Decarbonisation – External Enablers

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External enablers for decarbonisation of the construction industry

09 August 2023

south pole The Climate Company

Who we are

South Pole partners with climate action projects and corporate clients worldwide to drive finance towards sustainable practices

An ecosystem of clients & partners

Innovative solutions

An award-winning, 16-year history of providing sustainability solutions through **advisory, Carbon credits/EACs offerings** and **project investments**

Project developer

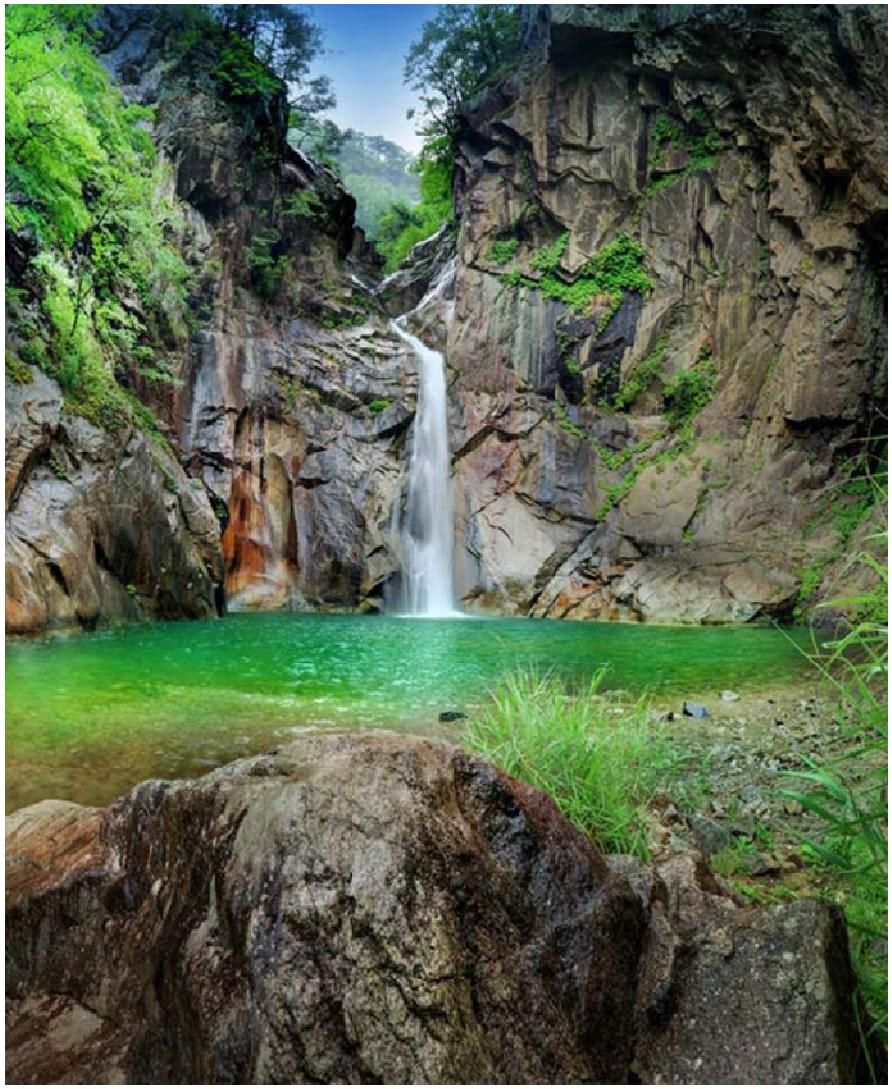
Largest developer of **700+** emission reduction, avoidance and removal projects globally

Diverse expertise

Based in **30** offices, our team of **1300+** sustainability advisors, scientists, and engineers are leading experts in their fields

Agenda

The need for decarbonisation	5 min
Controls in decarbonisation	5 min
Addressing external enablers	15-20 min



