



**WAIHANGA ARA RAU**  
Construction and  
Infrastructure  
Workforce Development Council

# Briefing to the incoming Minister

December 2023



# Executive summary

**Waihanga Ara Rau Construction and Infrastructure Workforce Development Council** represents 57 industries. These are grouped into the following sectors:

- Access trades
- Civil infrastructure
- Electricity supply
- Electrotechnology
- Finishing trades
- Gas supply
- Off-site construction
- On-site construction
- Plumbing, gasfitting, and drainlaying
- Professional services
- Water services

Our vision is to have a construction and infrastructure sector that enables everyone to reach their potential.

**Our role helps the construction and infrastructure sector thrive by ensuring it has the people with the skills to get the job done right.** We achieve this by working with industry and employers to understand the current and future skills that are needed.

During the 2022/23 year, we had over 1,100 engagements across construction and infrastructure. When we surveyed the sector, more than 75% of survey respondents said they were very satisfied or satisfied with their engagements with us.

We share industries' feedback, along with available data and use it to create and monitor skill standards for vocational education, give advice to the Tertiary Education Commission about their investments and to make recommendations to education and training providers. This ensures that learning programmes give people relevant skills to address future workforce issues and skills gaps.

We have a crucial role in ensuring a skilled workforce is available to ensure that significant construction and infrastructure projects such as hospitals, housing, water and electricity projects are completed on time, on budget and to a high standard.

This briefing outlines how we have addressed workforce issues and skills gaps that have held back these sectors. It also demonstrates the need for our work to continue.

**Our first year focused on getting our systems, processes and people in place. In our second year we started making a real impact. The impact we have made has included:**

- **Meeting industry needs by updating educational standards and qualifications.** This ensures that learners and apprentices are equipped with up-to-date, industry-relevant skills, enhancing the quality and efficiency of the workforce. With 100% of qualifications and 90% of standards in their review schedule updated, this aligns educational outcomes with current industry demands, leading to a more competent and adaptable workforce.
- **Developing new standards and credentials in under-served areas, such as electricity supply and steel fixing.** By focusing on previously under-served areas, this fills critical skill gaps in specialised fields. This diversification of skills supports industry growth and innovation, making the sector more comprehensive and versatile.
- **Completing over 353 pre-assessment moderations and endorsed over 40 provider programmes.** Strengthening assurance capabilities builds industry's trust and confidence in qualifications and education providers. This ensures a consistent, high-quality standard of education and training, which is crucial for maintaining the integrity and reliability of the workforce.

# Executive summary continued...

- **Developed a workforce data platform and the evidence base to underpin our next steps (wip.org.nz).** This online platform provides valuable insights and evidence to inform future strategies and decisions. It helps understand industry trends, workforce needs, and areas of opportunity, guiding informed decision-making and efficient resource allocation.
  - **Developed workforce strategies and workforce development plans for our sectors.** These strategies and plans ensure a proactive approach to workforce development, aligning industry needs with training and education. They help in forecast future demands and prepare the workforce accordingly, promoting industry growth and sustainability.
  - **Supported cyclone recovery** with projections of workforce requirements, positioning of entry credentials and advice to TEC on funding requirements. Providing expertise in workforce requirements, working in partnership with Te Waihangā, the Infrastructure Commission, on this project, our findings show that 12,000 more people are needed. The positioning of entry credentials aids in effective disaster recovery. This support ensures that the industry has the necessary workforce and resources to rebuild and recover efficiently, minimising the impact of such events.
  - **Built trusted relationships with industry.** Establishing trust and having solid relationships with industry stakeholders is critical to effective collaboration and progress. It ensures that our Council's initiatives are aligned with industry needs and are well-received, fostering a cooperative and forward-moving industry environment.
  - **Published 'We are Water – Ko Wai Tātau'.** This is the workforce development plan for the Water sector. This plan highlights the need for 6,000–9,000 people in the sector over the next 30 years. This report presents four strategic goals and 14 actionable recommendations to help transform the Water Services workforce. It dives deep into what inspires people to consider joining the industry and offers advice on attracting new people to the sector without relying on immigration. We are working with industry to help them implement these goals and recommendations.
  - **Completed the ESI and Water Services Workforce Activation Strategy.** This report takes a combined approach to co-designing and testing solutions to activate a desired future-state workforce for both industries. It supports a broader strategy to attract, train and retain the workforce needed to build and maintain New Zealand's future infrastructure and we are working with industry to implement change.
- In the coming year we will:**
- Support workforce development for cyclone recovery, major construction projects (e.g. hospital builds), the water industry, and the supporting engineering and technical professions.
  - Update and create new qualifications in industries such as crane operation, plumbing and electrical engineering.
  - Work with industry to increase the number of businesses engaged in formal training, and support workforce retention.

