

# Disrupt or die

Transforming Australia's  
construction industry



AUSTRALIAN  
CONSTRUCTORS  
ASSOCIATION

## About this document

In 2020 the Australian Constructors Association commissioned BIS Oxford Economics to report on the opportunity cost<sup>1</sup> of the poor productivity performance of Australia's construction industry since 1990. The findings from the report have since been used to support the association's advocacy efforts. Recognising the significant change to the construction landscape over the past few years, in September 2022 the Australian Constructors Association commissioned BIS Oxford Economics to update the data. This document reports on the latest findings.

Productivity is defined in this document as the ratio of a volume of output to the volume of inputs; that is output per unit of input. It considers multi-factor productivity as distinct from labour productivity alone. The latter considers how output changes with a given change in labour inputs, while the former represents changes in output driven by changes in the combined value of inputs, which effectively means 'doing things better than in the past'.

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## About the Australian Constructors Association

The Australian Constructors Association is the only representative body for contractors delivering vertical and horizontal construction projects, as well as undertaking infrastructure asset management. Our members construct and service the majority of major infrastructure projects built in Australia every year. Our goal is to create a more sustainable construction industry.

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# Introduction

Construction productivity today is lower than it was in 1990. The industry has failed to innovate and according to global consultant McKinsey<sup>2</sup>, only hunting and fishing have a worse track record when it comes to adoption of digital technologies.

In the eyes of the next generation of workers, construction is an industry that is stuck in the past. More businesses fail in construction than any other industry and, as an industry that operates on wafer thin margins, workers are under pressure. They work long hours, suffer high stress levels and are six times more likely to die from suicide than a workplace incident. Diversity is low and women make up only 12 per cent of the workforce. In a recent survey less than one third of Gen Z respondents said they would consider a career in the built environment<sup>3</sup>. The industry has no choice but to transform, if for no other reason than to maintain a workforce large enough to deliver the substantial pipeline of work it is being called on to deliver.

The demise of Australia's construction industry is of national significance. Construction contributes 7 per cent of GDP and employs almost 1 in 10 of the working

population. This is the very industry called upon to rebuild Australia's economy following the COVID pandemic. It is vital to the health of the economy and, importantly, the quality-of-life Australians enjoy.

The link between improved productivity and industry sustainability is strong. Improvements to the industry's productivity performance could save Australia \$47 billion annually. Savings of this magnitude would go a long way in improving Australia's budget bottom line and establishing Australia's construction industry as a worldwide leader representing best practice.

Government, industry and unions all agree on the opportunity and, more importantly, the need for change. Incremental change and 10-year horizons are out. To keep the industry alive it must transform, and it must transform now.



# Productivity laggard

Australia's construction industry is a productivity laggard. The inability to improve productivity performance is placing pressure on labour and capital inputs—both have had to be boosted to compensate for the lack of productivity improvement. Where labour and capital have been scarce, this has led to increased demand pressure on resources, increasing construction costs and, in some cases, project delays.

## Widening productivity gap

Since the peak of the resources boom in 2014, construction industry productivity has declined a massive 16.5 per cent. Not only is this a more significant drop than felt by other industries, but it also takes the construction industry below its late 1990s productivity performance. Overall, productivity in the construction industry was 1.8 per cent lower in FY 2021 than in FY 1990. This represents an average growth rate of -0.1 per cent per annum since FY 1990 which is well below transport at 0.9 per cent per annum and manufacturing at 0.8 per cent per annum.

Over the 31 years since 1990, the 'gap' between productivity of the construction industry and that of other industries has grown. Other industries achieved productivity growth of 31.8 per cent since 1990, while construction has seen productivity fall 1.8 per cent over the same period—a differential of 33.6 per cent.

