



ADVANCED BUILDING CONSTRUCTION

Collaborative

THE ADVANCED BUILDING CONSTRUCTION COLLABORATIVE

Buildings Sector Technology Innovation
for Market Transformation

February 2022

Motivation: the buildings sector faces a confluence of critical challenges.



Catastrophic climate change is on the horizon; billion-dollar disasters increased 4X in the last 40 years



Noah Berger/AP



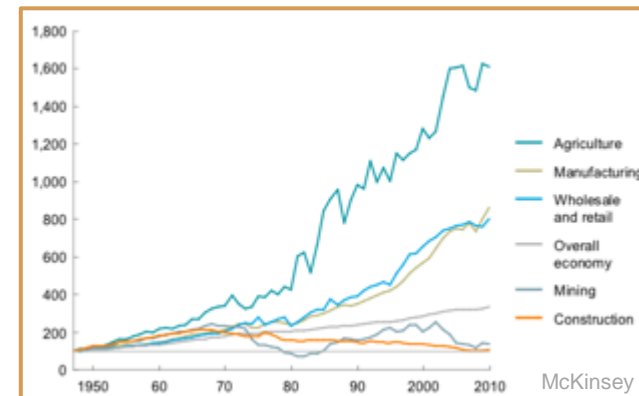
A shortage of attainable housing is burdening millions of families and the economy; there is a deficit of 7M+ extremely low-income affordable housing units alone



iStockphoto



Labor productivity in construction has declined since 1968, in contrast to rising productivity in other sectors



McKinsey

Advanced Building Construction (ABC) offers a powerful **solution**.

In short, ABC refers to retrofit and new construction
solutions that combine:

**Energy-efficient
building decarbonization**

+

**Scalable, streamlined
industrialized construction methods**

Deep energy efficiency has **substantial co-benefits.**



Reduced **emissions**



Reduced **maintenance**



Increased thermal and acoustic **comfort**



Improved indoor **air quality** (with potential health benefits)



Resilience, including passive survivability

Industrialized construction (IC) can help rapidly deploy energy-efficient, low-carbon buildings at scale.

- Only a small percentage of US construction uses industrialized approaches.
- Yet a large part of the \$1.4T+ US market could incorporate IC methods, which can enable higher performance, faster deployment, reduced schedule risk, enhanced QC, and workforce benefits.
- IC can become a green jobs powerhouse and drive re-shoring of manufacturing.

But industry and the public sector must collaborate to achieve this!



2050 Goal: decarbonize the US building stock while improving affordability, resilience, and equity

ABC Collaborative Mission

Bring together and catalyze constructive relationships among incumbent and emergent buildings sector actors to accelerate the scaling and mainstream adoption of ABC solutions while supporting—and leveraging—modernization of the US construction industry.

2030 Vision



Demand

- 3M+ net-zero carbon retrofits per year
- All new construction is net-zero carbon



Technology

ABC is at least 25% of the market



Delivery

Innovative business models, workforce training, and public sector/utility support unlock the market

The ABC Collaborative's **core activities** incorporate and advance its **mission and strategic priorities**.