# What we do

Our Council was legally established in October 2021 under the Education and Training Act 2020.

Through our [Orders in Council](#) (OiC), and a remit to be the voice of industry, we are working to make the vocational education sector be more effective.

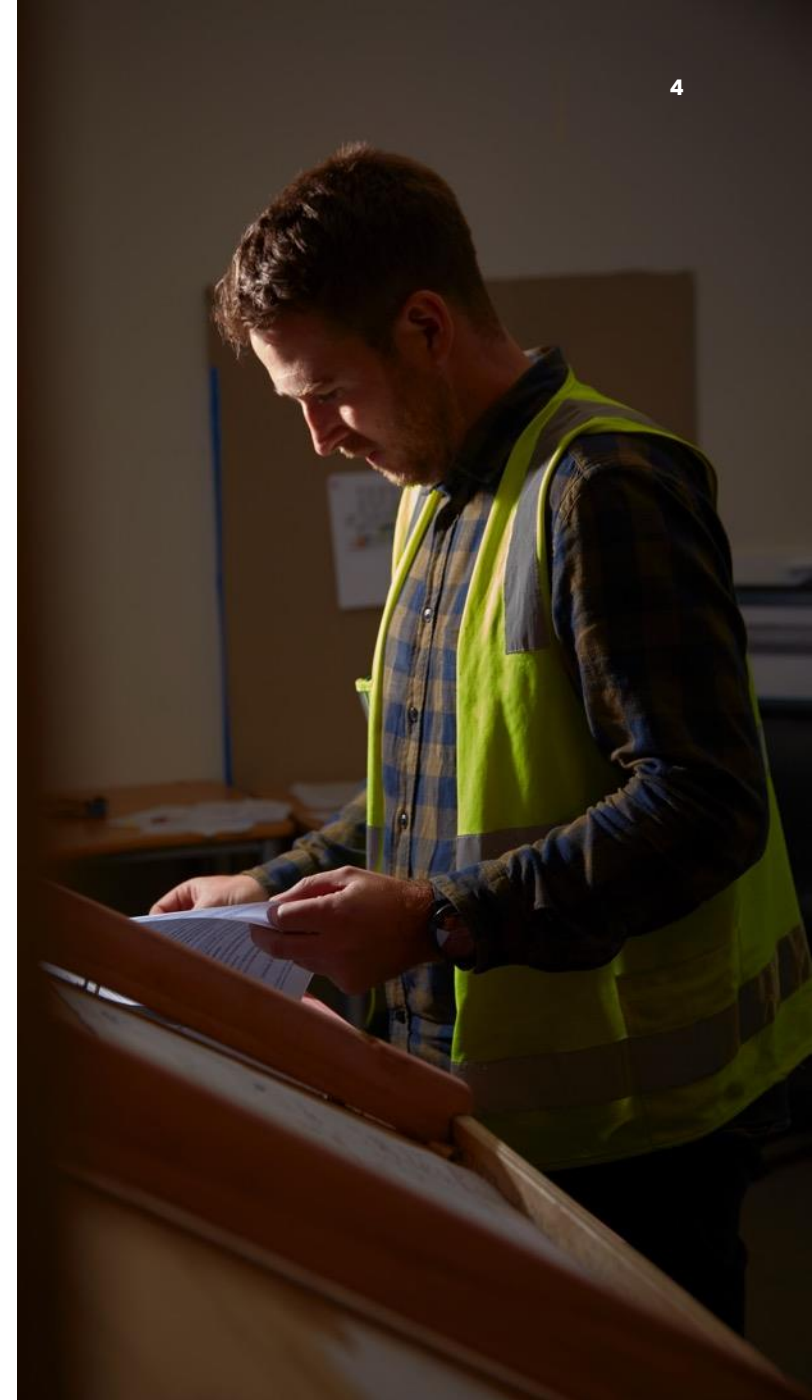
We are **independent of education providers**, and we hold them to account to better respond to and meet industry's needs.

