BuildSkills Australia

Join the Transformation
Construction, Property & Water
Jobs and Skills Council

Improving the Productivity of the Construction Sector

Submission to the Queensland Productivity Commission Inquiry

June 2025

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About BuildSkills Australia

BuildSkills Australia is one of 10 Jobs and Skills Councils (JSCs) established by the Australian Government to address workforce planning and training needs in all sectors of the economy.[1] BuildSkills Australia serves the construction, property and water industries by bringing stakeholders together to collaborate on developing sustainable solutions to the skills and workforce challenges they are facing.

As a JSC, we actively participate in the national conversation about jobs and skills across all sectors, advocating for our own industries within this broader context. To fulfill this role effectively, we regularly connect with and listen to leaders and workers in the construction, property, and water industries, building a deep understanding to underpin our evidence-based policy analysis.

Our Board is made up of an equal balance of representatives from employee and employer groups. Our governance approach ensures BuildSkills Australia is a non-partisan organisation that fairly represents the interests of workers, leaders and business owners in the sector.

BuildSkills Australia has a broad mandate to maximise workforce outcomes for Australia's construction, property and water industries.[2] We are the most trusted source of workforce intelligence, planning and solutions for the businesses and workers that operate in Australia's construction, property and water industries. We administer four training packages, encompassing almost 100 qualifications and nearly 1,500 units of competency.

Learn more about BuildSkills Australia, how we operate and who we serve, at www.buildskills.com.au.

[1] For more information on why JSCs were established and how they function, visit www.dewr.gov.au/skills-reform/jobs-and-skills-councils.
[2] A summary of this new architecture is available at https://www.dewr.gov.au/skills-reform/resources/new-industry-engagement-architecture.

Executive summary

Queensland's construction sector is facing mounting pressure. Chronic labour shortages, stagnant productivity, and outdated delivery models are undermining its capacity to meet the state's ambitious built environment goals. Annual housing completions are falling short of demand, while major drivers of activity—including the 2032 Olympics, decarbonisation, and regional infrastructure—continue to intensify. At the same time, the labour force is ageing, and fewer young people are showing an interest in the industry.

This submission argues that productivity—not workforce expansion alone—must be the cornerstone of reform. Under current demographic and participation trends, Queensland is unlikely to meet its workforce needs through recruitment alone. Without improvements in how we deliver buildings and infrastructure, the community risks falling short of its ambitions for housing, economic growth and liveability.

A central theme of our submission is the importance of getting the measurement of construction productivity right. Too often, public commentary relies on flawed metrics that fail to reflect the realities of how construction works—its fragmented supply chains, physical outputs and heavy reliance on subcontracting. We argue for a shift toward gross output labour productivity as a more accurate and policy-relevant measure of how efficiently the industry uses its labour inputs. At the same time, we highlight serious gaps in current data—particularly the lack of statistics capturing embedded labour from outside the construction industry—which limit our ability to track performance across the full value chain.

Beyond measurement, the submission addresses the deeper issue: the failure to scale well-understood solutions. Digital design, automation, off-site manufacturing, and Modern Methods of Construction (MMC) all offer genuine potential to transform productivity. But adoption remains slow—not because the technologies are lacking, but because the conditions for investment, coordination and capability are not yet in place.

Realising this potential requires a shift in how construction is commissioned and delivered. Our submission outlines a range of practical policy reforms to support this transition:

- Leverage public procurement to create market scale and certainty for MMC and other innovations.

- Reform planning and regulatory systems to better accommodate industrialised construction methods.
- Modernise workforce training by embedding MMC into the VET system and fast-tracking upskilling.
- Support SMEs through the transition with finance, technical advice, and shared infrastructure.
- Develop regionally tailored delivery models that align MMC with local industry and community needs.

Government has a critical enabling role. As a major client and regulator, it can help reset the commercial incentives that currently discourage investment and innovation. Just as public procurement already drives social objectives like workforce diversity and local content, so too should it drive productivity and innovation.