*Transacting
Activities*



**Market
Scaling Engine**

*Market
Mobilization
Activities*



**Place-Based
Scaling**



**Workforce
Development**

*Foundational
Activities*

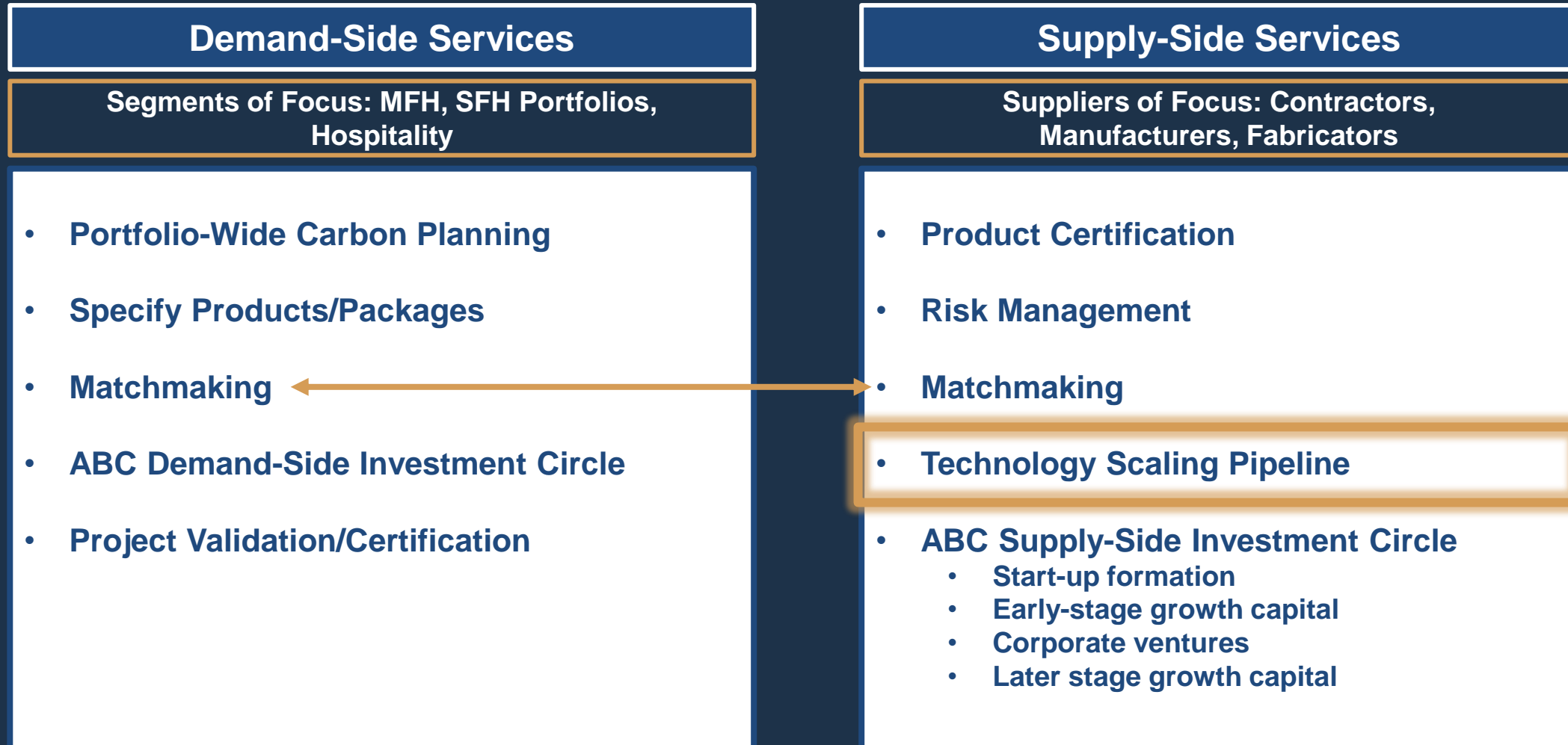


Programming



Thought Leadership

The **Market Scaling Engine** will help drive ABC transactions



Note:
preliminary,
subject to
change

The Collaborative supports **technology scaling for ABC innovations.**

Examples of **ABC Start-Ups:**

- **ICON:** 3D-printed housing enabled by robotics, software, and advanced materials.
- **Mighty Buildings:** 3D printing of high-quality, sustainable, modular homes using robotics and automation.
- **Dvele:** Efficient, high-quality, customizable prefabricated homes with a focus on healthy environments and resilience.
- **TimberHP by GO Lab:** Suite of carbon-sequestering wood-fiber insulation products.
- **CleanFiber:** Superior cellulose insulation made from recycling residuals.
- **Spray-R:** Cloud-enabled, automated robotic spray foam installation.
- **CarbonCure:** Solutions for manufacturing of sustainable concrete materials.
- **cocoon construct:** Retrofit envelope solutions including high performance façade panels, windows and HVAC for net-zero buildings.
- **Rheia:** Innovative HVAC distribution system with streamlined installation.
- **tkFabricate:** Integrated mechanical system equipment packages designed for streamlined retrofits of low and mid-rise multifamily buildings.
- **Hydronic Shell:** Innovative envelope-integrated HVAC system with superior comfort and undistruptive installation.

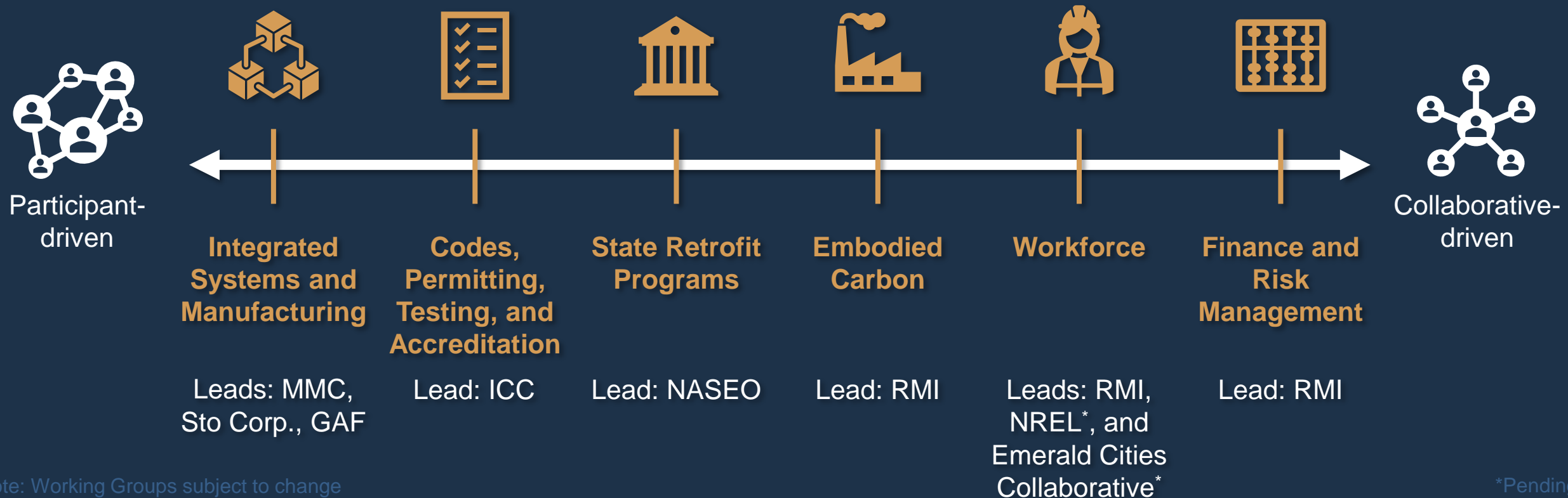
Collaborators & Supporters



ABC Collaborative team members, initial funders, Letter of Support writers, MOU signers, and other significant collaborators

Working Groups provide a way to get involved in Collaborative activities.

The Collaborative Working Groups offer participants a **range of topics** and span a **spectrum of approaches**:





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Thank You!

advancedbuildingconstruction.org/contact