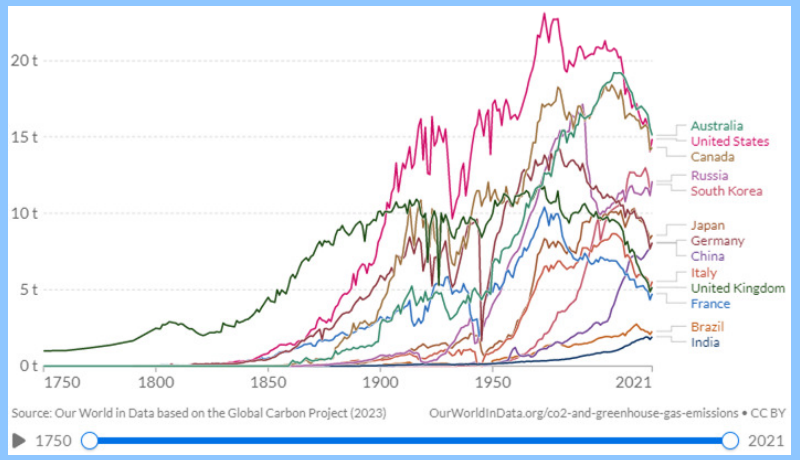
The need for decarbonisation

A Global Issue

To limit global warming to around 1.5C (2.7°F), the IPCC report insisted that global greenhouse gas emissions would have to peak “before 2025 at the latest, and be reduced by 43 per cent by 2030”.

Global greenhouse gas emissions must be cut to reach **net zero emissions** by **2050**, avoiding the current global warming trajectory of **3.5°C**

Limiting warming to **1.5°C** will mitigate worst effects of climate change



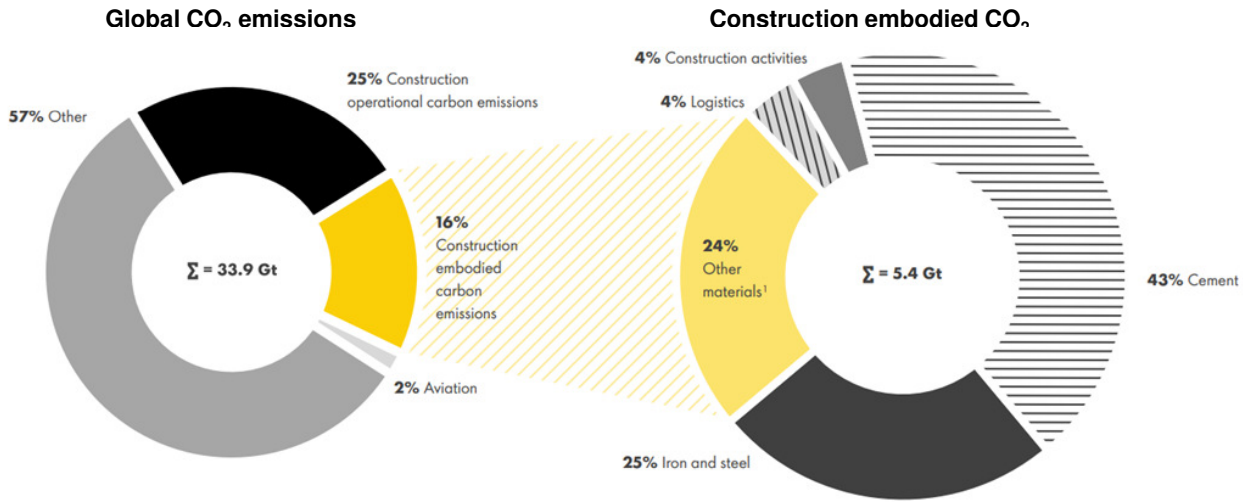
GHG emissions in tonnes carbon dioxide equivalent per capita for the top 13 countries by GDP (nominal)
Source: Our World In Data (2023)

> “The decarbonization and sustainability transition of the built environment remains “not on track”...the buildings and construction industry represents an estimated 37 per cent of global operational energy and process-related CO2 emissions