In short, Queensland will not meet its built environment ambitions through a business-as-usual model. It must deliver more with less. This means reimagining how construction work is scoped, procured, and executed—and ensuring that policy supports the enabling conditions for productivity to take root.

The policy imperative

Construction underpins Queensland's economic and social ambitions. From enabling the state's housing strategy to delivering the Brisbane 2032 Games, construction sits at the crossroads of infrastructure, liveability and growth. Yet despite its centrality, the sector is falling short. Productivity has stagnated, housing completions lag demand, and chronic skills shortages are compounding delivery risk. Traditional models of construction—bespoke, labour-intensive, and site-bound—have reached their limits.

Queensland's built environment ambition

Queensland has bold ambitions for the built environment: one million new homes by 2044, and billions in infrastructure investment linked to the Olympics, decarbonisation, and regional development. Our modelling indicates that the construction industry will need to absorb more than 360,000 workers by 2028 to meet the full scale of the state's built environment agenda.

This scale of workforce growth will not be achieved through a business-as-usual approach. Under current demographic trends and labour force participation settings, the industry is on track to gain closer to 300,000 workers over the same period—leaving a substantial shortfall. **Figure 1** illustrates the scale of the challenge to 2030.

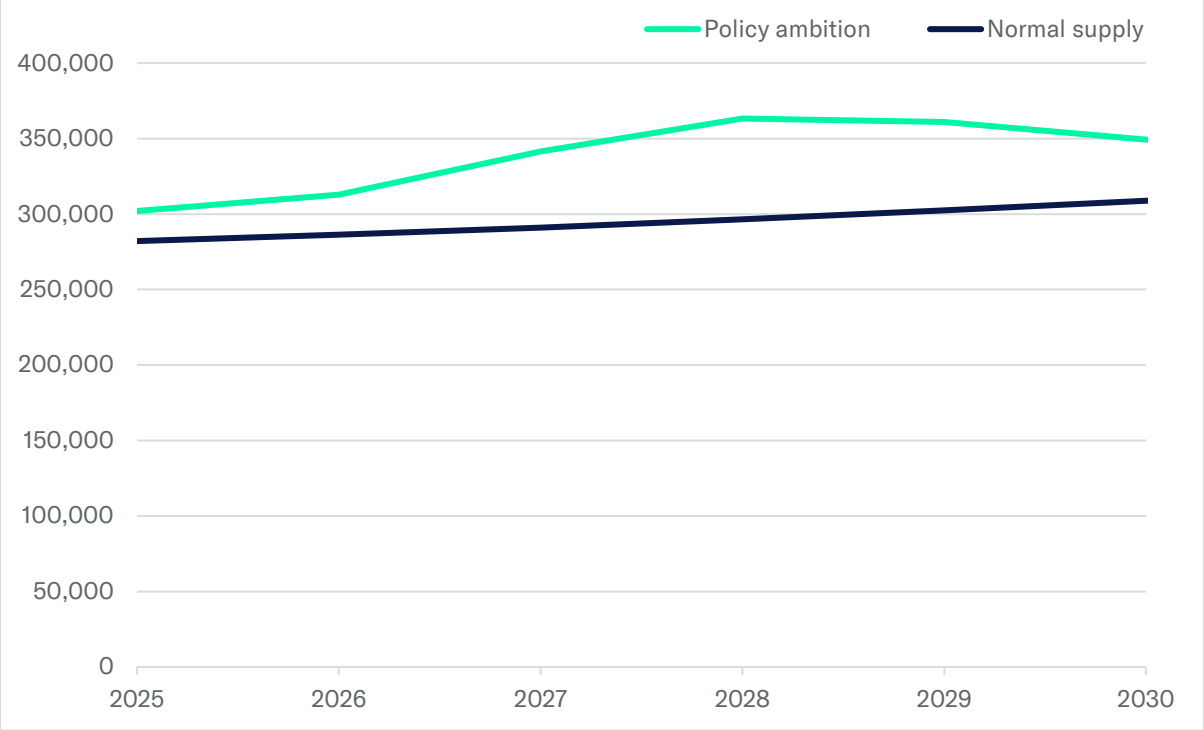

Figure 1 Construction workforce supply and demand projections, Queensland
Source: Oxford Economics for BuildSkills Australia

