

In Conversation with Te Waihanga/New Zealand Infrastructure Commission - What is global best practice in managing infrastructure delivery costs? ICE Presidential Roundtable Summary

November 2022

Background

Infrastructure is essential to our economic and social prosperity. However, rising costs of delivery can impact on the ability of project teams to deliver and rising costs in construction have posed a challenge that must be addressed through improved productivity and innovation.

ICE convened an online roundtable in conversation with industry experts from the Te Waihanga/New Zealand Infrastructure Commission Chief Executive Ross Copland and Director of Economics Peter Nunns, chaired by ICE's President Keith Howells, bringing together infrastructure professionals from the UK, New Zealand and other countries focused on the key question: *'What is global best practice in managing infrastructure delivery costs?'*

The session focused on practical problem solving, lessons industry leaders can take from different countries, and how they can apply solutions to their own domestic projects to improve infrastructure delivery and productivity.

Recap: [Rautaki Hanganga o Aotearoa](#) – New Zealand's first infrastructure strategy – was launched this year, setting out recommendations for central and local government, and the infrastructure sector.

The recommendations outlined an ambitious plan to invest in all infrastructure layers – economic, social, and environmental – to meet the 2030 Sustainable Development Goals (SDGs).

Key discussion points

- The need for a secure pipeline of infrastructure projects is stronger than ever. This would drive momentum between projects and create a 'people pipeline' of specialists able to lead on major projects with confidence.
- Increased confidence is needed in future markets to continue to drive up investment. Infrastructure specialists in different countries are experiencing the same issues despite differing markets and can draw on shared international best practice and adapt solutions to their own projects to solve these issues.

- Innovation vs standardisation – how can we ensure standardisation doesn't get in the way of innovation and continued improvement, but that large scale and excessive 'bigger' mindsets don't derail projects and increase costs?
- There appears to be a lack of long-term forward planning that has led to costs of previous projects to spiral. Speeding up knowledge transfer can prevent this in future (whether through sharing pre-existing documentation, clearer project milestones or check in points and more regular collaboration on specific projects).

Rising infrastructure delivery costs – how can these be addressed?

The UK's 2010 [Infrastructure Cost Review](#) identified a number of factors which drive higher costs in infrastructure projects, with almost all factors sitting within early project formulation and pre-construction phases:

- Stop-start investment programmes and lack of a pipeline of forward work
- Lack of clarity and direction over key decisions at early project stages, with projects beginning before designs are complete
- Large infrastructure projects and programmes managed within a quoted budget, rather than aiming at lowest cost for the required performance
- Over-specification and the application of unnecessary standards and bespoke solutions when 'off-the-shelf' designs would suffice
- Competitive bidding processes not always being effective in producing lowest outturn costs, with public sector clients more risk averse to the cost and time implications of potential legal challenge
- The supply chain investing tactically for the next project, rather than strategically for the market as a whole
- Lack of targeted investment by industry in key skills and capability, limiting the drive to improve productivity performance

The discussion highlighted that many of these are still relevant as to why project costs are so high today, with one of the key takeaways being that it is important to correctly estimate the costs of delivering infrastructure at project initiation.

Through a robust forward planning process, additional costs can be anticipated earlier on in the development process and prevent costs continuing to spiral and cause projects to drag on out of scope and behind schedule.

Broadening the funding and financing base is needed to support the delivery of different projects. This was also linked to demand management and improving delivery and lessening energy costs

Understanding the fundamental reasons behind rising infrastructure costs would also be beneficial to enable sector professionals to come up with effective solutions.

Understanding the drivers behind higher costs – how can these be mitigated?

The discussion highlighted that clients must take greater ownership of projects. Whilst many clients, particularly those within the public sector, are heavily impacted by time constraints and resourcing difficulties, it should not mean that they push down key components of projects to the supply chain. In doing so, they place additional risk burdens upon contractors and increase the longer-term costs for the taxpayer.

Client behaviour can also lead to higher costs through adding ‘bells and whistles’ onto design that leads to scope creep.