## Huge opportunity cost

In FY 2019 alone, the opportunity cost—that is, the potential foregone construction output from a 30-year period of relatively weak productivity performance—was roughly \$35 billion. Two years later, the opportunity cost has blown out to \$47 billion. To put the size of this loss into context, the \$47 billion figure for FY2021 alone dwarfs the cost of some of Australia's largest infrastructure projects currently

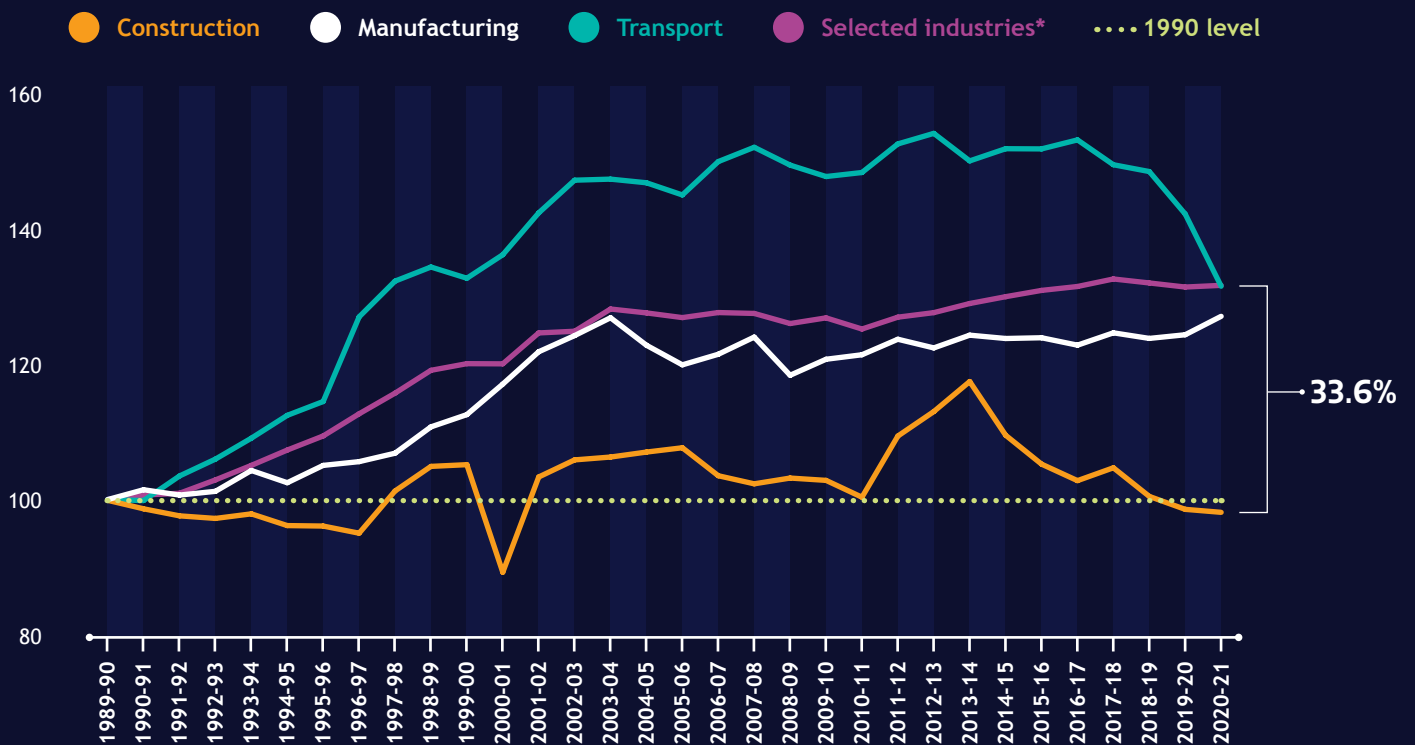
in planning or under construction such as the North East Link, the Western Harbour Tunnel and Beaches Link, and Inland Rail—all \$10 billion plus projects.

At a state level the opportunity costs from relatively weaker construction industry productivity ranges from \$493 million for the Northern Territory to \$15.4 billion for New South Wales for FY 2021 alone. These costs will rise further in future years if construction industry productivity growth continues to lag that of broader industries.

Importantly, there is a wider economic loss from relatively poor construction industry productivity considering the multipliers associated with construction activity in Australia. Every million dollar invested in the Australian heavy and civil engineering industry<sup>4</sup> sees \$2.95 million of output contributed to the economy, and \$1.3 million contributed to Australian GDP<sup>5</sup>.



