

Preparing for the future

One of the strategic research areas in NSC 11 is *Transforming the building industry*. What will this look like? Focus groups have shared their insights and ideas on how best to address issues facing the construction industry.

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THE CONSTRUCTION INDUSTRY plays a major role in New Zealand's economy, remodelling, growing and enhancing our environment, as well as affecting the lives of current and future generations.

Industry too conservative

Nevertheless, compared to other industries, the construction industry has long been criticised for its conservatism and lack of innovation. Currently, after a decade of substantial economic growth in the country, we are only building around half the homes needed in Auckland.

The wider quality issues with housing and communities throughout New Zealand are also increasingly seen as a critical social problem.

The situation indicates an urgent need for transforming the New Zealand construction industry to be more innovative and productive. This would produce direct benefits to the industry and could also boost the

national economy and improve the overall liveability of our built environment.

To achieve this, we must improve innovation, upskill the workforce to both generate and embrace new technologies and techniques, streamline construction and related processes and improve the quality of construction products. All require a healthy, coherent, well functioning construction industry to be developed in terms of its level of innovation, people, processes and technologies.

A collaborative initiative

Transforming the building industry has been identified as a key theme and a strategic research area (SRA) for National Science Challenge 11 Building Better Homes, Towns and Cities.

The research programme is a collaboration between the University of Auckland, Auckland University of Technology, Victoria University of Wellington and BRANZ. Working with industry, it aims to

generate ideas, methods, tools, techniques and approaches. These will contribute to transforming a conservative, constrained and fragmented building industry into one that is productive, innovative and fit for purpose to address 21st century challenges and opportunities.

The SRA is focusing on research that will enable new technologies, appropriately skilled labour and improved processes. These will deliver quality, cost-effective buildings and associated services in places where they are needed and designed to meet the needs of New Zealand's evolving, ageing, multi-cultural society.

Focus groups established

As part of the research, focus groups were conducted in June 2017 in Auckland, Wellington and Christchurch with industry stakeholders and end-users. They included architects, engineers, local authorities, builders, quantity surveyors, construction ➤

strategists, planners, project managers, safety managers and clients.

The focus groups discussed the four major streams central to the research - innovation, people, technology and process. These discussions provided up-to-the minute data and information on the current state of knowledge around these four themes in the industry.

Importantly, they provided a forum for experts to offer their insights, understanding and ideas as to how best to address the critical problems present in the industry. The issues raised by industry experts helped to highlight the complex issues the industry faces now and in the future.

Encouraging the next generation

Findings from the focus groups indicated a preference for experienced employees over new entrants in the construction industry. This creates a barrier for young people entering the industry.

The perception that construction does not offer a secure career pathway, due to risks of unemployment during economic downturns, was also raised by focus group participants as a potential barrier to entry.

According to a senior quantity surveyor 'The young generation is not familiar with

many construction professions.' It was suggested that the professional associations need to engage with schools in order to expose the profession to students as an option for their future career.

Engaging with younger people was seen as critical to sustain the workforce longer term, especially due to the physically demanding nature of some on-site construction activities.

All participants agreed that New Zealand's construction industry is a traditional and low-tech industry. Lack of technology and innovation make it less attractive to the younger generation who prefer to work in more automated and high-tech working environments.

Innovation is essential

Innovative skills and methods were highlighted as essential. For example, shifting to off-site construction methods such as prefabrication was considered crucial to meeting market demand. Digitised and prefabricated construction was found to be more attractive for women than physically demanding on-site working methods.

The next-generation construction workforce needs to be prepared to fully implement new technologies and construction

methods. The construction industry cannot take full advantage of emerging technologies and construction methods without having a well trained and highly skilled workforce.

This technical transformation aims to change the image of the industry from that of a male-dominated working environment to one open to all ages, genders and ethnicities.

New tools to encourage innovation

As the research develops, innovation will be encouraged with the creation of tools, advice and engaging in case studies, such as using virtual reality for skills training.

Initiatives such as these will help support the skills and knowledge the industry requires for our future needs. ◀

Note Principal investigators in the *Transforming the building industry* SRA are Professor Suzanne Wilkinson (University of Auckland), Professor John Tookey (Auckland University of Technology), Professor Regan Potangaroa (Victoria University of Wellington) and Dr Casimir MacGregor (BRANZ).