



CanConstructNZ: Developing solutions to construction data challenges workshop

This report outlines the results of a workshop that sought to co-create solutions to data challenges in the construction pipeline and sector, for the benefit of industry and government.

The workshop also sought to share research insights from the MBIE Endeavour-funded project *CanConstructNZ – Creating Capacity and Capability for the New Zealand Construction Sector*, which is being led by Massey University’s School of Built Environment. CanConstructNZ is a development project to establish an enduring capability for reliable views of: 1) construction sector workload, and 2) the capacity and capability of the sector to deliver work. Further, the CanConstructNZ research team seeks to develop a smart system (comparator mechanism) to process supply-and-demand information, incorporating risks and uncertainties, and generate targeted reports for a variety of users.

The key aims of the workshop were to:

- share the data challenges CanConstructNZ has found during its research.
- co-design and create solutions to gaps and challenges to construction pipeline and sector data to enable a CanConstructNZ proof of concept (POC).
- outline data requirements that CanConstructNZ requires to complete POC, and
- co-create solutions to address construction data challenges that will assist CanConstructNZ and the wider sector.

Based on a series of preliminary work with The New Zealand Infrastructure Commission, Stats NZ, Local Government New Zealand, the Ministry of Education, the

Construction Sector Accord and others, it was thought a more in-depth co-creation and design workshop should be held to gain better insight from across the sector into construction data challenges.

This workshop was held by CanConstructNZ on 30 August 2023 at Te Papa in Wellington alongside a range of participants from across the construction sector:

- Massey University
- BECA
- University of Canterbury
- Waihanga Ara Rau
- BRANZ
- Ministry for the Environment
- CoreLogic
- Open Plan
- Construction Sector Accord
- MBIE Data and Insights
- Ministry of Housing and Urban Development

The participants were split into four groups and given a series of tasks related to what their interest in construction data was and what challenges their organisation has in relation to construction data. The groups were also asked questions about construction sector indicators that CanConstructNZ was looking at, as well as more general questions about what they thought CanConstructNZ should be and how to ensure CanConstructNZ’s enduring capability, if that is what the sector desires. The key themes from this process were collated by the research team at CanConstructNZ and are presented below.



Interests in construction data

The workshop feedback has highlighted a variety of reasons why the construction sector, government bodies and researchers are interested in the collection and analysis of construction data. Most of the interest in data centres around three key themes:

Key data interests	
Construction pipeline	Current and future construction and the need to understand projects, especially overlapping projects and the pipeline of specific typologies of buildings such as planning and monitoring of community housing to meet demand, or where specific limited skill sets were required to deliver on complex projects.
Construction sector performance	How the sector responds to demand, and how the workforce could be used to plan pipeline construction. Sector performance is also about understanding what the sector is doing, such as internal migration analysis, as well as how it is performing in terms of quality.
Construction economics	The cost of construction, such as the cost of construction quarterly index, as well as benchmarking prices and other related economics issues, such as the land price/cost differentials issue.

2 These three key themes are essentially about trying to understand what the construction sector is doing, especially in terms of delivery, as well as how to help to create insight from the data, such as comparing workforce and pipeline. A key insight that was of interest to many organisations within the workshop was the resilience of the construction sector and understanding the sector's vulnerabilities, so these can be addressed.

Challenges of construction data

There was a shared consensus among the workshop participants that all organisations within the construction sector face the same challenges with construction data in Aotearoa New Zealand

Many of the challenges related to:

- **Data accuracy and consistency** – Many participants felt that a lot of the construction data available was a mishmash of data and was often inconsistent between sources. There were also issues such as: Is the data up to date? What level of granularity is needed to make the data meaningful? What is required data versus what is 'good enough' data?
- **Data access** – Some of the better construction data is held in the private sector, which may be commercially sensitive.
- **Data is diffuse** – There are data silos; the sector has no central place to access or share construction data.

Another issue highlighted by the workshop participants as an important challenge is the different organisational priorities around data collection and use. As one workshop participant explained: "The needs of organisations are different, so they only capture whatever they need. If we use [the data] for another purpose, it might not fit that purpose."

