing on selected connection designs under pull-out and shear loading conditions.
- Develop validated finite element models to simulate connection behaviour and predict stress distributions and failure modes.



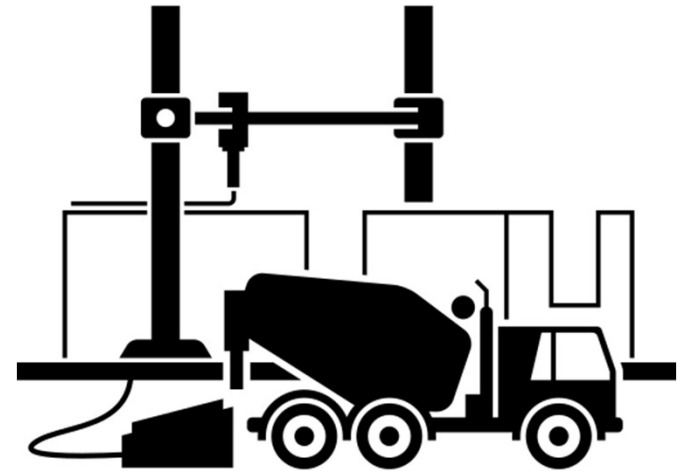
3D Concrete Printing Height Optimisation to Accelerate Housing

Overview

- Current 3DCP systems typically print concrete in layers that are 50mm high, which limits how quickly walls can be built. This project proposes increasing the layer height to 75mm, which will decrease the number of printing passes by 33% without compromising strength or stability. .

Objectives

- Using a concrete rheometer, the team will measure and adjust key material properties such as flow behaviour and setting time to ensure the concrete is strong, stable, and printable at high speed.
- The best-performing mix will be trialled in a live environment using HTL's COBOD BOD2 3D printer at a Roadstone production site



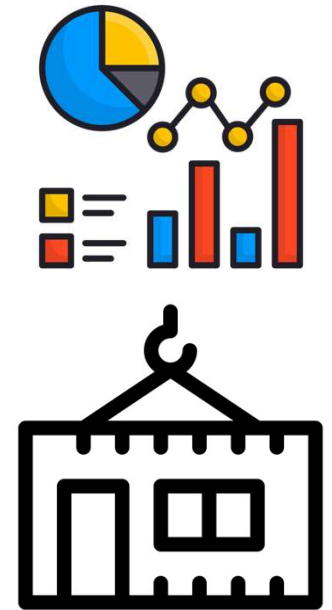
Automated Predictive Estimation Tool for Pricing Modern Methods of Construction (LGS) Building Projects

Overview

- Modern Methods of Construction (MMC) such as light gauge steel (LGS) systems are particularly suited to 3-10 story residential / hotel / commercial developments.
- One of the major barriers to adoption of LGS systems is the pricing of projects as there is a low rate of conversion from tendering to winning projects (<5%)

Objectives

- Develop an innovative software solution to automate the estimation of tender pricing for LGS by leveraging historical data from Evolusion's significant database of successful MMC projects (>1,000),
- This tool will significantly benefit the construction industry by streamlining the estimation process.



Collaboration & Networking

Innovation Support

Knowledge Transfer

Innovation Support

Accelerate Your Innovation Journey

*Access talent, funding, and
testing facilities to turn
great ideas into real-world
innovation.*

Access to Talent

Work Ready Graduate Programme 2026/27

<https://constructinnovate.ie/work-ready-graduate-programme/>

Supporting Graduate careers in the Construction & Built Environment Sector?

Structure:

- 12-month paid placement for new graduates with leading industry organisations
- Post-Graduate Diploma (PGDip) in Construction Innovation from University of Galway
- Funding support for the Host Organisation



Access to Talent

KOSMOS

- International specialist providing Commercial and Carbon Quantity Surveying (QS) services to the global construction industry.
- “the [Digital & Carbon Quantity Surveyor](#)”
- Circa 50 staff between offices in Ireland and Denmark.
- Developing BIM integrated software for cost and carbon analytics



January 2024:
KOSMOS Joined
as **Associate
Member**
(Intro from EI)

September 2024:
WRGP Graduate
seconded to
KOSMOS – AI
background

October 2024:
CEO delivered
Keynote speech
around WLC
accounting at
Industry Event

