

RESEARCH PROJECT SUMMARY

Unlocking demand for low carbon & resource efficient innovation

Potential Market Forming Interventions for structural steel reuse in the built environment

PROJECT OVERVIEW

PURPOSE AND CONTEXT

This report presents the findings of a UKRI and DESNZ commissions research project into Market Forming Interventions (MFIs). The views and recommendations expressed are those of the authors and do not reflect official policy or government position.

The UK has a strong innovation base, with a pipeline of low-carbon, resource-efficient materials, products and business models. However, many innovations struggle to progress to commercial scale. Weak and uncertain demand, high perceived investment risk, and fragmented value chains continue to constrain scale-up. This limits progress towards generating value from UK-owned IP and building resilient and low carbon supply chains that help to meet net zero and circular economy goals.

The project, delivered by ERM in partnership with Eigen Ventures, the Scope 3 Peer Group and SRS Sustainable Business, focused on identifying and designing Market-Forming Interventions and enabling factors that could help accelerate the adoption of innovative low-carbon and resource-efficient solutions across the UK built environment sector. The recommended interventions are designed to work alongside existing policy frameworks, sector roadmaps and stakeholder initiatives, creating structured and systemic pathways to commercialisation and adoption. Grounded in extensive stakeholder engagement, it sets out practical options to unlock private investment, stimulate demand, and strengthen UK industrial competitiveness and supply-chain resilience.

MFI DEFINITION AND NEED

Within the context of this project, an MFI is defined as a potential demand-side measure that seeks to accelerate the adoption of novel technologies or business models to reduce lifecycle carbon emissions.

MFIs tackle the demand-side barriers that prevent innovations from scaling, such as uncertain demand, missing standards, misaligned incentives, and fragmented supply chains, using mechanisms like cost support, demand aggregation, financial de-risking, and predictable pricing.

SCOPE OF RESEARCH

Innovation areas explored: Maximising reuse (Reuse of existing assets, materials and components incl. adaptive reuse), minimise impact & waste (e.g. low carbon materials), design for optimisation (e.g. design for disassembly), use standardisation (e.g. Modern Methods of Construction), and Products as a Service.

MFI measures considered: Regulation and standards (e.g. design-for-reuse guidance), demand aggregation and long-term commitments (e.g. public procurement, Buyers' Club), direct financial support and de-risking (e.g. blended finance for enabling infrastructure), and price/cost support mechanisms where appropriate.

INNOVATION TARGETING AND MFI DESIGN

STRUCTURAL STEEL REUSE WAS SELECTED FOR IN-DEPTH EXPLORATION

Structural steel reuse was identified as a potential innovation area by this research project following a structured assessment of scoped innovation areas against environmental, market, economic and innovation-readiness criteria:

- **High embodied carbon reduction potential:** Direct reuse of structural steel elements can avoid up to 97%¹ embodied emissions associated with primary steel production and fabrication.
- **Clear applicability across projects:** Reused steel can be deployed in a range of building and infrastructure contexts when design, specification, verification and logistics are aligned early.
- **Growing demand signals from asset owners and occupiers:** Forward-looking property owners, investors and occupiers are increasing focus on whole-life carbon, resilience and circularity.
- **Clear market-forming opportunity:** Targeted interventions can unlock adoption by improving transparency on available stock, aligning specifications, enabling verification/certification, and reducing coordination and logistics costs.
- **UK industrial competitiveness and resilience:** Scaling steel reuse can strengthen domestic capability in deconstruction, testing, fabrication and digital enablement, while reducing exposure to material price volatility and supply disruption.

WHAT ARE THE DEMAND BARRIERS FOR STRUCTURAL STEEL REUSE?

Unlike many other innovations, cost is not a primary barrier to structural steel reuse. However, the uptake of structural steel reuse in the built environment faces several supply-side and demand-side barriers that limit adoption at scale.

- **Value perception and programme risk:** Reuse is often seen as higher risk and more complex than specifying new steel, with concerns around cost, schedule impacts, and who carries risk across the project team (client, developer, contractor, insurer, funder).
- **Lack of transparency and coordination:** between future supply (what steel becomes available, when, in what condition) and future demand (specifications, timing, volumes). This is compounded by **fragmented markets** for salvage, storage and logistics, and **limited availability of reliable data**
- **Volumes available limited by lack of standard practice at demolition stage:** there is a lack of awareness and standard practice to divert suitable structural steels for reuse rather than to scrap (for recycling) for contracting the assessment and removal services, stockists or intermediaries to buyers.

