



## Modern Methods of Construction Challenges and Recommendations From Sector Insight

The narrative around Modern Methods of Construction (MMC) is rapidly changing amidst a backdrop of recent activity in Wales and [the UK](#). CEWales supports increasing calls to embrace principles of 'industrialisation' towards 'industrialised construction' as a means for unlocking productivity in the construction sector for achieving greater efficiencies, better outcomes and holistic transformation. This includes unpicking if the term 'MMC' is still fit for purpose, understanding whether the MMC agenda is primarily focused on increasing the uptake of 'off-site' methods and investigating the effectiveness of traditional construction delivery models in delivering the necessary standardisation, repeatability and continuous improvement in systems, process and relationships that the industry now demands and MMC requires as evident in the [UK Construction Playbook](#).

CEWales acknowledges the productivity-based shift in narrative would be helpful in accelerating change and creating the conditions for manufacturing supply chains to thrive as they embrace more productive approaches to design, logistics, assembly and beyond especially when considering material agnostic approaches on route towards netzero. The programmatic, pan industry approach within the principles of Industrialisation would therefore create a modern industry that embraces technological development, attracts and retains the best talent and effectively delivers high quality outputs which meet the needs of society in a joined-up approach as found within the Well-Being of Future Generations Act, Wales. It would also improve the public perception issue shifting conversations away from terms such as 'off-site', 'standardisation' and 'mass production which may have negative associations - towards 'commonality', 'kit of parts platform approaches'. This aligns with the work BRE and CLC are doing regarding MMC in the playbook which CEW is linked with and notes their intention to create a separate 'Industrialised Construction Playbook' to assist scalable sections of the market that lend themselves to this approach i.e. healthcare, housing, education.

Such a level of transformation calls for clear sectoral direction and leadership. It would require a different mindset from thinking in methods to thinking more systemically about delivery construction to improve productivity. Many stakeholders including Government, Private clients, Consultants/ designers, Contractors and Manufacturers would need to act together. It would need a cultural and system change for those familiar with commissioning traditional build. Without this, current challenges such as disjointed understandings of MMC, disconnected procurement and policy routes built on traditional delivery models, supply chain risks will remain. The drive on MMC as found within the [Social House Building Strategy Wales](#) can then only go so far. An overarching sectoral strategic steer is therefore important to showcase strategic leadership, bring collaborators together on the path towards efficiency and respond to the challenges underpinning MMC in Wales from a sectoral view which includes, hospitals, schools, municipal buildings, transport and energy hubs.

To support this, CEWales has outlined a series of approaches to enable greater understanding of MMC related industry challenges towards building a united sectoral response that is in keeping with the [UK Construction Playbook drive on MMC](#) and the [Gold Standard for Frameworks](#). CEWales encourages a whole-view approach and offers its' support in achieving a transformative shift for the entire sector.

## Sector Stakeholder Challenges

### Definition & Understanding of 'MMC'

There appears to be significant confusion around the meaning and application of MMC. Tier 1 & 2 businesses (contractors and consultants) identified this as a central issue to the perceptions piece and called for industry wide clarity as a starting point. SME's and Local Authorities described it as a generic term given to several methods and a variety of solutions which allow for non-specialist designs. This has been identified as deepening misunderstandings between industry (consultants, contractors, supply chains) and clients resulting in cost and time implications. Industry bodies shared that without a clear definition and Welsh specific understanding in alignment with the wider UK definition, data on MMC would continue to be incomplete and result in skewed insurance analysis and risk management which depend on clear benchmarks. Housing Associations alluded to the different definitions in other sectors and their resultant impact on what then get's built; for example, funders, lenders and insurance providers have their own understandings of MMC. When seen as part of a wider system, these are issues that have impacted long term demand and supply for MMC. A lack of clear understanding has also been known to impact design quality where specialists are not brought on early enough to provide an 'MMC first' approach resulting in designs that are not fit and fail further into the delivery process and consequently influence wider public perception.