May 2025:
Collaboration with
Galway and
KOSMOS WRG
to submit funding
application
through **Seed
Fund 2025**

September 2025:
Secured funding –
**Top ranked
project** in
evaluation
process

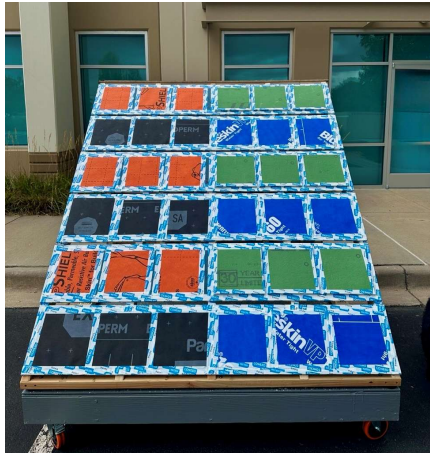
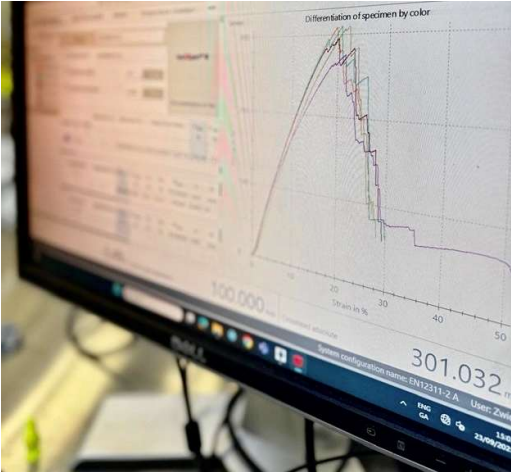
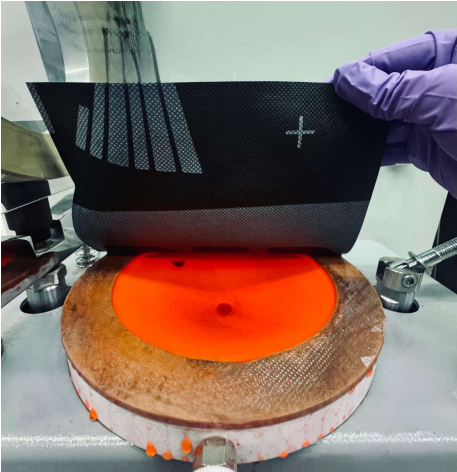
Project start -
Researcher
**contract
extension** by
12 months with
KOSMOS

Early 2026:
explore potential
for **follow on
funding**

KOSMOS

Project Title: AI-Enhanced Data Standardisation and Integration:
Leveraging Large Language Models to transform the Construction
Sector

Access to Testing Infrastructure



Access to Testing Infrastructure: O3BET Testbench



OLLSCOIL NA GAILLIMHE
UNIVERSITY OF GALWAY



+100 TESTING FACILITIES FOR BUILDING ENVELOPES



Knowledge Transfer

Share Knowledge. Build Capability. Open Source

*Gain access to expert insights,
practical learning, and the latest
research to upskill your teams and
stay ahead of industry change.*

