

Intervention #13

First movers coalition on new technology and innovation

Intervention point

Accelerating industry scale innovation to support decarbonisation requires a coordinated approach. Existing funding and innovation initiatives can be harnessed by conducting stakeholder engagement programmes that assess the technological needs required for a net zero transformation, increasing certainty of market forecasts for prioritised solutions leading to dedicated programmes that de-risk and scale innovative low carbon solutions.

Current situation

Technologies to support the decarbonisation of the built environment are underdeveloped. There is a significant lack of investment into climate technologies, despite the real estate industry being valued at \$326.5 trillion.¹ Some estimates show that over the past 10 years, the real estate industry has only invested \$94.7 million into climate technology research and development (R&D).²

The decarbonisation imperative of the Paris Agreement to limit global warming to 1.5°C means the real estate industry needs to drastically reduce emissions by 2050. However, in many instances the energy mix, production of building materials and availability of non-fossil heat sources means a significant proportion of a building's emissions (some estimates suggest more than 50 percent³) cannot be eliminated using current technologies.

The challenge to innovate to decarbonise buildings presents a major R&D funding gap for technologies relative to the size of the industry. This is a standard issue for climate tech across multiple industry sectors.

A 2020 PwC report states that between 2013 and 2019 real estate was one of the smallest verticals of climate tech sectors. In this time span, approximately \$60 billion of investment went into

climate tech companies, but only \$3.7 billion was for real estate, representing less than 7 percent of total funding.⁴

The size of this funding gap is especially significant considering the extensive value chain in the buildings system and the high fragmentation. Buildings have four key life cycle input stages: materials, architecture, engineering and construction (AEC), operations, end-of-life. The value chain includes investment management and real estate finance, energy and property management, architecture and engineering, consulting, construction and manufacturing, mining, logistics, demolition and more.

To decarbonise a building – embodied and operational emissions – all of these industries need to decarbonise. It is important for them to find ways to work together to ensure whole life cycle building strategies that unlock decarbonisation potential. This requires cross-industry collaboration.

Examples of decarbonisation within the value chain range from innovations such as [green concrete](#) or [cross-laminated timber \(CLT\)](#) / [glulam beams](#) at the materials end of industry, to [smart buildings](#) for efficient operation through sensory data collection and automation at the operational stage. Some

innovations cut across multiple areas, for example building electrification, with [turning buildings into batteries](#) resulting in [smart grid integration](#). These types of innovation require extensive planning, collaboration within the value chain and integration with the wider built environment, fostered by developments in digital technology.

Mainstream adoption of transformative technologies faces a number of challenges with procurement sitting at the heart. Innovators can develop solutions, but without industry buy-in, no challenges will be overcome as a result.

Procuring companies, at all locations within the value chain, can identify six key risks:

- 1. Risk of performance** – will the new technology perform better than the existing solution? At present, due diligence is conducted by siloed entities such as venture capitalists, investors, private equity firms and corporate venture facilities. Rigorous due diligence is required to ensure the adoption of technologies that are fit for purpose.
- 2. Risk of business continuity** – will adoption of the technology significantly disrupt the business process? Once confidence in the potential performance of a new solution is earned, it is not the current practice to test it in a live market environment, which would enable the sharing of the results with other stakeholders. The sharing of results, however, would eliminate performance risk of an innovative solution for an industry at large, rather than each individual player having to conduct their own testing.
- 3. Risk of higher costs** – will the new technology cost more than the existing solution? This is a perennial challenge for early-stage innovation. Part of the issue is the lack of adequate funding along the innovation pipeline, from basic research through to product development to fast-track routes to scale. Once innovations scale they reach reasonable price points.
- 4. Risk of adoption** – will problems emerge after a new technology has been adopted? For example, what if scaling proves problematic, or a competitor product emerges? These challenges are particularly relevant in the fast-paced movements of climate tech for the built environment.
- 5. Carbon risk** – will newly developed technologies

produce lock-in effects with regards to embodied and operational carbon, which are undesirable in the medium to long term?