It was recognised that the diverse range of actors within the construction system hold different types of data. It was also acknowledged that there are already some good sources available that can assist with pipeline and sector data and insights; for example:

- MBIE, BRANZ and Pacificcon construction pipeline data
- Te Waihunga pipeline data
- Waihunga Ara Rau Workforce Information Platform
- National Forward Works Viewer (NFWV)
- BRANZ industry insights
- Ministry of Housing and Urban Development (MHUD)
- CoreLogic
- Registered Master Builders Association (RMBA)
- New Zealand Certified Builders.



Construction data indicators

The workshop participants highlighted a number of data indicators that CanConstructNZ could consider including in their work:

- Bank data – lending versus what is actually built
- TradeMe property data
- Liquidation information
- Records of annual reports
- As-built versus consented
- Council Code Compliance certificate data
- Concrete-poured index
- Crane index
- Greenfields data to understand – as a means of construction confidence
- Connections of properties to services, schools and points of interest (hospitals, trains, bus stops, etc.)
- How banks are looking at the market – for example, are banks expecting an increase in construction costs, or an increase in lending interest rates?
- Liveability/price
- Urban connectivity – how is property connected to services?
- Number of players and people in different regions
- Road centreline data (available from Waka Kotahi)
- Cost per unit for local council data
- Potential population growth.

While these current data sources exist, data can often be commercially sensitive information, which means the sector is highly dependent on a limited number of organisations that have available data that can be shared and accessed.

One participant queried whether the sector is ‘looking at the right thing. By looking at the outputs rather than the inputs needed, are we just concentrating on doing more of the same, rather than reimagining the system? I think we might be captured by a bunch of stuff that stops us.’ Instead, they urged, the sector needs to consider not the what, but the how, because ‘by thinking more about the input requirements, we will be able to address the data access and quality issues and enable outputs to be more fit for purpose.’

Two key questions

Discussion during the workshop led to some questions that might need to be asked:

- How is capacity affected by relocation?
- How are banks looking at the markets?

Some participants felt that CanConstructNZ should focus on what problems, rather than what enablers there are for each region. It was thought that CanConstructNZ should be a tool to provide assistance and insights into the sector for government and policymakers. For instance, could CanConstructNZ provide insight into the impact potential policies might have on the construction sector? An example discussed by the participants was the ‘shovel ready projects’ initiated by the Government in July 2020 to provide a buffer to the construction sector from the anticipated impact of the COVID-19 lockdowns. In hindsight, it appears that these projects placed extra pressure on the sector, which was already facing a constrained labour market and supply shortages due to the border closures, and the projects actually made things worse by contributing to spiralling construction costs.

What should CanConstructNZ be?

The workshop participants saw the potential of CanConstructNZ to be:

- A tool
- A website
- A data register
- A benchmarking system
- An industry-wide repository to collect and data, and/or
- A place to get snapshots of the sector.

Despite what it is, the workshop participants highlighted that they want CanConstructNZ to be a resource that everyone can use, not just a resource for researchers. It was felt that CanConstructNZ should be a resource that is trusted, so that others refer to it. Ideally, CanConstructNZ was seen as a tool that should be catalyst for informed decision-making, allowing practitioners to know what levers to pull to influence practices and assist with government policies and priorities.



The participants noted the importance of taking the development of CanConstructNZ step by step, rather than trying to solve everything immediately. They also indicated the following questions should be considered during CanConstructNZ's development:

- Is CanConstructNZ a model, or can different indicators be used to ask different questions?
- What questions does the industry want answers to?
- What granularity of data is needed? What granularity of data is wanted?
- Could CanConstructNZ help with smoothing out the boom-bust cycle?
- Could CanConstructNZ examine the potential vulnerability of sector?

Some participants noted that it was important for CanConstructNZ not to create something new. They suggested connecting with other construction data initiatives, such as the Waihunga | New Zealand Infrastructure Commission data set (residential and commercial) and the BRANZ structured data project, as well as other key tools within the sector such as the National Forward Works Viewer and Waihunga Ara Rau's WIP platform.