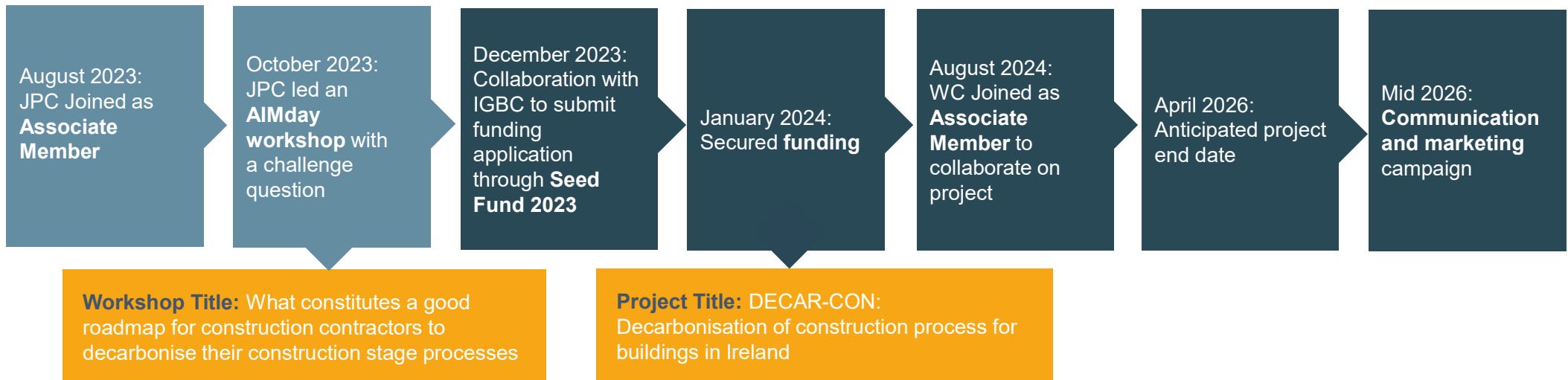
Construction Decarbonisation Roadmap

Impact:

- Engagement with Construct Innovate on a company specific problem – to develop a carbon reduction roadmap for project construction stage (Company Impact).
- The roadmap serves as a guide for policy makers, construction professionals and researchers.(Sectoral Impact)



John Paul Construction
Go Further | Build Smarter™

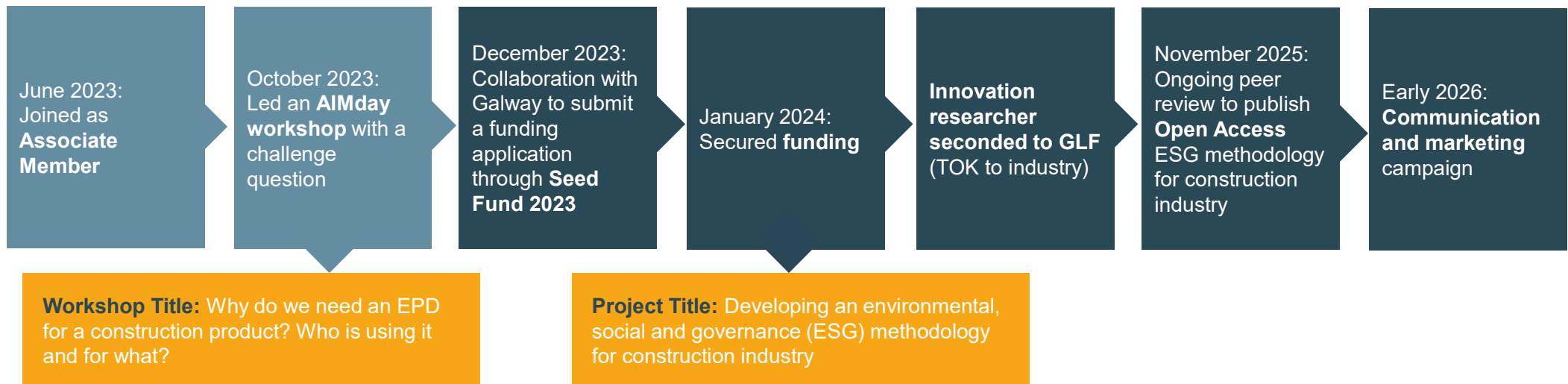


Industry ESG Methodology



Impact: *'The project has significant and measurable impact on our company, as we embark on the sustainability journey. It provides a tool for ESG reporting and monitoring which will directly contribute to improved processes and decision making within the GLF. Working closely with a full-time researcher and having access to university resources have helped us to engage in research and innovation, ensuring sustainability of our business and operations.'*

Pádraig O'Dwyer, Managing Director of Gunn Lennon Fabrications Ltd.