Source: UNEP 2022

The construction industry is complex

The construction sector constitutes operational and embodied carbon emissions that may constitute up to 41% of global emissions



Source: Shell & Deloitte, 2022

External enablers need to be **diverse** and **addressed on multiple fronts** to mitigate emissions across the construction sector in Australia and worldwide

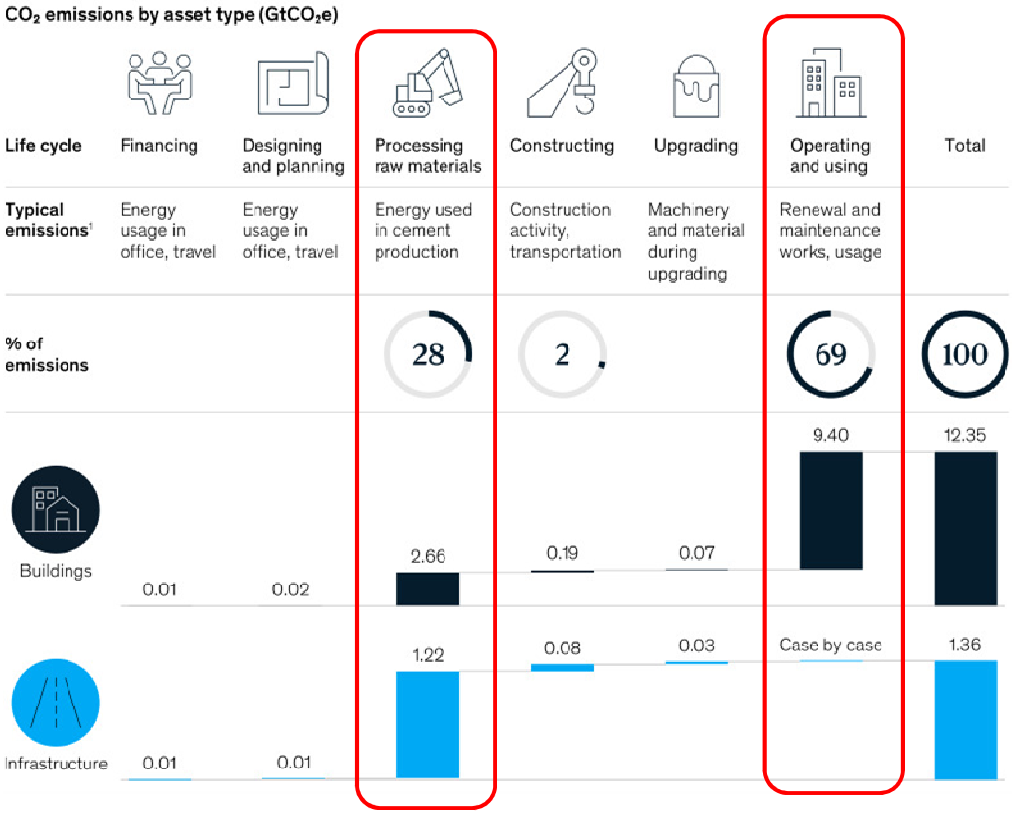
Controls in decarbonisation

Where does control lie in the construction supply chain?

Varying degrees of influence over **emission hotspots** lie in the supply chain

Raw material processing and building operations constitute the **largest emission sources** in the construction industry

External enablers need to support these actors in the supply chain in particular to decarbonise

