

Greener, Better, Faster Introducing Make Modular

Steve Cole
Head of Make Modular

Background



About Make UK



Britain is one of the world's biggest manufacturing nations. Almost 3 million people work in our sector and deliver almost half of all UK exports. Our companies drive over 60 percent of all UK research and development. As a result of that investment, manufacturing as we know it is changing, adapting, and transforming each and every day.

We're at the cutting edge of innovation; leading the way in developing skills and driving competitive advantage for the UK.

What we do

We stimulate success for manufacturing businesses, helping them to meet their objectives and goals. We empower individuals and we inspire the next generation.



About Make UK

Reputation: The voice of the manufacturing sector, one of the Big 5 UK trade bodies, 20,000+ members

Reach: Access to the highest levels of Government, extensive media presence

Knowledge: Highly skilled economic and policy team who produce heavyweight reports and research

Experience: Make UK operates in a group structure housing a range of highly influential specialist sector bodies such as UK Steel and UK Defense

Manufacturing: Expertise and extensive networks with key players in the manufacturing industry

A decorative graphic in the bottom right corner consisting of overlapping blue triangles and polygons.

What is Make Modular



Voice

Scale

Independent and expert

Strengthen the sector

Collaboration



What is MMC?

#

CATEGORY
DEFINITION

1



Pre-manufacturing
(3D primary structural
systems)

2



Pre-manufacturing
(2D primary structural
systems)

3



Pre-manufacturing
components (non-systemised
primary structure)

4



Additive manufacturing
(structural and non-structural)

5



Pre-manufacturing
(non structural assemblies
& sub-assemblies)

6



Traditional building product
led site labour reduction /
productivity improvements

7



Site process led site labour
reduction / productivity /
assurance improvements

Category 1

Pre-manufacturing (3D primary structural systems)



A systemised approach based on volumetric construction involving the production of three-dimensional units in controlled factory conditions prior to final installation. Volumetric units can be brought to final site in a variety of forms ranging from a basic structure only to one with all internal and external finishes and services installed, all ready for installation.

The system includes structural performance. Full volumetric units in apartment buildings can include apartment space and common area space. Mini volumetric structural units can include bathroom pods and the like which are structurally stacked and loaded.



Priorities



Outputs



Evidence: A well evidenced case for the role of modular in tackling UK public policy priorities

Profile: Raises the profile of the modular sector amongst decision makers at all levels of Government and those that influence them

Education: Increases public awareness of the benefits of modular for housing and the wider economy

Relationships: Establish enduring relationships for sector leaders in Westminster and Whitehall, with champions across the political spectrum

Responsive: Provide robust responses to relevant Government announcements and consultations

Areas of work



Public Affairs

- Build relationships with national and regional government
- Deepen communication with Government departments
- Use policy work to proactively engage parliamentarians

Capacity

- Deliver ROI to members
- Build shared capacity around procurement, components, and supply chain
- Establish technical task and finish groups

Membership

- Grow core membership
- Grow affiliate membership
- Review membership structures Q4 2022

Policy

- Deliver sector stats and trends analysis
- Deliver research and reports into areas such as Net Zero, Levelling Up, building safety

Asks



Sustainability: Enhance house-building sustainability by introducing more a robust commitment to and targets for net-zero

Scale: Government can use levers such as the Affordable Home Programme to create certainty for the modular market, supporting investment in new capacity and a helping drive the sector to scale

Planning: Create a fast-track planning route for volumetric modular

Land: Government to require a minimum percentage of its land bank to be allocated for volumetric modular homes

Finance: Ensure modular housing underpinned by a robust financial security and borrowing system

Levelling Up: Creation of a modular capacity strategy linking new factory location, high housing demand areas, and levelling up priority regions

A blue geometric graphic consisting of overlapping triangles and polygons, located in the bottom right corner of the slide.