The point was raised that it is impossible to design for a ‘perfect’ project or programme, otherwise nothing will get built. By taking a closer look at ‘soft’ costs and overheads, the big differences in project level spending between different countries can be accounted for and levelled out.

Further on in the consents process, there are also fundamental impacts reworking project designs, which then must be the client’s responsibility to own and drive through to completion. Endless optioneering is unhelpful and clients must understand what they want for their projects, providing more explicit instructions and business cases to supply chains delivering solutions.

Likewise in Australia, there have been problems with disconnection from delivery outcomes, instead focusing on every project being on a bigger scale and prototyping something new. By staying closer to projected outcomes and having a closer understanding of whether costs are proportionate to value, rising costs can be prevented.

In Hong Kong, design tends to be more conservative making it easier to do a ‘deep dive’ into projects and work out savings in the pipeline. This ensures the cost-effectiveness of projects through benchmarking, which is a model that could be applied internationally.

The infrastructure gap in New Zealand

In New Zealand, historic underinvestment in infrastructure has led to inflation and a low growth economy. This sits alongside significant population growth driven by net migration. 0.7% of New Zealand’s GDP would have to be invested annually to meet this gap, plus 2.7% of GDP to meet growth needs. This would mean New Zealand doubling what it is currently spending – and spending has already reached historic levels.

New Zealand’s planning regulations also have their own challenges. This led to the question of if there is a causative relationship between the complexity of the planning system and eventual costs of construction.

A lack of pipeline for infrastructure makes it difficult to build momentum from large project to project, particularly as specialist skills and project teams would leave the country to work on another nation's major project portfolio.

An 18% construction cost growth was reported in New Zealand across the last 12 months, driven by inflation, acute shortages of labour and lack of contractors of sufficient scale. In terms of input costs, New Zealand also faces the challenge that it is expensive compared to other countries for certain investment classes and is less strong on projects such as road tunnels compared to peers.

What actions can we take to reduce rising costs?

Instilling confidence in the supply chain that investment is robust is key to prevent rising costs such as those outlined above.

The supply chain has an important role to play in terms of implementation of next steps to reduce rising costs. Returning to the key theme running through discussion of the need for a robust and secure infrastructure projects pipeline, the supply chain will invest in innovation if it can see a robust pipeline. It will also need confidence in its delivery, whether this is realised through cross-party support, finance ministry support, credible leadership in a given sector or from a procuring authority. Confidence and certainty in future markets therefore must continue to be developed and strengthened so more suppliers invest.

In addition to the positive impact a strong pipeline has from a supplier perspective, it can also support career development for young people looking to enter the infrastructure sector. This can reduce costs in the long run by providing a steady talent stream.

It was highlighted that incentivising and even mandating that programmes have an allocated percentage of apprentices would secure the future and have a cascading effect of making delivery of complex projects seem like an exciting and long-term career of value. From a communications perspective, it will be key to highlight the breadth and depth of opportunities for project teams to benefit society through their work and make young people excited about getting involved in project delivery.

Questions to take away

- What are the barriers to the transmission of knowledge and learning? What stops learning from institutions and processes transmitting across borders? How do we reduce these barriers?
- What is the role of an intelligent client in managing costs?
- How can we create a more collaborative environment to support contractors to prevent rising costs?
- Given that renewals projects often unearth a lot of "unknowns" once underway, is there an even bigger risk about cost control, and do we, as an industry, need to do more about this?

- What can governments control to lower costs – particularly relating to the regulatory environment as strategic reforms can have a bigger impact than procurement?
- What mechanisms and frameworks would help to maintain policy consistency on pipeline challenges over the long term?

Further reading:

- [UK Infrastructure Cost Review](#) (2010)
- [ICE report on reducing the gap between cost estimates and outturns](#) (2019)
- [ICE State of the Nation on improving infrastructure productivity](#) (2022)
- [ICE Systems Approach to Infrastructure Delivery \(SAID\) report part 1](#) (2020)
- [ICE SAID report part 2](#) (2021)
- [Rautaki Hanganga o Aotearoa – New Zealand Infrastructure Strategy](#) (2022)