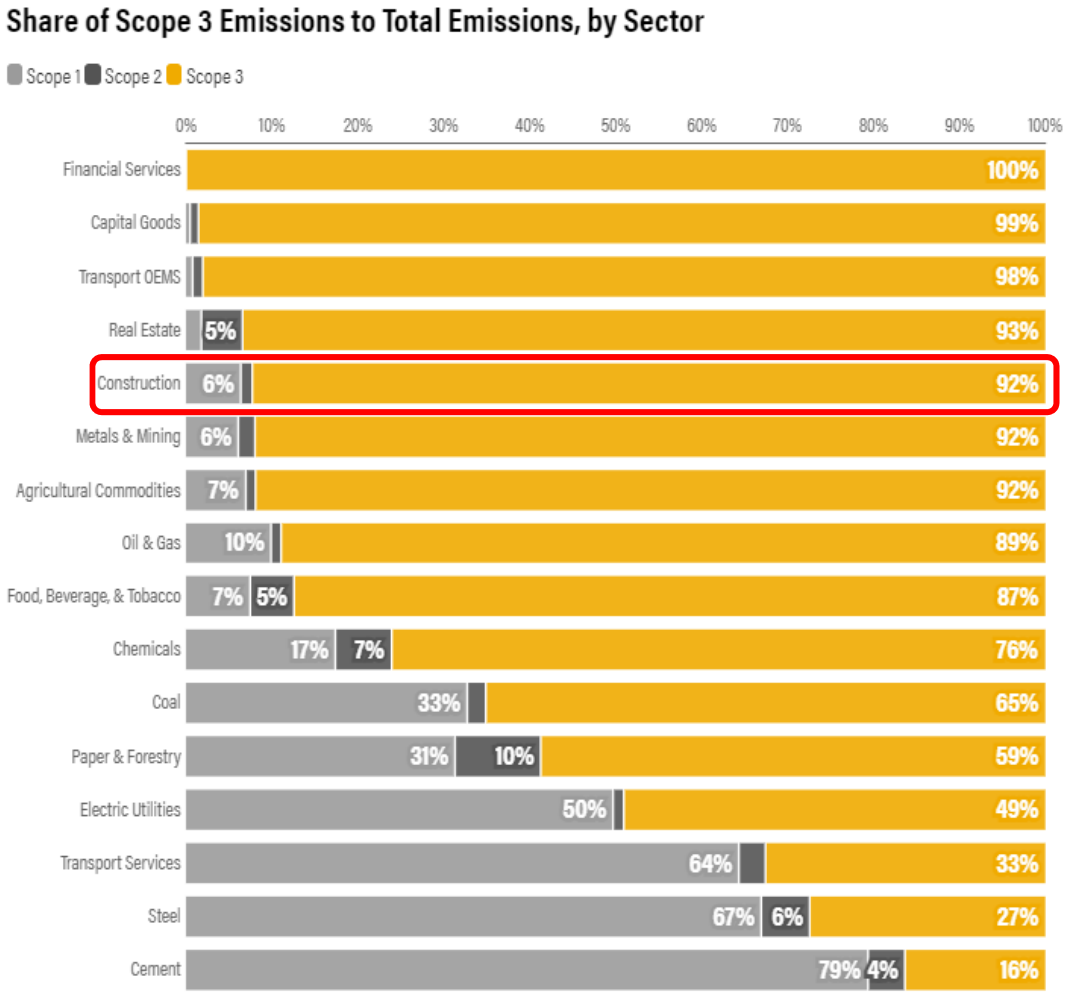


Source: McKinsey & Co. 2021

Where does control lie for the construction sector?

In the construction sector, Scope 3 emissions are likely to constitute the **majority of your emissions profile.**

This can limit the **influence and control** you have on your largest emission sources. When most of your emissions come from your supply chain, you will need to rely on more **external enablers** to reduce emissions.



Source: Data is from CDP, Research and analysis of the data was conducted by Concordia University. Graph from World Resources Institute

What limits control in construction industry to enable decarbonisation?

Lack of standardisation

There is a lack of **consistent definitions, data, methodologies and tools** to account for carbon. This results in **varying interpretations** of accounting for emissions and climate ambitions, limiting the ability of market participants to assess and claim outcomes consistently.

Insufficient regulatory support

Regulations for construction **Tier 3 suppliers** (e.g. cement and steel manufacturing) and **Tier 1 end markets** (i.e. buildings, infrastructure and industrial facilities) are not aligned. There are not enough **incentives** for climate action across the value chain, both in Australia and globally.