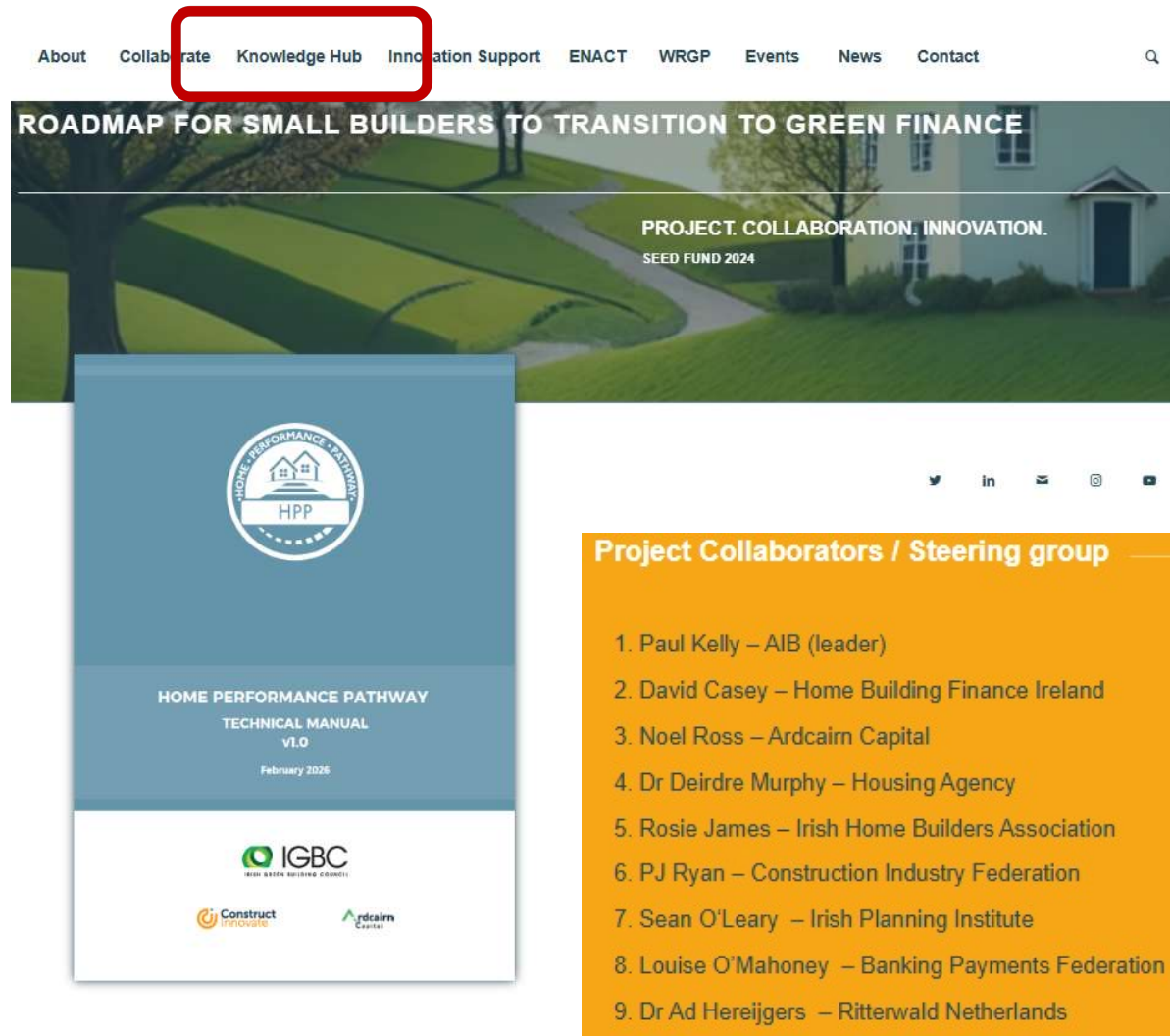
Roadmap for small builders to access green finance

Home Performance Index – certification programme from IGBC gives financial institutions the assurance needed to provide green funding to developers who are building high performance, sustainable housing.

A knowledge gap remains for smaller builders trying to access green finance. **The Home Performance Pathway (HPP)** addresses this by providing a simplified certification process specifically designed for the SME market.

Developed through cross industry collaboration, HPP is manageable roadmap, guiding builders from standard “business as usual” practices toward more ambitious environmental goals

This “journey” aims to mainstream sustainable building practices by showcasing a pathway to lower interest green finance.