There are two ways to meet this challenge: increase participation by attracting a larger share of the labour force into construction, or improve productivity, effectively reducing the labour demand profile.

The first path is constrained by both demographics and worker preferences. Construction faces intense competition for labour from other industries that are themselves grappling with workforce shortages. At the same time, construction work is becoming less appealing to new entrants, particularly younger workers. An ageing population further compounds the challenge, making the industry's longstanding reliance on a young, male workforce increasingly unsustainable.

Productivity growth is the only sustainable path forward. We must find ways to deliver more built environment assets with fewer labour inputs. Without meaningful productivity gains, the community will fall short of its ambitions for housing, infrastructure and economic development.

Measuring construction productivity

Understanding whether the construction sector is improving its capacity to deliver the built environment efficiently depends on how productivity is measured. The measurement framework we choose is not just a technical detail—it directly shapes how we define the problem, where we seek solutions and how we track progress over time.

Productivity is often treated as a straightforward concept, but in practice there are many ways to measure it, each with different assumptions and implications. Too often, studies rely on measures that fail to reflect the realities of construction, its physical outputs, resource constraints and complex value chains.

Getting the measurement framework right is critical. It is the basis for diagnosing constraints, evaluating reforms and tracking whether innovations like modern methods of construction are actually helping us do more with less.

Most observers point to construction's multifactor productivity (MFP) as the key signal of its productivity performance. But MFP is not the right tool for the task. As the Commission would be aware, it captures residual efficiency after accounting for labour and capital inputs. This makes it ill-suited to the practical challenges of an industry that is fundamentally constrained by real resources, especially labour.

The appropriate starting point for measuring productivity in construction is **labour productivity**: output per hour worked. This reflects the central constraint facing the sector—labour availability—and aligns with the goal of delivering more built environment output with finite human resources.

In the Solow framework,[3] growth in labour productivity can be decomposed into two main components:

- **capital deepening**—an increase in capital per worker, such as more machinery, better equipment, or digital tools that enhance efficiency; and
- **multifactor productivity (MFP)**—gains in how effectively labour and capital are combined, often reflecting improvements in organisation and skills.

This decomposition shows that labour productivity encompasses both the quantity and quality of inputs, making it a more final and actionable measure. It reflects the system's overall capacity to deliver more with the labour we have, which is the

[3] OECD (2021)

binding constraint in construction and the central concern of any strategy for meeting rising demand for buildings and other infrastructure.

Selecting the right labour productivity measure

Even once labour productivity is accepted as the right lens, it is crucial to understand and consider the implications of different measurement frameworks.

GVA per hour worked (the standard approach)

Gross Value Added (GVA) per hour is the most commonly used labour productivity indicator. It captures the value a sector adds to the economy by subtracting the cost of intermediate inputs from total output. But in construction, this approach has serious limitations. Subcontracting, off-site fabrication, and specialist supply chains are core and increasingly important features of modern delivery. Much of the real output of the sector is therefore booked as intermediate consumption and excluded from the GVA measure. As a result, productivity improvements, such as greater use of manufactured inputs, can be entirely missed if they rely on shifting value into subcontracted work or upstream components.

Gross Output Labour Productivity

Gross Output Labour Productivity (GOLP) addresses this blind spot in conventional GVA-based productivity analysis by measuring total output, including intermediate inputs, per hour worked. Unlike GVA-based measures, which strip out subcontracted and outsourced components, GOLP captures the full value of work done across a complex, multi-firm value chain.