## Some of our key functions include:

- Developing and maintaining 2,700 industry training standards and 141 qualifications, so that they are **relevant and up to date** (See the **Appendix** for new developments).
- Endorsing programmes and moderating learner assessments (across 80 education providers and 300 schools), so **industry can trust the qualifications**.
- Advising the Tertiary Education Commission on its investment in vocational education and training, so that **funding is directed to programmes that meet industry needs**.
- Supporting Career Services, to **help attract people to our industries**.
- Leading sector wide co-ordination across industry and Government to meet workforce needs.

**Partnering with industry** helps to solve broader workforce challenges. We are achieving good results. We also:

- **Research and analyse** our industries and their workforce, to understand the issues and challenges they face, whether current or anticipated. Our quantitative analysis is published through our Workforce Information Platform ([wip.org.nz](http://wip.org.nz)).
- Develop **workforce plans and strategies** with our industries, where we can plan on a whole-of-industry basis, and on a longer timeframe (up to 15 years).
- Work with industry to develop **guidance and toolkits** to support improved training, upskilling, workforce retention, and sustainability.
- **Support significant projects or programmes** with workforce analysis and strategies and work with industry bodies to mobilise the necessary people (e.g. cyclone recovery, Dunedin hospital).
- Provide **advisory and brokerage services** to connect, mobilise and support industry, so it can meet its skills needs.



# Our industries' challenges

The industry is grappling with a number of trends:

- The introduction of off-site manufacturing and assembly.
- Moves to carbon neutrality and the expectation of more sustainable practices across all sectors.
- Continued pull of staff to Australia (average weekly earnings are about a third higher in the Australian construction industry than in NZ, per Statistics NZ and the Australian Bureau of Statistics).

There continues to be a boom-and-bust pattern to work, with low levels of certainty around the pipeline.

72% of construction businesses say that skill shortages remain the major challenge:

- We are not training a large enough pipeline of people, in the education system. This includes professionals, technicians and tradespeople in all sectors.
- Retention of staff is poor, with over half dropping out within two years of joining the industry.
- We are not developing enough leaders and business managers that can drive change and develop the industry.

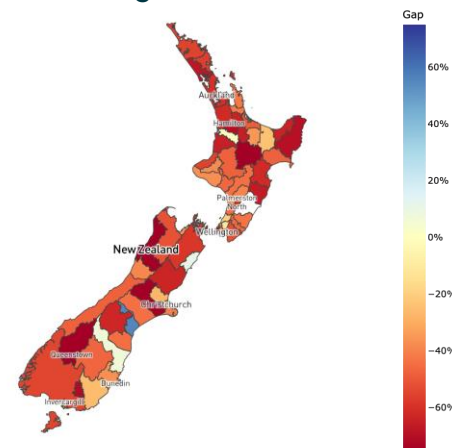
Diversity – more businesses than ever recognise that a diverse workforce is good for performance and extends the talent pool.

Career pathways need improving and industry would like to see increased awareness of the sector and the trades, along with an increased focus of teaching STEM subjects in schools.

The **Appendix** provides some quantitative analysis and evidence on these challenges. Solving them is essential, if we are to meet New Zealand's ambitions in housing, infrastructure, and climate resilience.

This will require persistent action from many parties – schools, the Vocational Education and Training system, WDCs and above all the industry – consistently over many years to build stronger pipelines of potential recruits, and to retain them in the industry.