### Sector Wide Strategy

The demand and delivery of MMC is disjointed, appears in pockets and hasn't fully realised its potential beyond social housing in Wales. Tier 1 and 2 organisations (contractors and consultants) noted the desire from government to emphasise MMC, in social housing for example, but highlighted that a way to achieve this at cross-industry scale was not yet clear, neither was the inclusion of BIM and digital twins in the process towards creating a data-led pattern and replication process. This has significant impact on the potential for efficiencies of scale driven from investment in volume. SME's described the disconnect between building types, consultants, contractors and supply chains as key challenges of delivering MMC at scale and achieving standardisation necessary for cost, time and efficiency. Local authorities discussed MMC to be an emerging area where clients such as them, look to industry for support and may not yet be fully aware or bold enough without clear governmental direction.

### Perceived Risk, Procurement & Pipeline Visibility

MMC is considered riskier than established traditional construction industry approaches and is still evaluated in an inefficient way (quote below) as found within [traditional delivery models](#). Tier 1's and 2's have outlined challenges within procurement and visibility of pipelines to support the necessary pathways and investment for MMC. SME's specific to MMC have discussed ongoing industry pressures, inflated cost bases (result of energy and material/labour costs) and an overarching failure to commit to volume as the primary issue behind the recent demise of few high-profile MMC manufacturers. From the perspective of legal backgrounds, MMC has been considered unlikely to gain industry-wide traction whilst traditional procurement/delivery models remains in place (i.e. whereby procurement is largely characterised by fragmented and hierarchical delivery systems, wholesale risk transfers and lowest price). Local authorities too, have showcased their hesitancy around bold moves to do with MMC.

"The evaluation parameters don't allow additional incentives to our clients for building homes which are SAP100A+ rated. Several of our social-rented projects for local authorities are being delayed due



to their present financial strains, lack of internal resources and delay in decision-making process or bureaucratic approvals.” SME

### **Demand aggregation, Supply Chain Lag & Training/Skills Shortage**

MMC heavily depends on a well-integrated supply chain to deliver components and materials efficiently. The onsite and offsite integration work is crucial for success in delivering a completed scheme. Tier 1, 2's and SME's have shared that establishing and maintaining a well-experienced supply chain in Wales is proving difficult and requires confidence in pipeline to enable the necessary investment. Industry bodies have said that MMC will need to grow and develop workers to support projects built with construction. A just transition based approach will be important in shifting from traditional techniques to MMC. Training bodies have described MMC as a vital piece of the jigsaw in progressing towards achieving net zero, conscious that in practice the skills gap is too significant to be replenished by the skills pipeline, so gains in productivity, and efficiency will be required. Local authorities provided a view that for many local employers these are times characterised by uncertainty where looking ahead at how a workforce may need to change to have skills compatible with those required to deliver MMC is a real challenge that requires strategic leadership, direct intervention and funding from government to boost confidence.

### **Sector Stakeholder Recommendations**

Key patterns were identified within stakeholder recommendations. These are shared below:

- Need a unified sector understanding which includes defining MMC to suit the Welsh Context, scale of development and local geographies - Recommendation for a step change to transform the sector and link in with the overarching approach of MMC as a means to an end and not the goal itself, where the goal is to produce better outcomes on projects in an efficient way. Within industry, teams have shifted focus already to a broader consideration of industrialised Design and Construction which is about reducing unnecessary variation by identifying opportunity for repeatability in products, processes and relationships. Its use as an overarching principle which encompasses or enables the use of tools, approaches, and delivery methods, (such as DfMA, product platforms and MMC), is starting to be used globally in a more recognised and consistent way, particularly the Middle East and Australia. Lessons from this could be applied within the Welsh Context to expand the discussion of broader opportunities and facilitate the defining of metrics on 'what better looks like' - performance, safety quality etc. This could be aligned with Welsh policies, Social Procurement Act and the Well-Being of Future Generations Act. Simultaneously, documenting and recording built case-studies and collaborative demonstrable examples of success with community on Welsh defined MMC could help shift perception and win local hearts and minds.
- Need for a holistic sectoral approach on construction that sets an overarching strategy on MMC for the construction context in Wales, linked in with procurement visibility – Recommendation to set a clear construction sector strategy that joins up other departments and links in with existing policies such as the [Welsh government Net Zero Strategic Plan](#), [Planning Policy Wales](#), [A Manufacturing Future for Wales](#), [Woodland for Wales Strategy](#), [Stronger, Fairer Greener Wales](#); skills, [Digital Strategy for Wales](#) and the overarching Well-Being of Future Generations Act to set better outcomes for the entire sector. This impacts the future of the materials and skills industry to bolster its' supply chains on a pathway for driving productivity and efficiencies through data-led industrialisation which in turn influences skills and local employment. For housing, this should

emphasise coordinating efforts among housing providers and local authorities to aggregate demand supported by long term funding to create a steady pipeline of MMC-led projects and attract companies to establish for example, a zero-carbon factory in Wales and significantly scale up production. Importantly, it should also look beyond housing; to healthcare buildings, municipal buildings and education buildings which can provide the necessary industry pipeline assurances for greater confidence to invest and innovate. The process to undertake a sectoral wide strategy should build from existing knowledge on MMC delivered projects in Wales with a pan industry view, to create a government backed MMC working group consisting of policy makers, practitioners and companies with rich experience and proven working knowledge to act as a catalyst. The advice and recommendations from the identified working group/compact should feed into a Welsh MMC approach (similar to the MMC chapter in the UK Construction Playbook) and help outline a government led roadmap on MMC delivery for Wales ([reference example](#)) which includes a view on generating MMC demand, outlining a delivery approach with MMC towards better outcomes, setting of targets and embedding of digital technologies (BIM, Digital Twins, AI) in line with the over-arching Well-being of Future Generations Act on the route towards Net Zero Wales.

- Need procurement standardisation, unification of requirements in frameworks with clear objectives for MMC and pipeline visibility - Recommendation for a procurement model that is fairer to the various approaches within MMC and set within an all-round view of the sector in tandem with a wider view on public sector procurement challenges (captured in CEWales recent 'Public Sector Procurement Intelligence Report' shared with the Welsh Government). This includes a procurement route that allows for greater supply chain influence on critical design decisions. Recommendation to adopt procurement strategies that bridge the gap between design and construction. MMC requires consideration at the outset of projects by the whole delivery team especially the specialist contractors and manufacturers. Insurance Backed Alliancing is an example of a procurement route on which MMC considerations have been brought to bear by the whole delivery team when considering how to take forward the client's success factors in the most efficient and cost-effective way. The [UK Gold Standard](#) is an approach the Welsh Government could take to find efficiencies within public sector procurement and thereby shape the standards for MMC procurement.
- Need training in skills and support in MMC research as part of a joined-up approach to just transitioning the current industry skills base and investing in necessary ongoing innovation for new skills base – Recommendation for the industry and construction clients (government, authorities, etc.) to work together to be more ambitious in supporting future ready skills and link in with the work currently ongoing on Net Zero Skills. MMC can facilitate greater diversity in workforce and create employment opportunities for those who may not have entered the industry previously. The Common Data Environment (CDE) helps to be smarter, more productive, reduce waste and be more collaborative, but lack of knowledge/ experience from clients and lack of visibility within supply chains is a key barrier. From data gathered, there are real opportunities for two-dimensional approaches to MMC, especially with the opportunity for pop up factories. The problem then is around not enough resource to meet the demand. However, for the three-dimensional proposition in Wales (eg. Volumetric), work stream and pipelines visibility is essential. Insight gathered highlighted the importance of engagement with supply chains, colleges/skills councils to understand the skills gaps and wider fears. Investing in local training programs and engaging local

training institutions is crucial to overcome this challenge. Recommendation to link in with adjoining policies such as education curriculum to foster interest within innovation from a young age and build the future skills pipeline at the same time as bridge the current gap. Sustainability [Supply Chain School](#) is a good example of off-site considerations around training.