More intuitively, the gross output approach reflects the reality that producing a building or structure is not just the work of a single construction firm, but the cumulative effort of an entire economic ecosystem—ranging from material suppliers and transport operators to design consultants, equipment manufacturers, and service subcontractors. GOLP recognises and incorporates these upstream and downstream contributions, painting a more accurate picture of the total resources mobilised to deliver built environment assets.[4]

This perspective is particularly important to construction, where delivery is inherently fragmented and where much of the efficiency lies in coordination, sequencing, and integration of inputs from other industries—factors that are largely invisible in GVA.

[4] GOLP can be readily calculated from the ABS (2025a) Multifactor Productivity estimates, which provide a gross output index (Table 16) and an hours-worked labour input index (Table 9).

GOLP is the most relevant measure for current policy discussions around the need to increase the supply of dwellings and infrastructure. Policymakers are not primarily concerned with value added; they care about how many physical homes, schools, hospitals, and transport projects can be delivered with the labour we have available, regardless of how that labour is classified within the ANZSIC framework.

Moreover, proposed solutions to construction's capacity challenge almost always stretch beyond the formal boundaries of the 'construction' industry. The increased adoption of MMC, prefabrication, digital engineering and process automation depends on coordinated contributions from sectors such as manufacturing and professional services. GOLP is far better suited than GVA to capturing these contributions, as it measures total output across the full value chain.

However, GOLP is not without limitations. While it captures gross output—including subcontracted and outsourced components—the labour input is typically drawn only from the construction industry itself. It does not account for the many hours worked in other industries that are essential to the delivery of built environment assets. As a result, GOLP remains an incomplete measure of system-wide physical productivity.

Nonetheless, GOLP is a clear step closer to operational reality than GVA. It provides a more meaningful foundation for assessing how effectively labour is being used by the construction industry to meet built environment needs. However, fully understanding how well emerging construction methods—such as MMC, prefabrication, and automation—deliver on their promise to do more with less will ultimately require more comprehensive, economy-wide measures of labour productivity that capture labour contributions across the entire value chain.

Adjusted vs. unadjusted measures

Some productivity frameworks attempt adjustments on both the output side (such as accounting for changes in building quality, complexity, or performance standards) and the input side (such as workforce composition, skill, or experience). While these adjustments can provide insights into underlying productivity dynamics, they often obscure the fundamental question – *how many labour resources are required to keep up with the community's demands for the built environment?*

Adjusting productivity measures for quality improvements—either in the buildings constructed or in the workforce delivering them—distorts this fundamental calculus. Higher quality may explain why productivity growth is weak, but it does not excuse it. Ultimately, what matters for policy purposes is how much labour the economy must allocate to achieve its built-environment objectives. The unadjusted

measure of labour productivity, focused simply on total hours worked and total real units of output, remains the clearest and most useful tool for answering this question.

Trends in construction productivity

Figure 2 presents gross output measures of labour productivity for the construction industry alongside two benchmark industries. Consistent with the foregoing analysis, the measures are calculated on an unadjusted hours worked basis.