## Workforce shortages



## Selected sub-sector challenges

Water	
Substantial investment deficit in water assets; 25% of waste water plants not compliant.	
Estimated workforce shortfall	6,000 to 9,000 over next 30 years
Low qualifications	59% have no relevant qual listed with employer
Civil Infrastructure	
Increased investment and recovery from North Island weather events is driving a growing workforce shortage.	
Estimated workforce shortfall	Supply-demand gap of over 9,000 in early 2024
Apprentices /level 4 learners	3,900 in 2022
Plumbing, Drainlaying and Gasfitting	
High demand across the country, with an aging workforce, plus vital to cyclone recovery, housing shortage.	
Estimated workforce shortfall	Estimated 5,000 current shortfall
Apprentices	Over 1,200 at least 2 years late in gaining qualification
Electricity Services Industry	
As much new generation capacity is needed in the next 15 years as was built in the last 40.	
Estimated workforce shortfall	700 p.a. (engineers, technicians and tradespeople)
Aging workforce	25% aged 55+
Construction	
Growing workforce shortfall over the last three years.	
Estimated workforce shortfall	Supply-demand gap (consents vs workforce) of over 300,000 in early 2024
Apprentices/level 4 learners	53,000

# Meeting NZ's goals

## To deliver on the country's priorities for housing, infrastructure, and resilience, we are addressing the following critical issues across all our industries:

- **Retention** – reducing the drop-out rates from our industry requires addressing:
  - Career development and progression – providing and explaining clear pathways and opportunities that will lead people to stay in the industry.
  - Mental health and wellbeing – helping businesses understand and support employees' needs.
- **Business management skills** – improving the knowledge and skills of owners and managers to create successful businesses.
- **Leadership** – improving capability across the sector to help them retain and up-skill their people.
- **Work-readiness** – helping the school and Vocational Education and Training system instill life skills and business disciplines in learners, as well as the necessary technical learning.
- **Attracting talented people** to join our industries and showcasing the many worthwhile and varied career opportunities more widely.

Productivity increases when we have more qualified professionals in the workforce.

## We are addressing skills standards and qualifications across many sectors. Priority industries with critical skill shortages are:

- Plumbing
- Engineering (professional and trade)
- Electricity
- Water
- Civil infrastructure

## Our work in this area is always with industry and involves a mix of:

- Developing and updating skills standards, micro-credentials and qualifications (see below).
- Advising TEC on its investment decisions.
- Providing skills leadership by being independent of providers and holding them to account to better respond to and meet industry's needs. We also then work with government agencies, industry groups and Māori to meet these needs.
- Support Career Services, to help attract people to our industries.
- Advocacy for industry with Government (i.e: regulators and funders).

- Monitoring education providers to lift their quality of delivery.
- Co-developing guidance and toolkits for businesses.
- Learners and industry.
- Advocacy for our industry with other parts of government (immigration, regulators, funders).

# Workforce matters

Skills shortages are the most significant constraint on the growth of our industries. This shortage means fewer houses are built and less investment in critical infrastructure such as roads and water and a slower recovery from natural disasters.

In infrastructure, many projects face delays as authorities and contractors cannot get the skilled workforce that they need.

Immigration can help by making it easier to bring in and deploy expertise from overseas. But we must also invest in growing the capacity and capability of New Zealanders if the industry is to contribute as it could to the economy.

Industry invests significant time and money in attracting and training its workforce. The Crown invests some \$350 million per year in education and training for these industries. When over half of new entrants to the industry drop out within two years, too much of this investment does not generate the desired return.

Our Council exists to ensure better returns on the investment in education and training, and help the industry solve its attraction and retention challenges.

# Your contact



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Chief Executive

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# Appendix



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# 2023/24 Standard-setting initiatives

Strategic Sector	Key standard-setting initiatives
<b>Access Trades</b>	<ul style="list-style-type: none"> <li>Development of Cranes skill standards</li> <li>Review of Rigging qualifications and development of skill standards</li> <li>Review of Lifting Engineering qualification and development of skill standards</li> </ul>
<b>Civil Infrastructure</b>	<ul style="list-style-type: none"> <li>Development of Temporary Traffic Management micro-credentials</li> <li>Review of Infrastructure Supervision qualification and development of skill standards</li> <li>Review of the Infrastructure Works L2 qualification and development of skill standards</li> </ul>
<b>Construction &amp; Infrastructure Services</b>	<ul style="list-style-type: none"> <li>Development of Building Surveying control skill standards</li> </ul>
<b>Electrical, Electronic Engineering &amp; Electrotechnology</b>	<ul style="list-style-type: none"> <li>Review of Electronic Security qualification and development of skill standards</li> <li>Development of a Cabling Infrastructure qualification and development of skill standards</li> </ul>
<b>Energy &amp; Telecommunications</b>	<ul style="list-style-type: none"> <li>Review of Electricity Supply L2 qualification and development of skill standards</li> <li>Review of Telecommunication qualification and development of skill standards</li> </ul>
<b>Finishing Trades</b>	<ul style="list-style-type: none"> <li>Development of Flooring skill standards and micro-credentials</li> <li>Development of Painting &amp; Decorating skill standards</li> </ul>