Project Collaborators / Steering group

1. Paul Kelly – AIB (leader)
2. David Casey – Home Building Finance Ireland
3. Noel Ross – Ardcairn Capital
4. Dr Deirdre Murphy – Housing Agency
5. Rosie James – Irish Home Builders Association
6. PJ Ryan – Construction Industry Federation
7. Sean O'Leary – Irish Planning Institute
8. Louise O'Mahoney – Banking Payments Federation
9. Dr Ad Hereijgers – Ritterwald Netherlands

Scale of the Centre Activity



Membership Composition



1 Patron member

110 Associate members

11 RPO members

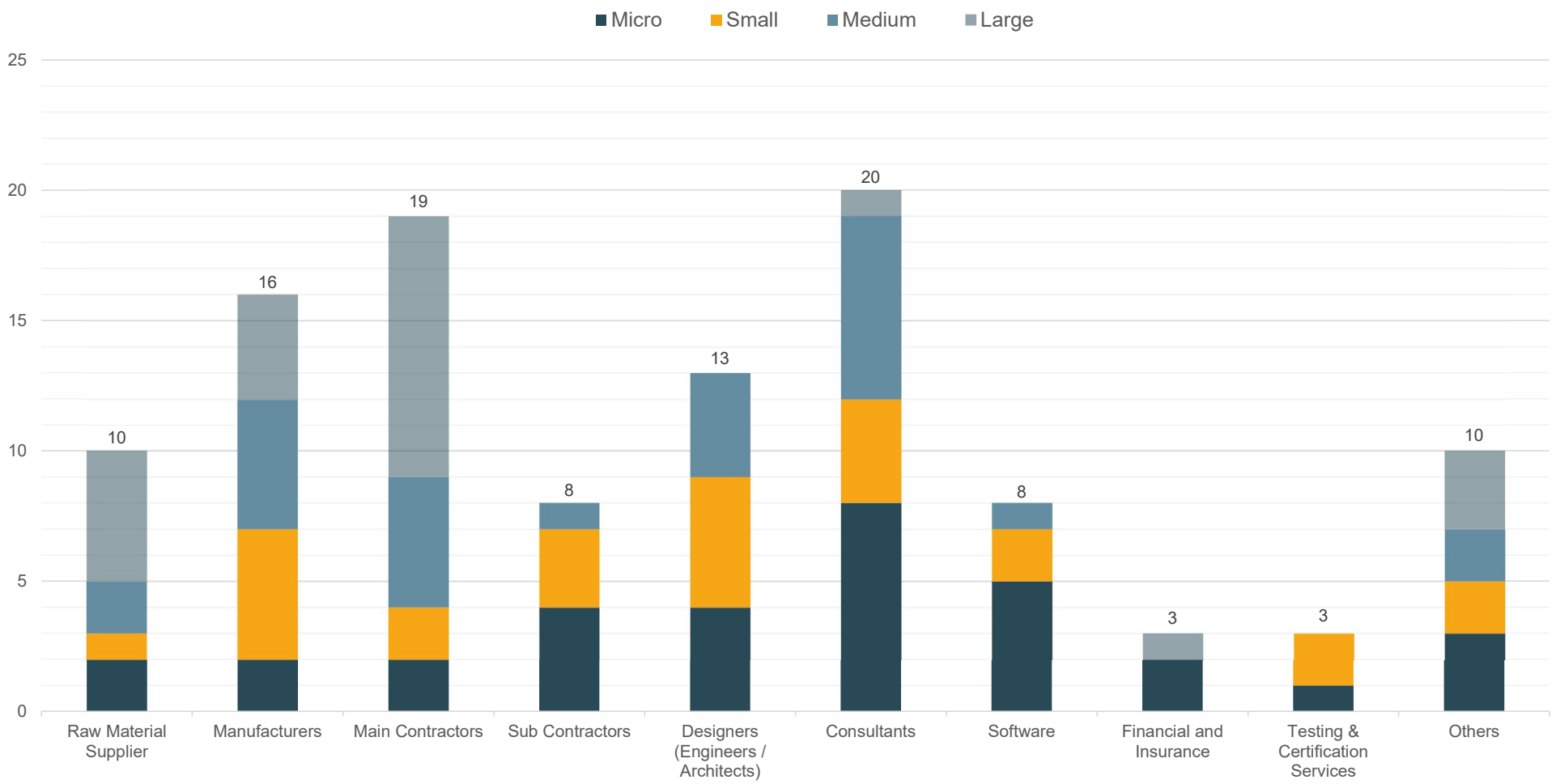


○ Host Work Ready Graduate

□ Engaged in research projects