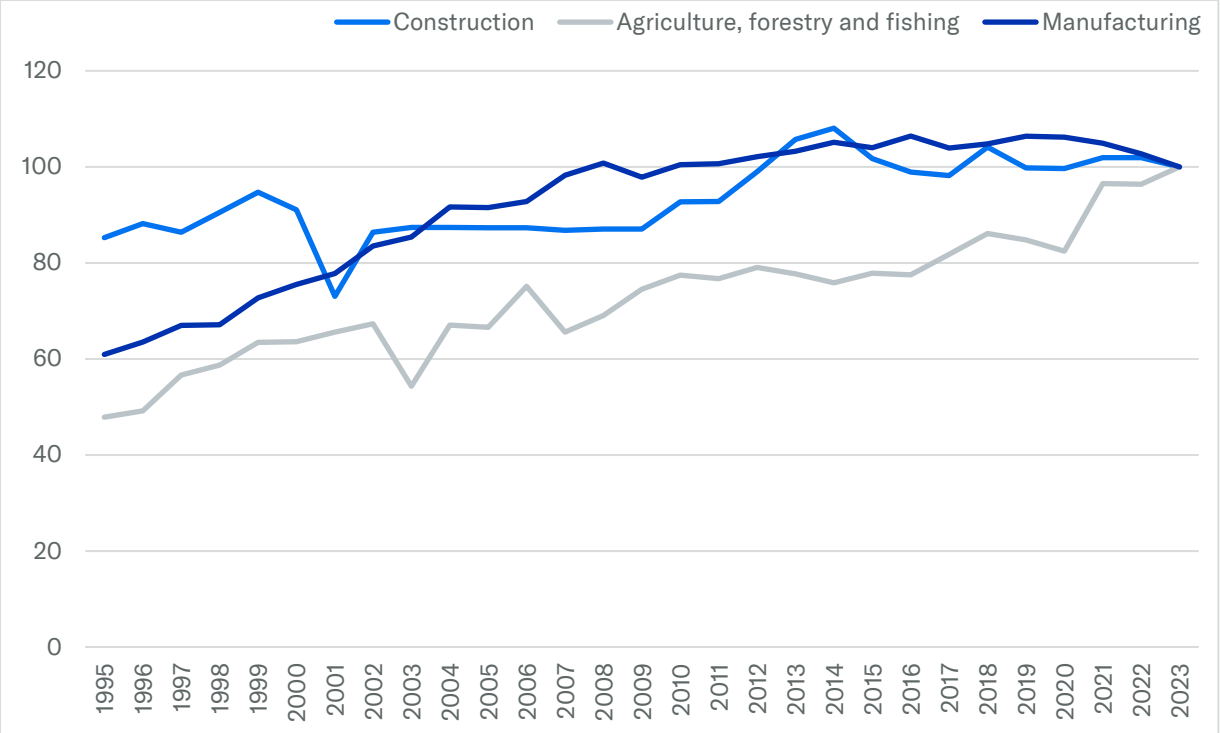

Figure 2 Gross output measures of labour productivity
Source: ABS (2025a), BuildSkills Australia
Notes: calculated as the ratio of the Gross Output Index (Table 16) to the unadjusted Labour Input Index (Table 9) for the industry.

Since 1995, the gross output labour productivity index for construction rose from approximately 85 to 100. In simple terms, each hour of work in the construction industry now delivers nearly 17% more units of real construction output than it did in 1995.

This suggests the construction industry has become more productive in the strict sense of delivering more buildings and structures with fewer hours worked. However, its performance does not compare favourably to similar industries: labour productivity in Agriculture, Forestry and Fishing increased by 109%, and in Manufacturing by 64% over the same period.

However, there remains a significant blind spot in this analysis. The labour input used in these measures includes only hours worked by people employed within the industry itself. It does not account for the substantial share of labour embedded in other parts of the economy that contribute to output—such as manufacturing, professional services, transport and logistics.

As a result, current productivity estimates almost certainly misstate the true efficiency of construction by attributing all output to only a portion of the labour actually involved. This blind spot is likely to become more consequential over time, given consistent industry reports of ongoing disintegration of the construction value chain. In other words, key tasks are increasingly being outsourced to suppliers, manufacturers and service providers outside the formal boundaries of the construction industry.

Without statistics that capture the total embedded labour across the full construction value chain, we cannot draw firm conclusions about whether the overall physical productivity of delivering the built environment has genuinely improved. This limitation underscores the need for more integrated, whole-of-economy approaches to productivity measurement—particularly in sectors like construction, where output depends on coordination across multiple industries.