Strategic Sector	Key standard-setting initiatives
<b>Offsite Construction</b>	<ul style="list-style-type: none"> <li>Development of Timber Panelisation credentials</li> <li>Development of Joinery Detailing qualification and skill standards</li> </ul>
<b>Onsite Construction</b>	<ul style="list-style-type: none"> <li>Development of Carpentry skill standards and pre and post apprenticeship micro-credentials</li> <li>Review of Roofing qualification and development of skill standards</li> <li>Review of BCATS qualifications and development of skill standards</li> </ul>
<b>Plumbing, Gasfitting &amp; Drainlaying</b>	<ul style="list-style-type: none"> <li>Development of a NZ Programme for the NZA PGD</li> <li>Review of Level 5 PGD qualifications and development of skill standards</li> <li>Investigation of PGD micro-credentials for biogas and hydrogen</li> </ul>
<b>Water</b>	<ul style="list-style-type: none"> <li>Development of Water Reticulation skill standards</li> <li>Review of Water Treatment qualifications and development of skill standards</li> </ul>
<b>Retail &amp; Wholesale Industries</b>	<ul style="list-style-type: none"> <li>Investigate construction &amp; infrastructure specific credential requirements for the retail and wholesale sector</li> </ul>

# Our industries

**Our industries represent 15% of the New Zealand economy** and are central to meeting the challenges we face with the housing shortage, our infrastructure deficit, reconstruction following natural disasters, and for growing climate resilience.

**Labour supply has lagged consent demand for many years.** This gap has been growing fast over the last three years.

**And productivity growth has been poor for the last twenty years.** Multifactor productivity growth has been similar to the NZ average, less than 1% per annum, and significantly lags other major sectors of the economy (e.g. primary, IT and telecoms, retail). The sector has principally grown by adding people, using essentially the same technologies as before. And being such a fragmented industry, this has proven very hard to change.