**FIGURE 1: Multifactor Productivity indexes by industry (FY1990–FY2021)**

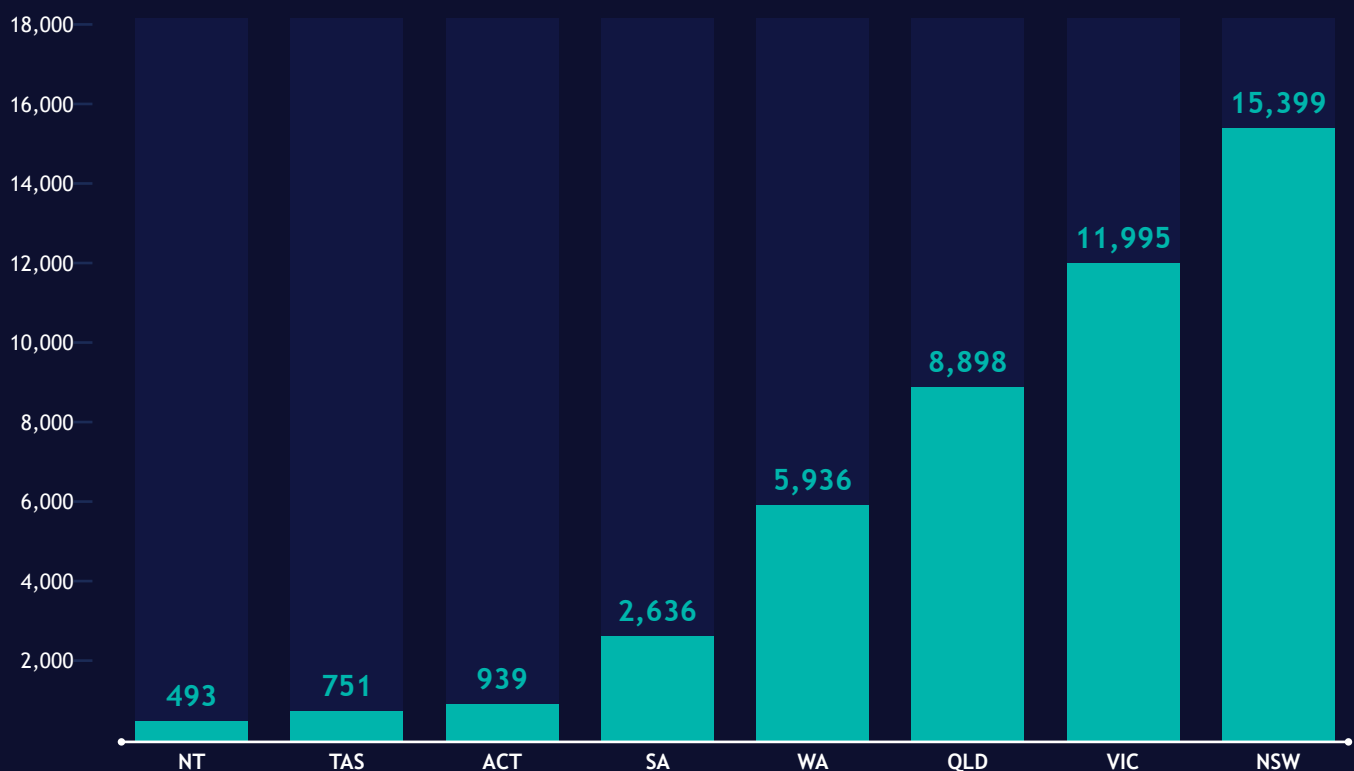


\*Selected Industries includes the following: Agriculture; Forestry and Fishing; Mining; Manufacturing; Electricity; Gas; Water and Waste Services; Construction; Wholesale Trade; Retail Trade; Accommodation and Food Services; Transport, Postal and Warehousing; Information, Media and Telecommunications; Financial and Insurance Services; Arts and Recreation Services.

Note: Gross Value Added based Multifactor Productivity (hours worked basis); index (base: 1989-90=100); 'Selected industries' include ANZSIC Divisions A-K and R

Source: ABS, ACA

**FIGURE 2: Estimated opportunity cost in fy2021 by state from poor construction industry productivity (\$millions, 2019–20 constant prices)**



Source: BIS Oxford Economics, ABS data



# Unleashing productivity growth

Productivity improvements offer the critical link to the future success of Australia's construction industry. But pinpointing the trigger to unleash productivity growth in a complex industry like construction is challenging.

The Australian Constructors Association believe the biggest opportunity to improve industry productivity lies in improving how projects are procured, delivered and governed—essentially white-collar activities. Fortunately, there are many opportunities to improve white-collar productivity quickly whilst blue-collar productivity will likely take more time and, arguably, is reliant on the former.