Most of the participants acknowledged the need for construction pipeline and sector data to be integrated, rather than continuing with the current situation where data is fragmented and siloed across the sector. However, they also believed that integrating the data that is already in the sector would be more useful than creating a whole new system. For example, some spoke of there being little value in adding a third construction pipeline tool within the sector in addition to the MBIE Construction Pipeline and Te Waihunga's pipeline work.

Considerations for making CanConstructNZ an enduring capability

The workshop participants said a key factor in ensuring CanConstructNZ's enduring capability is to be very clear who its target audience is.

Others challenged the research group to think about how CanConstructNZ can demonstrate value. As one participant from the construction industry asked:

“The two questions to me to prove enduring capability, the question for CanConstructNZ, are: How does it demonstrate value? And how does it do it in a timely manner? The question that I throw out is ... this is fantastic in terms of indicators, but do you need to collect all of them to demonstrate value? So, for example, you already have value in terms of the fact that you managed to gather [data] from the long-term plans of 78 councils and that's quite a feat – that is probably a highly valued data set already to a number of organisations like central government. This programme has already demonstrated its value. [But] it not necessarily the end result; there are steps along the way that you can demonstrate how [CanConstructNZ] is showing value and that actually will become the enduring capability.

Other workshop participants felt that the CanConstructNZ's MBIE Endeavour project provided a valuable opportunity to independently assess the current state of the construction sector data. For them, CanConstructNZ was able to provide an assessment, to illuminate what's going on and then to influence what might happen in the future. As one participant explained:

“At the moment there is a real lack of understanding throughout the construction industry as to what is going on and just having an independent organisation to bring that together to ensure there is a consistent understanding throughout, to then help inform better decisions later on, whether that is from private organisations or government – I think that is a key part of what the group does.



The same participant went on to suggest that central to any discussion of the end value of CanConstructNZ was that it was important that the project did not add to the fragmentation already within the construction sector:

“ It was discussed, of course, that there are a lot of organisations out there that do bits of everything ... We don't want to fragment that any more, so it might not necessarily mean something in terms of something new or different. We have to be careful about not trying to re-invent the wheel. We know the stuff exists – we don't want to make it more complicated or convoluted. [We need to be] cautious about a whole new website or product or system.

Others felt it was difficult to explicitly state what the enduring capability for CanConstructNZ could be as it was highly dependent on the value that it creates for the sector. Value was central to this discussion because ultimately someone or some organisations must be willing to pay for the project if CanConstructNZ is to exist longterm. As one industry-based workshop participant explained:

“ Ultimately the value needs to be there long-term. As part of the assessment, we need to ensure that we understand what is the long-term value. Is it a 'nice to have' or a 'nice to know these things', or is there a genuine value in understanding industry better to help with long-term planning to help benefit New Zealanders, to help make someone some money? ... we need to be clear about what the benefits could be.

Next steps

It was felt by all the workshop participants that CanConstructNZ had a key role to play in helping to make sense of, collect and analyse existing construction data. They saw value in CanConstructNZ providing a sector overview of what data was available and, likewise, identifying challenges or gaps in the data. They also saw that CanConstructNZ could make a significant contribution to the sector by playing a connector role within the construction system – as system connectedness was considered very important within such a fragmented sector.

All the workshop participants agreed that 'everyone was on the same page; that we don't have a common database'. The question then needs to be asked:

“ Should CanConstructNZ help lead construction sector change by advocating standardised and better construction data collection, such as a sector data dictionary, and support the creation of regulations to support better data keeping and collection with the construction sector?

The workshop participants also believe that CanConstructNZ could assist the construction sector to find out what key questions the industry is asking and how big data could assist in answering these questions.

For CanConstructNZ itself, there are important questions to consider in its research plans:

- What is CanConstructNZ?
- What are its key data inputs?
- How can CanConstructNZ be integrated into existing data sets and initiatives?
- Who is its target audience?
- What is the value that CanConstructNZ seeks to create?
- How can we identify uses cases to help demonstrate the value of CanConstructNZ?

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