**406,165**

Filled jobs

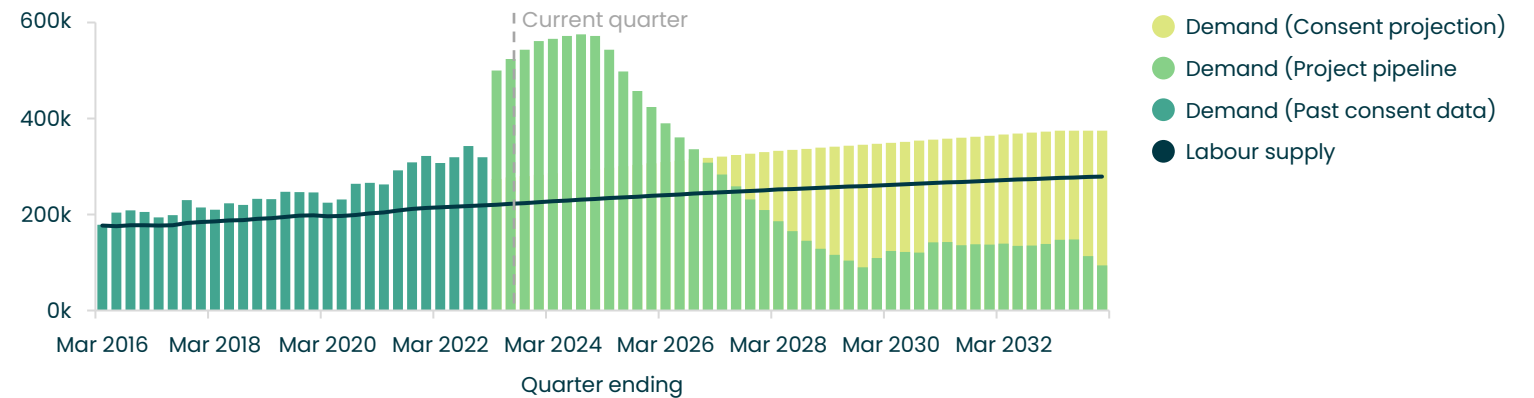
**\$52,747m**

GDP

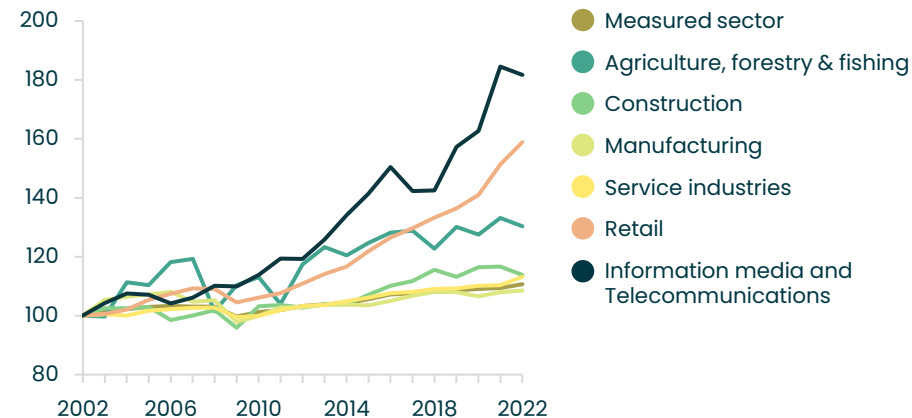
**98,256**

Businesses

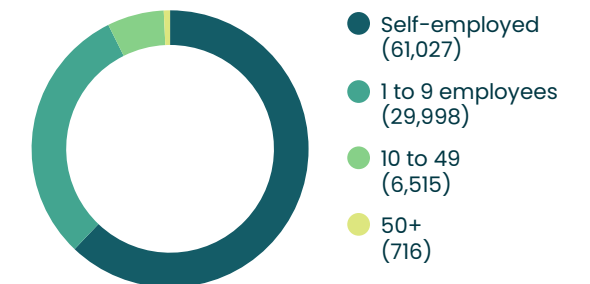
**Number in Workforce**



**Multifactor Productivity Growth (2002 = 100)**



**Businesses by Size**



# Our industries and the Vocational Education and Training sector

## Industry wants the Vocational Education and Training System and school sector to:

- Provide relevant, up-to-date, portable qualifications.
- Create qualifications that can be trusted.
- Provide simple, clear pathways to obtaining qualifications, that can follow a learner from the education system, to work and back again as needed.
- Deliver work-ready learners to its door.
- Be simple, easy and responsive to work with.

## Vocational Education and Training Sector Alignment

The Vocational Education and Training sector aligns reasonably well with industry needs. Nevertheless, significant improvements can be made and many of the broader challenges remain.

- Providers still offer programmes that are longer than they could be.
- There are large areas of standards that could be common across many qualifications and sub-sectors, improving efficiency and portability.
- Assessment is too often paper, rather than practice-based.
- Pathways through the system could be clearer and more transparent.
- Between the National Qualifications Framework and the funding system, there are still barriers to quickly adapting qualifications, and to moving learners successfully through them.



# Our workforce

## The makeup of the workforce is slowly changing.

Businesses have been recruiting more widely than the traditional construction and infrastructure labour pools (pakeha men). Compared to 2015, the current workforce is slightly younger and somewhat more ethnically diverse. Overall gender balance has not changed (and female representation in “on the tools” trades roles is much lower than the figures shown – 3% of construction tradespeople).

**Most new workers are career changers, not from school or tertiary education.** The industry attracted over 80,000 new entrants in 2021. The majority were career changers (i.e. from other industries), not from schools or the tertiary education system).

## But the industry struggles to keep its workforce.

Over half of new staff have left the industry within two years. And most of them leave to go to another industry, not leave the country.

Given its skills shortages, our industry is already looking beyond the traditional recruitment pools and will need to do this more and more.