Inadequate scaling of technology

The production of low-carbon construction materials, such as cement and steel, is constrained by **technological factors**, such as the availability of raw material substitutes and access to renewable energy. There are also **economic factors** such as a lack of major capital expenditure.

Addressing external enablers

Addressing external enablers

What are some key external enablers for decarbonisation in construction?

01

Harmonising best practice standards

While the climate action space is nascent, best practice standards need to develop in harmony to ensure there is consistency between the construction industry and global, national and sub-national decarbonisation requirements.

02

Affordable and reliable renewable energy

Affordable, reliable and accessible renewable electricity must be made available to building operators and alternative fuels such as biodiesel for raw material manufacturers and distributors

03

Building capacity in the supply chain

There is a capacity gap for many actors in the construction supply chain in understanding how climate impacts from their operations impact both themselves and other actors.

04

Policy and regulatory support

Governments have a role to play in stimulating demand for low-carbon products, reducing transition risks to companies and incentivising climate reduction initiatives for construction industry actors.

05

Digitalisation

Enabling the construction industry to digitalise the capture of data for building GHG footprints and measuring the impacts of decarbonisation levers accurately

06

Technology commercialisation

Commercialising state-of-the-art decarbonisation technologies and new age is crucial to supporting the construction industry to decarbonise

Harmonising best practice standards

Global

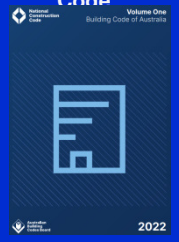
Science-Based Targets Initiative (SBTi) draft Buildings Sector guidance

Source: SBTi, 2023

Source: BSI, 2023

Australian

National Construction Code



NatHERS

Mandatory reporting

Rating systems

State

Net Zero Emissions Guidance for NSW Councils

Sustainability Manual, South Australia Department of Infrastructure and Transport

Industry

Technology Roadmap: Low-Carbon Transition in the Cement Industry

GlobalABC Roadmap for Buildings and Construction 2020-2050

Affordable and reliable renewable energy

The supply of low-carbon fuels such as **renewable electricity**, **biofuels** and **hydrogen** is not yet scaled to meet the needs of the construction industry

The good news…

The rise of renewable energy, particularly rooftop solar, increasingly nudged out fossil fuels from the grid. Both black and brown coal power plants reported lower utilisation rates during the quarter.

"Increased market share of lower marginal-cost renewables helped push down the wholesale electricity cost from [the June quarter of] 2022, despite this quarter having the highest Q2 underlying demand recorded since 2016," said Violette Mouchaileh, an Aemo executive general manager.

Source: The Guardian, 27 July 2023

The challenge…

"To date, Australia's emissions reduction measures have focussed on the development of renewable sources of electricity, with the opportunities for renewable gas - specifically biogas and hydrogen – receiving little or no attention."

Source: Energetics, 2019

The opportunity?

"Hydrogen has the potential to be an important contributor to our transition to net zero through use in areas such as industry, transport, grid firming, chemicals and metals production. We also have up to $300 billion of potential hydrogen investments, including projects that are focussed on domestic use as well as large export projects."

Source: DCCEEW, 2023

Building capacity in the supply chain

Key capacity gaps in delivering on decarbonisation levers

1. Susceptibility to shocks
COVID-19 exposed significant challenges to global supply chains, resulting in new challenges to overcome