 The greatest opportunities to improve construction productivity lie in the procurement and delivery of projects—essentially white-collar activities.

## White in sight

White collar occupations account for the majority of the construction industry's 105,000 skills shortage estimated by mid-2023<sup>6</sup>. Whilst improvements to migration settings and training programs will provide some relief, they will not solve the problem. The focus must be on driving productivity improvements that will see the industry achieve more in a meaningful way.

Acutely aware of inefficiencies associated with white-collar activities, in 2022 the Australian Constructors Association and Consult Australia partnered in bringing forward practical ways for the industry to become more productive. Through the 'Partnership for change' initiative, the associations developed a series of thought leadership papers providing recommendations to improve productivity through better reliance on tender information, streamlined design reviews and increased adoption of digital technology. Importantly, these papers are associated with procurement processes, and each proposes government delivery agencies lead the way by acting as a model client.

## GLIMPSES OF A STEP CHANGE IN PRODUCTIVITY

Throughout Australia's history there have been some step changes in construction productivity. These occurred in the late 1990s and again in the early 2010s (See Figure 1 page 3).

While there is some uncertainty regarding the causes of these step changes, one possible explanation is rising capital intensity. In the early 2010s a likely candidate for rising capital intensity may have been the start of the phase of oil and gas construction in Australia which, apart from the sheer scale of construction, also brought with it highly capital-intensive methods of construction, such as prefabrication and modularisation on a massive scale.

The use of more collaborative procurement and contracting models during this time—which allocated risks more efficiently to those best able to manage them, as well as fostering innovation and investment in capacity and capability—may have also contributed to the stronger productivity outcome.

## Value for money through procurement

There is significant wastage of skilled resources through inefficient tender processes, but the bigger problem is the myopic focus on achieving value by selecting lowest price at the tender box. This focus on cost has created a race to the bottom which has led to many of the issues faced by the industry today. The prevailing concept that value for money is achieved by the lowest up-front cost is outdated and can be partially blamed for the slow adoption of productivity enhancing technologies and adversarial behaviour in the industry. It is a short-term focus that is not sustainable.

Time and cost are important components of value; however, broader value generated to the community and health of the industry throughout the build and the life of an asset should also be considered. Value should include outcomes such as improving industry sovereign capability, increasing innovation and productivity, reducing the impact on the environment, increasing diversity and inclusion in the workforce and improving industry culture.

Given the volume of construction work procured by governments, delivery agencies are uniquely placed to act as model clients. They are positioned to change the focus of the whole construction network from one focused on staying alive by offsetting risk and litigating to recover losses, to one driven to deliver improved value for all stakeholders.

## Delivering together

This will only happen by aligning all parties to achieve the desired value outcomes and documenting this in a contract. Whilst this can theoretically be done through any traditional form of contract, recent history has shown that the best results are achieved through use of more collaborative forms of contract that incentivise and focus everyone on achieving best for project outcomes rather than what is best for any one particular party.

Further, consideration should be given to the bundling of projects into extended programs of work delivered by panels of prequalified contractors, subcontractors and suppliers, often referred to as an ‘enterprise delivery’ model. This model provides opportunities for increased innovation and improved productivity by

directly engaging a wider section of the construction supply network and providing the security of work and return to invest in developing skills and capability. The enterprise delivery model also enables greater direct employment and reduces the significant amount of time and money currently spent on traditional procurement processes designed to give the illusion of value for money.

The Melbourne Level Crossing Removal Program is a great example of what can be achieved with this approach. The program has successfully removed 66 crossings since 2015 and has only been in the headlines for the positive results that it has achieved rather than the usual stories of project cost blow outs and delays.

The Level Crossing Removal Program uses a form of enterprise delivery model to undertake the various individual removal projects. The enterprise model brings together owners, partners, advisers and suppliers, working in more integrated and collaborative arrangements, underpinned by long-term relationships to deliver programs of work over a defined period of time. Participating organisations are incentivised to deliver progressively better outcomes as the program proceeds.

Project 13 takes this a step further. Developed by the Institute of Civil Engineers in the UK, the Project 13 procurement model seeks to define the key elements necessary for a successful enterprise model, including:

- » A focus on long-term system performance and future operation
- » Developing an ecosystem of partners and suppliers, with more integrated relationships, providing the opportunity for early engagement
- » Reward based on value added to the overall outcomes, not on time or volume
- » Risk allocation aligned with capability rather than transferred through tiers of the supply chain.