*“More businesses than ever recognise that a diverse workforce is good for performance and extends the pool”*

Master Builders (2023)

## Where the workforce comes from

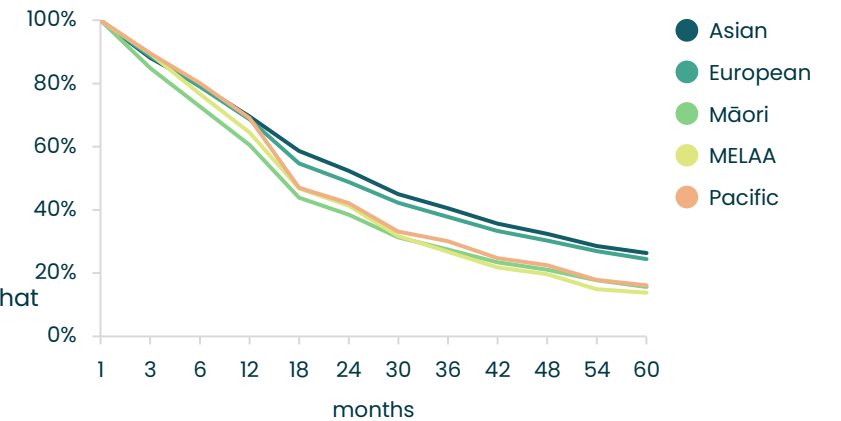
2021	Industry changer	Tertiary	Secondary	Overseas	Beneficiaries	Other
Construction	58%	10%	8%	9%	4%	11%
Infrastructure	65%	11%	4%	8%	3%	8%
Services	49%	29%	3%	8%	1%	11%

This means that:

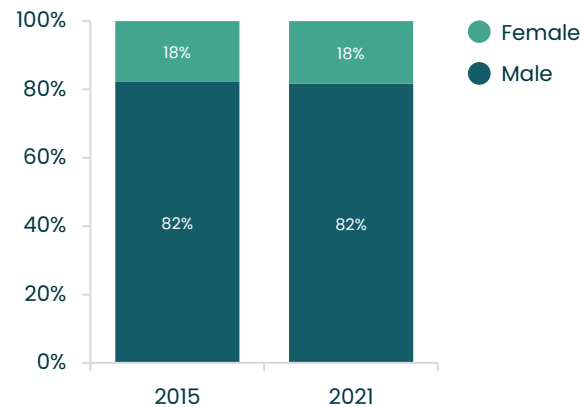
- Individual businesses must attract and, even more importantly, retain a more diverse staff base. To do this, business culture and the way businesses operate will have to change: if people do not feel comfortable they will not stay.
- The Vocational Education and Training system must support diverse learners.
- The industry must present careers and opportunities that will attract a wider and more diverse workforce, that can see a place for itself there.

Some in the industry are resistant to this. Many want to improve, but don't necessarily know how.

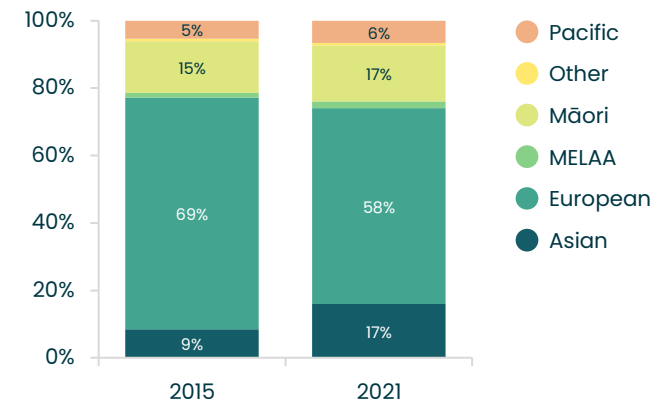
## New Entrant's Retention by Ethnicity



## Workforce by Gender



## Workforce by Ethnicity



# Our council members



**Elena Trout**  
Co-chair



**John Chapman**  
Co-chair



**Daniel Haines**  
Council Member



**Bill Newson**  
Council Member



**Brendon Green**  
Council Member



**Chantelle Bailey**  
Council Member



**Kieren Mallon**  
Council Member



**Tracy Davis**  
Council Member



**Ruma Karaitiana**  
Council Member



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