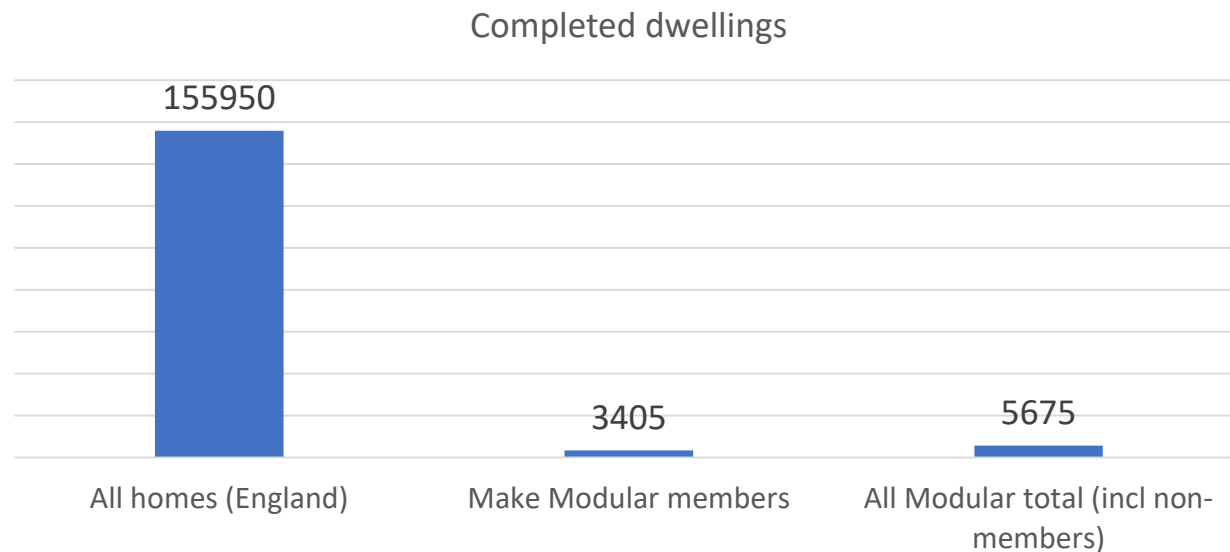
Modular Facts



Completions and investment

Comparing public data on 2020 dwellings (latest) vs Modular homes delivered in 21/22 year finds:

- Make Modular accounts for approx. **2%** of completed dwellings but could reach up to **10%** if maximum capacity is reached.
- Estimates for entire modular industry indicate we could deliver up to **14%** of current demand if available capacity is maximised



Total investment £576m (by Make Modular members)

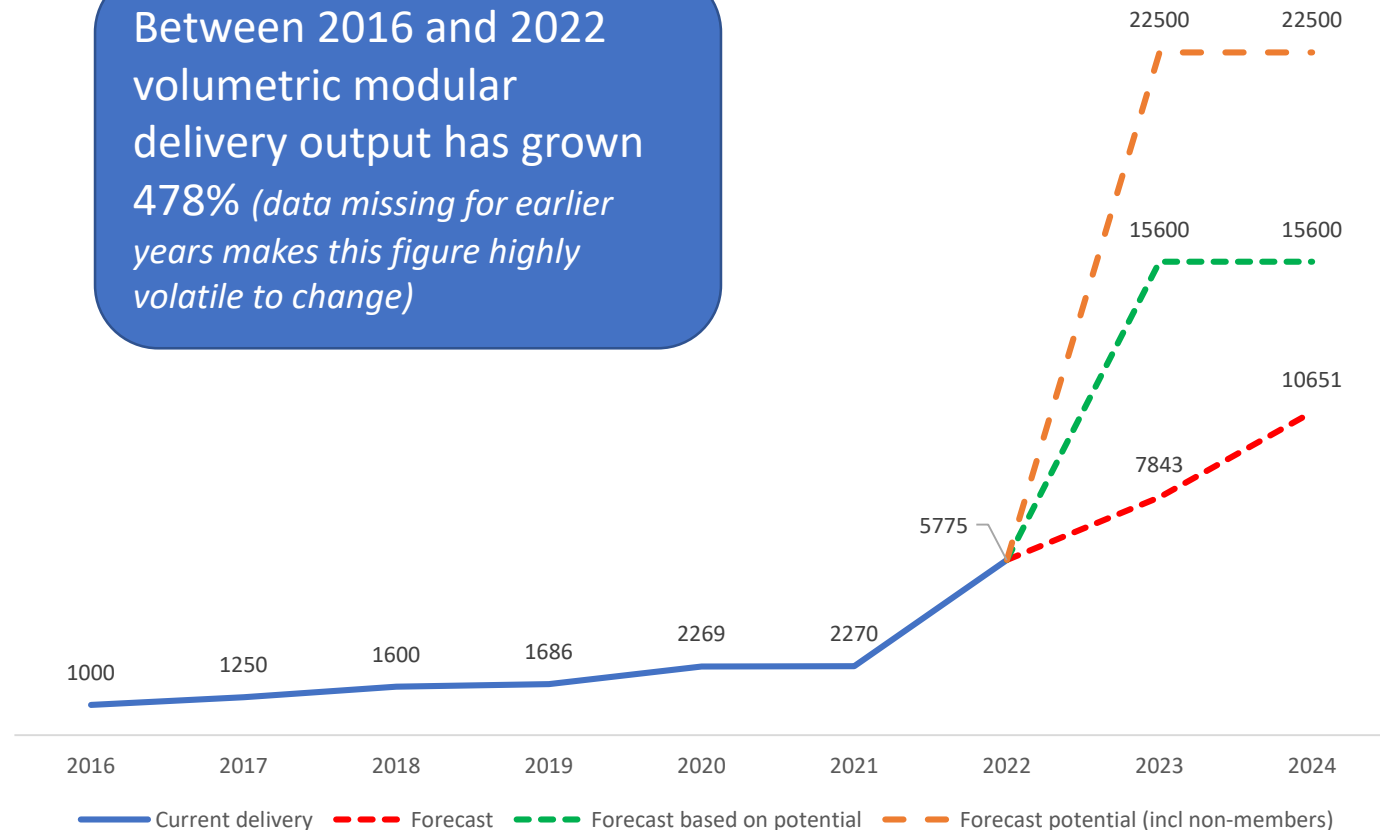
The average member has invested approximately £96m to date