- 6. Risk of reusability** – could a technology reduce flexibility and adaptability of buildings or materials? Systematic long-term thinking requires organisations to take circularity into account and ensure reusability and recyclability. If not considered, this will pose significant challenges in the future.

To tackle these risks at an industry rather than single, or multiple company scale, coordinated industry, financier and innovator action is required. This should start at the top of the corporate value chain: procurement and investment from cornerstone companies which dominate both in terms of market share and industry influence. This approach is commonly known as demand signal innovation programmes⁵ and offtake agreements.⁶

What is being done

In response to this multi-industry need, the World Economic Forum set up the [First Movers Coalition \(FMC\)](#), a global coalition of over 50 of the world's largest companies, which is looking to harness purchasing power to support the development of technologies in eight "hard-to-abate" sectors through sending powerful market signals.

It has made purchasing commitments in three out of eight hard-to-abate sectors – steel, trucking, and concrete – which are all part of the real estate value chain.⁷

- [The steel commitment](#) was launched in November 2021 at COP26 in Glasgow. Members of the coalition commit to purchasing volumes of near-zero emission steel by 2030. Purchasers set a target that at least 10 percent of annual steel procurement volumes by 2030 meet or exceed the FMC definition for near-zero emissions.
- [The trucking commitment](#) was launched in November 2021 at COP26 in Glasgow. Members of the coalition commit to purchase or contract zero-emission medium and heavy-duty vehicles by 2030. Trucking owners and operators also set a target that at least 30 percent of their heavy-duty and 100 percent of their medium-duty truck purchases will be zero-emission trucks by

2030. Retailers and manufacturers set a target that they will require all their trucking service providers to meet the trucking owners and operators' commitment by 2030.

- [The concrete commitment](#) was launched in 2022 at COP27 in Sharm el-Sheikh, Egypt. Members of the coalition including construction and engineering as well as real estate development and advisory, commit to purchasing at least 10 percent of near-zero emission cement or concrete by 2030.

Additional commitments for embodied emissions reduction in the building system value chain come from [SteelZero](#) and [ConcreteZero](#). Both these initiatives are facilitated by the Climate Group. Members of the SteelZero initiatives commit to procuring, specifying or stocking 100 percent net zero steel by 2050, and 50 percent by 2030. For ConcreteZero, the commitment entails using 100 percent net zero concrete by 2050, pre-empted by 30 percent low carbon concrete by 2025 and 50 percent by 2030.

These commitments already represent a significant part of the materials and construction stage of the built environment.

In the venture funding space, funds for climate tech in real estate are continuously being raised. As an example, [Fifth Wall](#) launched a dedicated [Climate Fund](#)⁸ that aims to invest in software, hardware for information technology, renewable energy, energy storage, smart buildings, and carbon sequestration technologies for the decarbonisation of the built environment. The fund will invest into technologies across all four life cycle stages of buildings (materials, AEC, operation, end-of-life). It is backed by strategic LPs from within the real estate industry.

Other players in the European market, such as PropTech1 Ventures, Picus Capital and 2150 continue to invest in the wider proptech space, spurring innovation in the building system.

Finally, from early-stage access to capital perspective, there are a number of pre-corporate, venture or bridge funding facilities originating from the public sector. Public spending into technology research is a key part of the puzzle to scale climate technologies for the real estate industry.

EU programmes that have been involved in funding technologies for net zero industries including the built environment include:

- [The EIF's InvestEU Climate and Infrastructure fund](#), which focuses on climate action and environmental sustainability through investments in backbone infrastructure and industrial ecosystems, including energy and space. For smart grid integration, infrastructure investments are of key importance.
- [Horizon Europe](#), the EU's key funding programme for research and innovation with a budget of €95.5 billion. It tackles climate change, facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies through creating and dispersing knowledge and technologies. Horizon 2020 (Horizon Europe's predecessor) has, for example, funded [a number of digital technology companies](#) engaged in better understanding building performance for sustainable operations, as well as the [Carbon Risk Real Estate Monitor \(CRREM\)](#) project, which is now used by a large number of major industry players.