Another limitation of these measures is the treatment of the construction industry as a single, homogenous sector. In reality, construction encompasses a wide range of activities, spanning residential and non-residential building, repair and maintenance work, and civil and infrastructure construction. Each of these sectors have varying levels of labour intensity, capital use, and technological innovation. Aggregate productivity measures mask this heterogeneity, obscuring important differences in productivity performance, constraints and opportunities.

Factors influencing construction productivity

BuildSkills Australia's engagement with industry has revealed a consistent set of factors influencing productivity in construction. These reflect both entrenched structural barriers and emerging opportunities for reform. Broadly, the pathways to improvement fall into the following themes:

1. **Digital transformation** – Adopting technologies such as Building Information Modelling (BIM) and digital engineering can improve project planning, reduce rework, and streamline coordination among contractors. This approach allows better visualisation, more accurate cost estimation, and efficient resource allocation.
2. **Modern Methods of Construction (MMC)** – Prefabrication, modular construction, and other offsite manufacturing techniques can significantly enhance efficiency by shifting complex construction processes to controlled factory environments. This reduces onsite labour requirements and accelerates project completion.
3. **Automation and robotics** – Introducing automation in repetitive tasks—such as bricklaying, concrete pouring, or earthmoving—can further reduce labour needs and improve precision, particularly for large-scale projects.
4. **Upskilling the workforce** – Ensuring workers are trained in the latest construction technologies and methods is essential for unlocking productivity gains. Investment in upskilling programs and micro-credentials tailored to emerging technologies can make the workforce more adaptable and efficient.
5. **Regulation** – Reducing regulatory complexity and burden on businesses, particularly SMEs, is regarded as an important pathway to creating the conditions conducive to innovation and productivity. This opportunity was canvassed in detail by the Productivity Commission in its recent report, *Housing construction productivity: Can we fix it?*[5] Rather than repeating the findings here, we refer the reader to that report.

[5] Productivity Commission (2025).

These are well-known, well-evidenced opportunities. Yet despite years of focus, construction productivity continues to lag significantly behind other sectors that have embraced similar innovations. This persistent underperformance points not to a lack of solutions, but to structural and commercial barriers that prevent their uptake. The problem is not technological—it is institutional.

The Case for Modern Methods of Construction

Modern Methods of Construction (MMC) represent a shift from bespoke, site-based building to streamlined, digitally enabled, factory-based production. Properly implemented, MMC can halve build times and reduce costs by up to 20% (Bertram et al., 2019). But MMC is not just about off-site manufacturing—it requires full integration across design, procurement, logistics, and on-site assembly.

Success with MMC hinges on adopting a Design for Manufacture and Assembly (DfMA) mindset—one that aligns workflows and embeds constructability from the earliest design stages. This is a systems-level approach that extends beyond 'construction' to encompass the broader value chain, including designers, engineers, manufacturers, and suppliers. Without this level of integration, MMC risks simply replicating the inefficiencies of traditional construction in a new, more expensive format.

BuildSkills Australia, in collaboration with national partners, is leading a three-phase study to map MMC adoption, assess workforce impacts, and evaluate training system readiness. Early findings highlight the importance of international best practice: jurisdictions that succeed with MMC invest not just in technology, but in training, standards, and integrated procurement.

If Queensland is serious about increasing housing supply and improving productivity, MMC must be central to the strategy. But success will depend on adopting a far more holistic, systems-based approach—one that aligns skills development, commercial incentives, and regulatory standards to support widespread and effective adoption.

Structural barriers to construction productivity

The commercial structure of the construction industry presents three major barriers to productivity growth:

1. **adversarial contracting and low margins** discourage long-term investment and innovation

2. **project-based, bespoke delivery** makes it difficult to scale standardised methods or repeat successful practices, and
3. **a fragmented and disintegrated industry** dominated by small, undercapitalised firms limits capacity for capital investment and coordination across the value chain.

These dynamics prioritise short-term project efficiency over long-term learning and transformation. Without changes to these underlying commercial incentives, even the most promising innovations are unlikely to gain traction.