Average SAP of 84 but capacity to deliver 100+

- **1644 FTE** workers currently across members (with potential to increase to **3031 FTE** at full capacity)
- Average age of existing workforce: **40**

Delivery: Forecast growth vs maximum potential

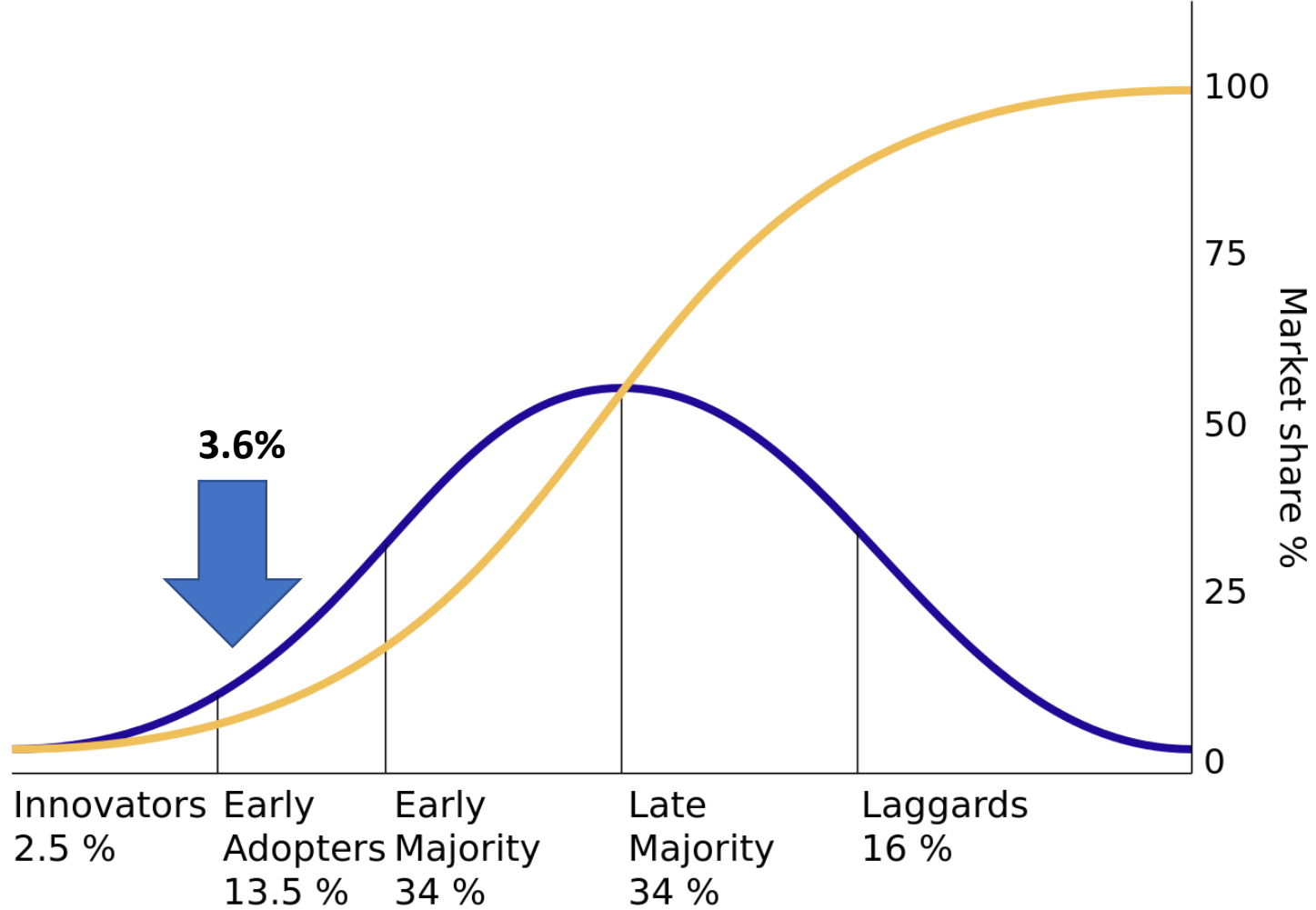
Between 2016 and 2022 volumetric modular delivery output has grown 478% (data missing for earlier years makes this figure highly volatile to change)