Project 13 has been adopted by Sydney Water for their Partnering for Success Initiative, and the model is being looked at with interest by other delivery agencies.




# Not for everyone, but it could be

The low retention rate of people working in the construction industry, not to mention increasing issues with attraction, poses a major threat to the future of the industry.

A key issue is the culture of the industry. Construction workers are currently required to work significantly longer and inflexible working hours than those working in other industries<sup>7</sup>. The implications for the health and wellbeing of workers are significant. Construction workers typically suffer from heightened stress, burnout, depression and anxiety—and are six times more likely to die from suicide than a workplace incident.

Construction is Australia's most male dominated industry with women representing just 12 per cent of the workforce. The under-representation of women is often attributed to the industry's culture and prevailing working time practices but these issues are increasingly becoming a deterrent to entering the industry for a whole new generation of workers regardless of gender.

 Flexible work practices with reasonable hours/days worked is a necessity in the modern world.

Flexible work practices with reduced hours/days worked is a necessity in the modern world. The industry is already questioning whether it is necessary to have every member of a team on site for ten hours a day. It is also looking at ways to increase worker flexibility whilst maintaining the ability to operate projects optimally. Government, industry and unions all recognise the golden opportunity greater flexibility presents in rebalancing the industry. They also recognise the opportunity to correct this early in the procurement phase.

To kickstart an overhaul of the industry's culture, the Construction Industry Culture Taskforce, a collaboration between the Australian Constructors Association and the governments of NSW and Victoria,

has developed a ground-breaking Culture Standard. The Culture Standard provides a framework for clients and contractors to work together to improve the conditions for workers in the construction industry. It proposes a set of standards be incorporated into procurement processes to improve worker time for life, wellbeing, and diversity and inclusion—including removing gender pay gaps.

The Culture Standard is an important step towards improving the culture of the industry. But more needs to be done to create an industry of choice. The next generation of workers do not want to work in an industry where disputes are commonplace, excel spreadsheets are considered the height of tech and little focus is placed on the impact we are having on the environment.

## Evolving from spreadsheets

There is no shortage of technology solutions available to improve the efficiency of the construction industry but there are many barriers to using them. Most digital technologies rely on open and transparent sharing of information, but the contracts used encourage the withholding of information as it can be used to prepare or defend construction claims. Building Information Modelling can deliver significant operational efficiencies during the life cycle of the asset but the cost of implementing it are incurred up front and as benefits are rarely valued during tender assessments it is only provided if specified by the client. It is not often specified as the agency responsible for delivering the asset is different to the one that will operate it.

There is also no incentive to invest in new technologies if tenders continue to be assessed solely based on a contractor's willingness to accept and price unquantifiable risk. The construction industry is not like manufacturing tins of beans, it is

a high risk, high skilled industry that solves complex problems every day and if the return on investment for its participants were to reflect this the level on investment would increase substantially.

## Construct zero

In a recent survey, 62 per cent of Gen Z workers agreed that the Earth is facing a climate emergency but just one in three thought the construction industry was a place where they could work to combat it<sup>8</sup>.

Across Australia, infrastructure contributes around 70 per cent of national emissions with around 15 per cent directly contributed through the delivery and operations of that infrastructure<sup>9</sup>. Today's record investment in infrastructure creates opportunities for the construction industry to play an important role in decarbonising the economy.

Technology and innovation will be important in the transition, but to do this the industry needs its hands untied from behind its back. Prescriptive specifications are commonly included in contracts which restrict

contractors from innovating and providing new solutions as they define to the last nut and bolt how a project is to be constructed. Performance-based specifications, however, promote innovative solutions including those supporting environmentally sustainable outcomes by defining required outcomes rather than the way to achieve them.

As with increasing adoption of new technologies, substantial progress will only be achieved if such progress is recognised and valued at time of tender. Alternative bids that offer improved value outcomes should be encouraged and actually considered rather than being discarded in favour of an apple for apple comparison.

Net zero is a shared responsibility and clear government policy that sets targets, removes roadblocks and encourages innovation will allow the industry to make rapid advances in this area.





# Disrupt or die

Australia's construction industry is not unique—the challenges are worldwide—but it could be. Current universal agreement on the need for change provides an opportunity to transform the industry to one that represents global best practice and is looked to as a role model by other industries. But the time to act is now before this window of opportunity slams shut.