Involvement Across Value Chain

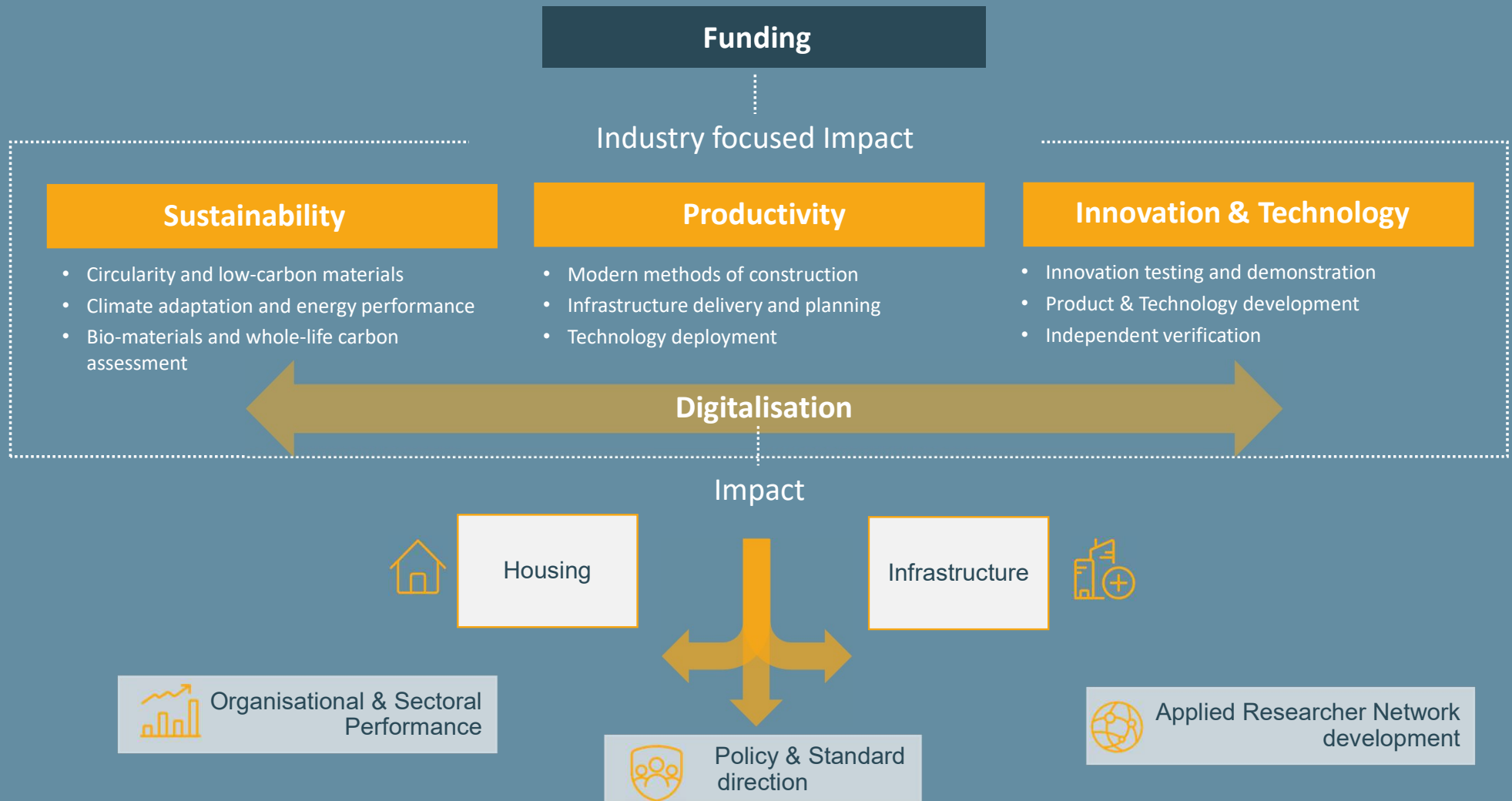


Research & Innovation Programme



Funding Calls	Projects	Industry Partners	PIs & Researchers
3 x Core Funded Seed Fund Calls (2023, 2024, 2025)	42	60	71
Department of Enterprise, Tourism, and Employment Housing Related Research Programme 2024	6	0	20
Department of Housing, Local Government, and Heritage Productivity and Digitalisation Call 2025	3	5	3
Accelerated Housing Applied Research, Dissemination and Demonstration (AHARDD Call 2023)	7	0	6
TOTAL	58	65 (49 unique)	100 (76 unique)

Future Orientation: National Innovation Centre



Thank you.