Based on delivery data provided by members from 2016 to 2022* estimates over the last 5 years indicates the industry has grown on average year on year by **36% (CAGR)**. However, we are still operating below capacity

- Forecast to 2024 (**red dotted line**) based on 5 year CAGR
- Maximum capacity delivery assumed to be 15,600 based on member data only (**green dotted line**)
- Maximum capacity delivery for entire industry at 22,500 based on all volumetric/cat 1 modular developers that we know of (**orange line**)

Innovation Curve Progress

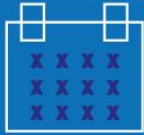


VOLUMETRIC HOUSING: THE FACTS

QUALITY AND SPEED

A volumetric house can be built in as little as

12 WEEKS



UP TO 6 HOUSES

can be installed each day by a single crane.

A single factory can produce each house in as little as...

2 HOURS



PROVIDING JOBS

Our members have the capacity to deliver

75,000

advanced modular homes by the end of the decade



This would create

**50,000
NEW JOBS**

across the UK

MEETING HOUSING DEMAND



The UK needs to build

300,000

new homes each year to meet demand

8%

Only 8% of homes are currently built using MMC

SUSTAINABLE

Volumetric homes can cost up to

20% LESS TO HEAT

than traditionally built homes

Up to

30% LESS ENERGY

is used to heat MMC homes



Homes can be built with

**97% LESS
EMBODIED
CARBON**

than a traditional built home

SYMPTOMS

The critical symptoms of failure and poor performance have been identified in this review as:



HAs and Modular

- Long Term
- High Quality
- Building Safety
- Energy Efficient
- Lower Maintenance and Defects
- Counter-cyclical supply
- Predictable components
- Genuine partnership
- Net zero
- Lower disruption
- Build out speed



The number of households suffering from fuel poverty is set to treble to 6.3million households when new energy price cap comes into effect on April 1, figures show

- NEWS
- POLITICS
- FOOTBALL
- CELEBS
- TV
- MONEY
- TRAVEL

UK's first zero-energy homes being built - with no gas or electricity bills

The two-storey factory-built homes will be built on production lines in Knaresborough, North Yorkshire. Once complete, they will then be transported to site and craned into place

By **Emma Munbोध**, Money Editor
16:33, 17 Feb 2022 | UPDATED 16:36, 17 Feb 2022

COMMENTS



06 Mar World's tallest modular building lights up Cro 12 months after first module was installed

POSTED AT 17:35H IN NEWS BY DEVELOP CROYDON · 0 LIK

Tide Construction has for the first time switched on the lights at their landmark scheme in Croydon, bringing the world's tallest modular building to life.