The industry cannot afford to continue down the path of slow incremental change. It is time to fundamentally disrupt how it operates. Everyone has a part to play, including contractors, but it is the government, if it chooses to, that has the biggest power to disrupt.

Government is the nation's largest infrastructure client. The Federal Government alone has committed a massive \$61 billion investment in infrastructure over the next four years, much of which is granted to the states, and yet it imposes few conditions on how that money is spent by the states. If it chose to, it could encourage the states to procure in a way that maximises productivity, reduces the impact of construction on the environment and unleashes innovation. It could incentivise the states to procure in a way that promotes training and upskilling of the workforce. It could even mandate adoption of initiatives that promote greater participation of women in the industry. The opportunities are endless.

 The Federal Government, if it chooses to, can be the disrupter.

To equip the Federal Government for the role of disrupter, the Australian Constructors Association has developed the Future Australian Infrastructure Rating (FAIR). Essentially, FAIR is a mechanism to rate government funded projects on how well they performed against key reform areas such as improved productivity and increased female participation. Federally funded projects undertaken by state government delivery agencies would be given a rating that would be published, leading them to strive for

increasingly better outcomes for their stakeholders. The FAIR initiative, or components of it, could be included in the next iteration of the National Partnership Agreement as a requirement for all federally funded projects.

## Leave behind the baggage of history

If ever there was ever a time or need to disrupt the construction industry, it is now. The ask is not just of government—all stakeholders including contractors need to play a part in fundamentally changing how they and the industry operate.

Government, industry and unions must leave behind the baggage of history and collaborate like never before. If they do, construction could be an industry where both projects and workers are free and able to productively work the hours that best suit them. Construction could be an industry of choice and equal opportunity for all genders, nationalities and ages. It could be an industry that constructs resilient infrastructure without damaging the environment. It could be an industry at the forefront of technological advancement. Construction could be a profitable industry that rewards collaboration over conflict and innovation over status quo and an industry prepared to take risks on new ideas rather than unknown ground conditions.

Australia's construction industry could be the envy of the world, delivering high value infrastructure at a greatly reduced cost, for the benefit of all Australians.

What are we waiting for?

# Disrupt – here's how

The aim of this report is to start a much-needed dialogue on the need for transformation change in the construction industry, largely focused on how projects are procured, delivered and governed. Whilst in no way exhaustive, the following is a list of 10 key recommendations where ACA believes significant improvements could be achieved relatively quickly.

- 1 Infrastructure clients to take broader view on project value beyond just lowest price at the tender box.  
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- 2 Increased use of collaborative forms of contracts that align all parties to achieving agreed value outcomes.  
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- 3 Greater use of enterprise delivery models that reduce tendering costs, increase innovation and improve engagement with the supply network.  
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- 4 Increased ability to rely on information provided at tender.  
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- 5 Streamlined design review processes.  
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- 6 Adoption of the proposed industry Culture Standard to drive improved time for life, wellbeing and diversity/inclusion.  
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- 7 Removal of barriers to adoption of digital technologies such as by greater use of contracts that facilitate open and transparent sharing of information and whole of life costing.  
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- 8 Increased use of performance specifications rather than prescriptive specifications.  
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- 9 National Construction Industry Forum to improve collaboration between government industry and unions on Culture and productivity issues.  
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- 10 Federal Government to use its buying power to coordinate and incentive reform.







# Endnotes

- 1 Opportunity cost refers to foregone construction and broader economic output.
- 2 McKinsey Global Institute industry digitization index; 2015 or latest available data
- 3 Gleeds, HBD, Morgan Sindall - Are we Gen Z ready? Aug 2021
- 4 Encompassing civil infrastructure and mining-related construction.
- 5 Based on latest national input-output tables published by the ABS. ABS (2020), Australian National Accounts: Input-Output Tables 2017-18, Cat. No. 5209.0.55.01.
- 6 Infrastructure Australia, Infrastructure Market Capacity Report (2021)
- 7 Downey L. & Stough, C, Measuring the psychological impact of work-related stress and related occupational factors in the Australian infrastructure construction industry (2018); Swinburne University
- 8 Gleeds, HBD, Morgan Sindall - Are we Gen Z ready? Aug 2021
- 9 ISCA, ClimateWorks. Australia and ASBEC (2020) Issues Paper: Reshaping Infrastructure for a net zero emissions future







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