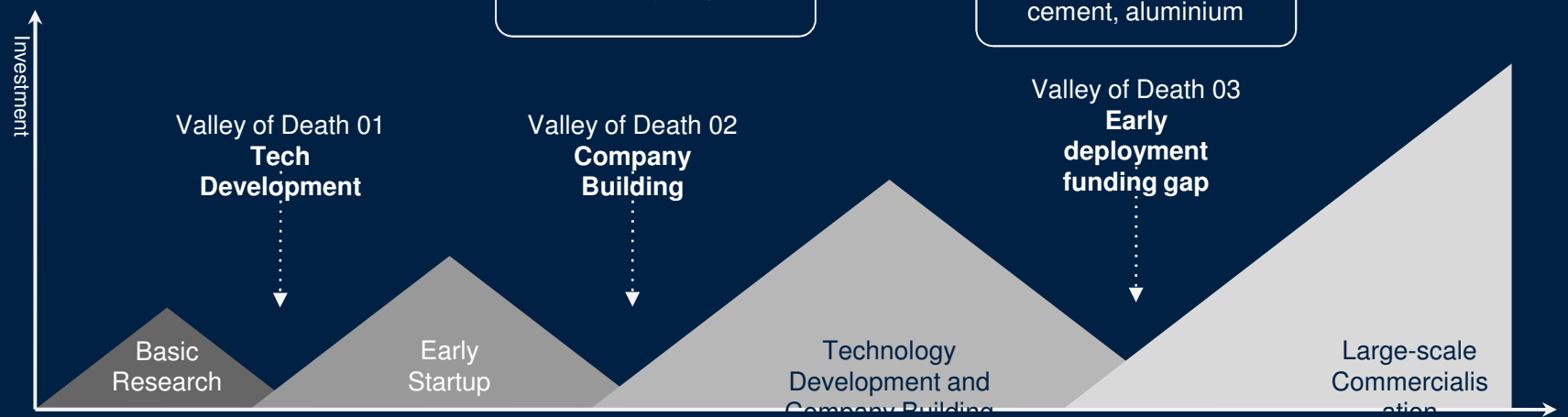
2. Understanding climate risks & opportunities
Many supply chain actors are unaware of climate risks they face and opportunities available to them

3. Skills gaps
Decarbonisation and a nascent climate space requires a rapid upskilling of workers, planners, developers, builders and other key actors

4. Lack of technology
A lack of digitalisation in the construction industry limits the ability of the supply chain to effectively trace relevant data and interactions

Technology commercialisation

Commercialisation of decarbonisation technologies faces challenges of significant investment to overcome **"valleys of death"** for development, company building and deployment



Source: Financing the Clean Industrial Revolution, Bill Gates, 2021

Policy and regulatory support

Regulatory enablers, such as The Safeguard Mechanism 2023 reforms

Policy enablers such as Australia's Long-Term Emissions Reduction Plan, containing:

- prioritised technology policy
- emerging technology policy
- funding for development

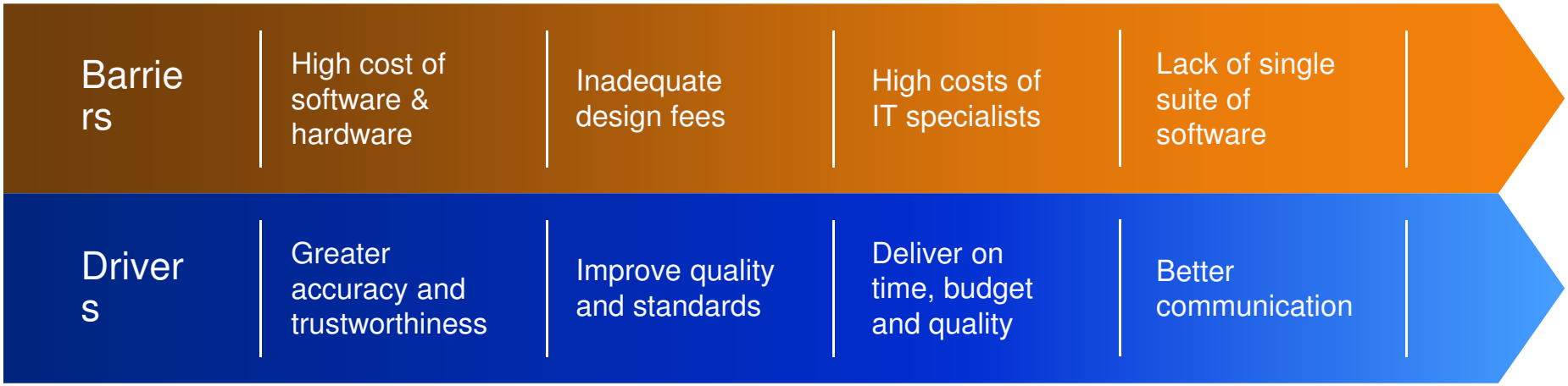
Voluntary enablers such as Materials & Embodied Carbon Leaders' Alliance (MECLA) and the Net Zero Industry and Innovation initiative

What more can the industry do?