L&G Modular to start 185-home Bristol scheme

Aaron Morby 1 year ago

Share

Legal & General Modular Homes has acquired and started site clearance for its second major modular homes scheme.



New homes at Lockleaze will be in top 1% for energy performance

REAL ESTATE

Goldman Sachs puts millions into flat-pack housing in the UK

US bank says modular homes start-up can help solve the country's housing crisis



nd manufactures modular homes, which are built in sections that can be development sites

Government Policy



Welsh Government Policy

Since the mid-2010s, the Welsh Government has increasingly recognised the potential for MMC to scale up, speed up and improve the quality of social and affordable housing delivery while meeting its targets on decarbonisation.

In 2020, the WG produced a full strategy to this end, and in 2021 made MMC an important component in the Welsh Development Quality Requirements,

There is support for the industry and it is clear that these policies will make it easier for MMC to contribute towards social and affordable housing delivery.

There are several policies which the industry must account for:

- Desire to see it site factories in Wales,
- Use Welsh supply chains and hire Welsh labour; the
- WG is keen to see tenants' views factored into designs
- RSLs/LHAs will have to offer tenants the choice of turning down an MMC home without it prejudicing their place on the waiting list.
- Housing design will need to be visually diverse and indistinguishable from traditionally built homes.
- WG is also interested in standards, performance monitoring and value for money across the lifetime of a house, and will consider standardisation as the industry expands.

WG has made several requirements for new affordable developments which MMC is **well placed to deliver**:

- The strategy states that **all new social/affordable homes must be near zero emissions**
- New affordable/social homes must **use 'circular economy processes'** by choosing materials that can be **recycled or reduce carbon use**
- Builders are expected to demonstrate the use of **'integrated technologies'** in new homes
- **Value for Money** (VfM) calculations will cover the **whole life of the house** not just the up-front development cost; VfM analysis is expected to be undertaken by the applicant before the scrutiny stage of the SHG process and will be assessed by the WG in the post-completion review; one of the WG's objectives is to see **procurement models shift from low-cost to high-value**
- The WDQR 2021 makes it a condition that **homes be flexible, responsive to changing needs and adaptable** over the life cycle of the occupant and the home
- The WDQR 2021 not only makes **MMC 'a preferred delivery solution'**, it states that: 'Delivery of homes via MMC should be viewed as a **technological "step change"** and not merely the inclusion of elements of the construction that are already traditionally produced off-site' (p. 2).

Welsh Government Policy Challenges

- A key objective for the WG is to **standardise design and manufacture**. While initially relying on the industry to develop products, ‘once the MMC market matures ... we will **explore the possibilities of standardisation**’ and will consider whether to adopt a ‘**chassis**’ approach in which each home would have a ‘chassis’ on which elements could be added and customised (p. 23).
- Under objective 4 in the strategy document, it is stated that Ministers wish to ‘see **demonstrable evidence of how tenants’ views have influenced the design of homes produced by MMC**’ (p. 23); each RSL/LHA is expected to involve tenants in home design and the **SHG scrutiny process will involve consideration of how tenants’ views have shaped** the proposed development. Homes must also meet a variety of needs. Importantly, **tenants must be free to choose whether to accept an MMC home or a traditionally built home without it prejudicing their place on the waiting list** (p. 24).
- Design remains an important feature; the strategy makes clear that homes should be ‘**beautiful**’ and ‘**attractive**’; developments must include ‘**visual diversity**’ and MMC homes should ‘on the surface ... be **visually indistinguishable from traditionally constructed homes**’ (s. 6.4, pp. 23–24).
- Monitoring will include like-for-like technical scrutiny comparisons with traditionally built social/affordable housing, and post-scheme scrutiny of **VfM**. The strategy explicitly states that it does not want MMC providers to ‘hide behind’ better quality arguments when defending higher costs without fully testing VfM.
- The WG wants to ensure that ‘**whenever possible**’ **MMC homes will ‘back Welsh businesses**’ and represent the ‘**maximum social and ethical value to the people of Wales**’. It wants MMC developments to maximise local supply chains and create local employment opportunities. It is particularly keen that Welsh timber be used and **new factories be sited in areas ‘hardest hit by economic and industrial decline**’.

Questions
scole@makeuk.org