HOW COULD PUBLIC PROCUREMENT UNLOCK STRUCTURAL STEEL REUSE DEMAND?

Public procurement could be well placed to address demand side barriers. Public sector bodies commission a substantial share of buildings and infrastructure projects in the UK where structural steel is specified, giving procurement significant leverage over design choices, technical specifications and delivery models. This influence extends beyond individual projects, creating sector wide ripple effects. As a result, public procurement could act as a market anchor by issuing early, credible demand signals that support investment and scaleup in nascent structural steel reuse markets.

¹ The Alliance for Sustainable Building Products, 2024. [DISRUPT-2 Tool Kit](#)

The recommendations below combine market-preparation activities with targeted public procurement interventions, and would that demand signals are both credible and deliverable. The core objectives would be to:

- **Improve availability and accessibility of data** across public and private sector to support greater uptake of steel reuse
- **Create the right conditions for effective reuse procurement**
- **Use public procurement as a credible, repeatable demand signal for reused steel**

WHAT COULD INTERVENTION LOOK LIKE?

Before leveraging public procurement directly, a series of market readiness activities or “Enablers” could address capability, coordination, and information gaps:

Recommended Enabler A: Increasing Data Availability	Recommended Enabler B: Preparing for Public Procurement
Convene sector players and technical platforms to assess the status of data transparency and data exchange frameworks (for consistent information about suitable used steels in buildings or stocks), identify barriers to finalisation and consistent adoption, and agree on a standardised approach.	Convene large asset owners (private and public) and other key stakeholders to share good practices and identify incentives to overcome barriers for structural steel recovery and reuse.
Standardise pre-demolition audit requirements: define and increase uptake of pre-demolition and in-situ steel audits to address current data gaps and align with good practice in UK (e.g. Westminster Council) or internationally (e.g. France).	Issue a Request for Information (RFI) outlining proposed public sector steel reuse requirements to engage the supply chain, assess readiness and capacity to process more reused steels, and identify any barriers requiring targeted intervention (e.g. at audit, removal, defabrication, stocking, project matching or design stages).

Together, these activities would aim to build confidence on both the demand and supply sides, ensuring any **procurement interventions are well-timed and credible**. Once enabling conditions are in place, public procurement could then unlock demand through a combination of targeted mechanisms.

Options for Leveraging Public Procurement

Pilot projects: Pilot projects could demonstrate feasibility, build confidence and manage first-of-a-kind delivery risks. Recommended actions include:

- Identify suitable volunteer pilots, including by reviewing public sector construction pipelines for deconstruction and new-build opportunities.
- Support pilot clients to trial, test and refine practical approaches to steel reuse in live public projects.
- Facilitate structured engagement and upskilling across government and delivery partners, including guidance on standards, testing, warranties, insurance and programming.

Updates to the Government Buying Standard (GBS): The GBS could embed clearer requirements for reuse and low-carbon outcomes, creating a consistent procurement signal by:

- **Explicitly recognising steel reuse in procurement requirements**, so reuse is considered alongside recycling and low-carbon material selection during early deconstruction planning and new-build design.
- **Strengthening whole-life carbon evaluation**, including clear recognition of the embodied-carbon benefits of reused steel in value-for-money assessments.
- **Creating clearer signals across public projects**, reducing ambiguity for contracting authorities and giving suppliers greater confidence to invest in reuse-enabled solutions.
- **Aligning with delivery practices**, including guidance on auditability, end-of-life planning and design for disassembly to support matching between donor and recipient projects.
- **Ensuring proportionate implementation**, aligned with existing GBS structures and revision processes, and supported by practical guidance for procuring authorities and delivery teams.

WHAT WOULD THE RECOMMENDED INTERVENTIONS ACHIEVE?

Public procurement could operate as a market anchor, driving embodied carbon-reductions at scale and improving supply chain and resource resilience through strengthened local economies and reuse networks.