- Strengthen **engaging** with the government on standards
- Continue **advocating** for the industry on market competitiveness
- Stay **informed** on the global climate space

Digitalisation

According to research by the Centre for Smart Modern Construction (2021), Australia's construction industry (like most of the global construction industry) is not making full use of the **potential of digital technologies**. Outcomes of a survey on Class 2 builders and designers highlighted a series of **drivers and barriers** to digitalisation in Australia



Digitilisation needs to work in tandem with **decarbonisation** to maximise the construction industry's ability to **transform the supply chain**

The synergy of external enablers

Industry

Advocate to and inform government

Assess and engage market

Market

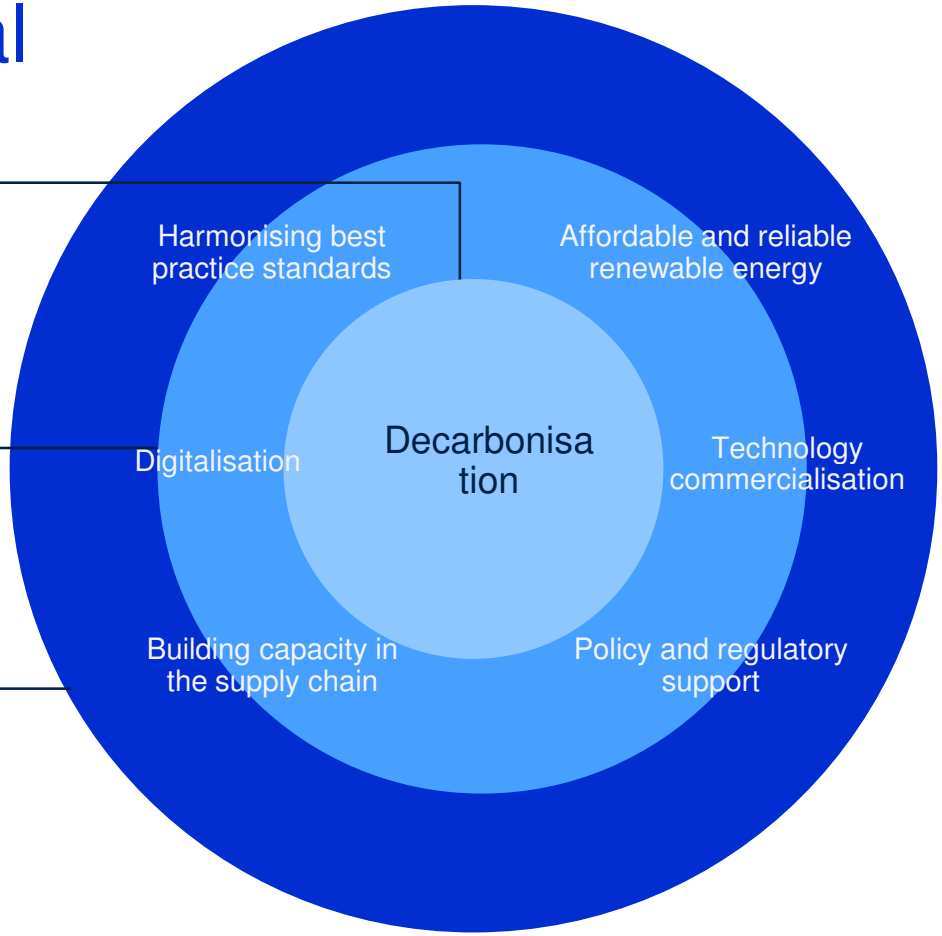
Align with and respond to industry

Inform and accommodate government

Government

Transform and support markets

Regulate and incentivise industry



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