Importantly, this means that productivity growth cannot be achieved by training alone. While workforce capability is essential, it is firm-level investment and adoption of new technologies that drive productivity. Creating the "conditions of possibility" for this investment requires rethinking the commercial environment in which firms operate.

A productive role for government

While construction is largely shaped by private market dynamics, governments play a critical catalytic role—particularly through their position as major clients of construction services. Public procurement has the power to shape industry behaviour by creating demand for innovation and rewarding outcomes beyond cost alone.

Governments routinely use procurement to deliver broader social objectives. Requirements around gender participation, apprenticeship training and local content are now standard in many public contracts. These are powerful levers that reshape industry practices. Yet productivity and innovation—arguably the most consequential performance objectives—are rarely treated with the same policy weight.

If we are serious about lifting construction productivity, it should be positioned as a core social performance objective in public procurement—no less important than workforce diversity or training targets. Embedding expectations around productivity improvement and innovation in contract frameworks would send a clear signal to the market: systemic transformation is not optional, it is a public interest requirement.

Recent policy initiatives show the potential of this approach. Queensland's MMC Target, New South Wales' Manufacturing for Schools Program, and Victoria's Level Crossing Removal Project all demonstrate how government can use its buying power to promote new delivery models. Internationally, the UK's New Prisons

Programme highlights the benefits of standardisation and performance-based procurement in driving efficiency at scale.

By embedding productivity and innovation into procurement criteria, and backing these objectives with appropriate commercial structures, governments can move beyond aspiration to activation. In doing so, they can help lead the construction industry toward a more productive and sustainable future.

Policy recommendations

To unlock productivity growth in the construction sector, policy must shift focus from identifying solutions to creating the enabling conditions under which innovation and investment can thrive. The barriers to progress are no longer technical—they are structural. What's needed is deliberate, systems-level reform that aligns incentives, capabilities, and procurement settings to support the uptake of productivity-enhancing practices.

Government, in particular, holds unique leverage as both a major funder and regulator of construction. By reforming its own procurement and planning frameworks, it can help reshape the broader commercial environment in which construction firms operate.

Key potential levers available to government include:

- **Encouraging collaborative procurement and risk-sharing arrangements** in public projects, such as alliance contracting or integrated project delivery, to support innovation and long-term value over short-term cost minimisation.
- **Shifting from prescriptive design requirements to performance-based specifications**, giving contractors and designers the flexibility to propose more efficient, innovative solutions that meet functional outcomes.
- **Embedding Early Contractor Involvement (ECI) in public procurement** to improve constructability, reduce rework, and facilitate the adoption of Modern Methods of Construction (MMC) and other advanced techniques.
- **Introducing planning and regulatory incentives** for private sector developments that adopt MMC, digital technologies, or low-carbon building solutions to help offset the upfront risks of innovation in a fragmented, price-driven market.
- **Modernising workforce training** by supporting the training system to embed MMC principles into apprenticeships and upskilling programs for both new entrants and existing trades.
- **Supporting SMEs through the transition** by providing access to targeted finance, technical advisory services, and shared production infrastructure such as fabrication hubs and logistics platforms.

- **Developing regionally tailored MMC delivery models** that reflect local industry structure, supply chain capacity, and community needs to ensure MMC adoption is inclusive, practical, and scalable.

These suggestions reflect a broader principle: the challenge is not a shortage of ideas, but a misalignment between commercial incentives and innovation. For too long, construction has operated in an environment that rewards lowest-cost delivery at the expense of long-term productivity gains. Governments are well positioned to reset these incentives, beginning with how they commission, fund and regulate projects.

These policy levers have the potential to trigger a ripple effect across the industry, turning well-understood opportunities into real, measurable efficiency gains. By leveraging procurement and planning as tools for productivity—not just compliance—government can play a decisive role in transforming how we build.

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