## Signposted Links

### Constructing Excellence Wales (CEW)

[MMC Awards 2023](#) & [CE Tre Ifan Housing Scheme](#) – Best practice built examples on MMC in Wales.

[DFMA Wales](#) – Research on MMC delivered through DfMA as part of joined-up thinking within the Well-being of Future Generations Act Wales.

[CE Performance Data and Case Studies](#) – Constructing Excellence document on MMC benefits for housing.

[Offsite Awards Glasdair Schools](#) – CEW award winners on offsite construction for schools.

[Crofts Street – A Cardiff Living Project](#) – CEW award winners for MMC in Wales.

### Professional Industry Bodies

[Making Sense of Construction Improvement](#) – Document that sheds light on MMC from the historical context of policy-making around construction.

[Modern Methods of Construction – Barriers and Benefits for Irish Housing](#) – CIOB document with cross-cutting policies relevant for the Welsh context.

### Industry Organisations

[Who will be the Builders](#) – Make UK – A report on the housing labour crisis.

[MMC - Barriers & Benefits from Housing](#) – CITB – This report examines the barriers to greater use of MMC in Ireland with a focus on the residential sector.

[Modern Methods of Construction](#) – Introducing the MMC definition framework – This is an output of the MHCLG Joint Industry Working Group on MMC which is tasked with improving stakeholder education and understanding of MMC with particular reference to enabling better access to mortgage finance, insurance and assurance.

[Modern Methods of Construction](#) – Cast Consultancy – This document is intended to support bidders to the Affordable Housing Programme (AHP).

[Supply Chain School](#) – On existing training providers for off-site.

[Industry Transformation is Complex](#) – News article in Building Journal.

[Manufacturing for Schools](#) - NSW Department of Education – This report discusses the importance of setting clear objectives for funding MMC projects and provides the example of the Australian education sector making a good attempt at setting objectives and committing to a pipeline of projects.

## Welsh Government

[Social House Building Strategy](#) – Strategy on housing which includes commitment on MMC.

[Welsh government Net Zero Strategic Plan](#) – Strategy on Net Zero – MMC referred to within document.

[Grange University Hospital – NHS – Benefits and Dis-benefits of MMC](#) – Study on the benefits of MMC as realised within the completion of the hospital.

## UK Government

[Product Platform Rule book](#) - By Construction Innovation Hub endorsed in Playbook.

[On Gold standards](#) – Towards a Gold Standard framework alliance contract that is collaborative, outcome-focused and flexible, with processes that drive improved value and integrate the work of framework providers, clients, managers, suppliers and supply chain members.

*On Driving MMC as unified cross policy landscape;*

[UK Wide MMC Standard](#) - The government has commissioned the British Standards Institution to come up with a UK-wide standard for modern methods of construction homes.

[The Department for Education's \(DfE\) Modern Methods of Construction \(MMC1\) framework](#) – It incorporates the next generation of standardised designs and methods of delivery, including panelised and component systems.

[The Ministry of Justice \(MoJ\) Modern Methods of Construction strategy](#) - Strategy is targeting 70% offsite construction on new build prisons and establishes a vision and structure for unlocking the delivery of better social, economic and environmental outcomes across the MoJ estate.

[NHS Capital Guidance Update published 2023/2024](#) – On MMC as a default requirement on all construction projects.

The [Transport Infrastructure Efficiency Strategy \(TIES\)](#) - Collaboration between the Department for Transport (DfT) and its client bodies that aims to deliver a step-change in the efficiency of transport infrastructure projects.