Possible next steps

For many young companies with initial venture funding, early industry engagement is crucial to start generating revenue and survive. Venture capital and corporate funds for climate technology in real estate are doing an excellent job of facilitating and conducting the early process of due diligence. They are also bringing in corporate funds to early and later stage innovation processes, connecting these projects to larger industries for adoption.

However, more needs to be done to ensure a step change and the acceleration of innovation to industry scale:

1. Conducting needs-based analysis into which technologies are required to deal with specific industry coalition challenges, and which are aligned with the industry's net zero and nature positive priorities.
2. Working to incorporate demand signals into wider sectoral transition strategies so the

influence of buying power can help accelerate the scale of innovation.

3. Working with existing leading venture capital players to form an active coalition of corporations committed not only to finance early-stage decarbonisation projects via an investment strategy, but also to commit to testing of project outcomes to de-risk the scaling and mainstream adoption.

How to get involved

- Join the [ULI Europe Technology and Real Estate Council](#), which focuses on exploring how technology and innovation in real estate and urban development can enhance customer experience and quality of life.
- The [First Movers Coalition](#), chaired by the [World Economic Forum](#), is open to like-minded large companies. It presents a great opportunity to take climate action by creating a market for the emerging technologies that are crucial to reach net zero by 2050.
- [SteelZero and ConcreteZero](#) initiatives are also open to be joined by companies engaged in the buildings value chain.
- The EIF's [Climate and Infrastructure fund](#) is accepting applications from financial intermediaries in an ongoing application process until 30 June 2027. It is for financial intermediaries (such as funds or funds-of-funds, etc.) that are targeting one or more of the thematic and/or horizontal policy priorities in their objectives, which are: Clean Energy Transition & Climate, Sustainable Transport, Environment & Resources, Digital Connectivity & Data Infrastructure, Social Infrastructure, Space Infrastructure.
- [Horizon Europe](#) is the EU's key funding programme for research and innovation that tackles climate change and boosts the EU's competitiveness and growth. All funding information and procedures on how to apply are on the [Funding and Tenders portal](#).

About C Change

C Change is a ULI-led programme to mobilise the European real estate industry to decarbonise. We're a movement empowering everyone to work together for a sustainable future. We connect the brightest minds from across the value chain. We challenge barriers, share expertise, and champion innovation to move swiftly to accelerate solutions that will transform our industry and protect our planet. C Change means real change.

C Change was formed in late 2021 by a group of leading real estate players that was united in its aim to focus on collaboration to ensure companies large and small have access to practical solutions and education on decarbonisation.

About these intervention briefings

This is one of a suite of intervention points developed as part of the C Change programme. Intervention points are specific places within a system where we can target action, interrupting business as usual to drive transformation. Of course, systems are dynamic environments that are always in flux. We expect movement over time, and will update this document as prevailing and anticipated trends change shape. This briefing was researched in 2022 and published in 2023.

- 1 [Savills: Value of global real estate rises 5% to \\$326.5 trillion](#)
- 2 [Bloomberg: Fifth Wall Closes \\$500 million for its first climate fund](#)
- 3 [Brendan Wallace: Why did Fifth Wall launch a climate fund?](#)
- 4 p.26 [The State of Climate Tech 2020](#)
- 5 [World Economic Forum: First Movers Coalition: how to create demand for clean technology in hard-to-abate sectors](#)
- 6 [Energy & Utilities: GEUF: Risk allocation and offtake agreements crucial to financing new clean technologies](#)
- 7 NB: according to the Global Alliance for Buildings and Construction, in 2021, embodied emissions accounted for 10 percent of the 37 percent of global energy related carbon emissions that buildings are responsible for. 27 percent resulted from operations. [GlobalABC: Tracking progress](#)
- 8 [Brendan Wallace: Why did Fifth Wall launch a climate fund?](#)

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