



**CIVIL
WORKFORCE
FORUM**

Developing a skilled civil construction workforce

Exploring how people successfully enter civil construction with the skills they need to work

Developing a skilled civil construction workforce

April 2022

This discussion paper explores the workforce intake challenges and opportunities for people entering careers in the civil trades, and the companies that employ them.



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Purpose statement

Civil Contractors New Zealand (CCNZ) established the Civil Workforce Forum in 2021. The aim of the Civil Workforce Forum is to provide an avenue for NZ's civil construction companies and organisations that support the industry in onboarding and training new workers to discuss and evolve the pathways to employment and career development.

The first project for the Forum was to research and complete a stocktake and gaps analysis of how new entrants enter the civil construction workforce. The aim was to collect knowledge from programmes providing training for new entrants into the civil construction industry, to assist the industry and its supporters in scaling up induction programmes and overcome barriers preventing workforce entry.

The project engaged a small team to undertake a targeted research project to gain an understanding on how the industry gets people to the start line where they are considered employable, exploring the entry criteria and current challenges for prospective employees and employers, and some of the solutions that could be scaled up.

In conducting this work, CCNZ set out to take stock of what is happening in civil construction training and workforce development and identify gaps preventing people from being employed successfully to better build the civil construction workforce.

This paper explores the findings of the project team, which conducted wide-ranging discussion. The purpose of publishing this research as a discussion paper is to inform employers, decision makers, agencies and stakeholders of the findings, as well as provide recommendations on an improved and co-ordinated approach to bring people into the industry with the skills employers need on a larger scale than is presently possible.

This research should be used to encourage participation in workforce development programmes across the industry and form the basis for discussion around civil construction workforce intake (onboarding) initiatives and initial training at entry and pre-trades level.

It should be read alongside the *Construction Industry Survey 2021*, produced by Colmar Brunton for Civil Contractors New Zealand and Teletrac Navman, which contains a survey of social procurement and a workforce sector exploring surveyed responses to workforce challenges. It also provides several recommendations to help engage the whole industry and government agencies to work together to find long-term solutions to this workforce development challenge.

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Project sponsors



At the beginning of 2021, Civil Contractors New Zealand (CCNZ) initiated the Civil Workforce Forum research project, supported by Ministry of Social Development (MSD) and Ministry of Business Innovation and Employment (MBIE).

CCNZ is the national association for civil (horizontal) construction in New Zealand. It is a business association, representing more than 420 civil infrastructure construction businesses and more than 200 businesses that supply equipment and services to these construction companies. CCNZ also owns and operates EPIC Careers in Infrastructure¹, a national career promotion programme for the industry, and Civil Trades², a certification programme recognising skilled civil tradespeople.

MBIE leads government procurement. Its Sector Workforce Engagement Programme (SWEP) team partners with industries to develop solutions to improve their access to labour and create training pathways for local people to enter into local industry.

The SWEP team contributed funding to this research project to better understand the coverage and current suitability of pre-entry and pre-apprenticeship civil construction pathways for working-age people wanting to start a career in civil construction, and to better understand the practical implementation of the new *Government Procurement Rules (4th Edition)*³ in the industry, as these rules come into force.

MBIE also operates the Construction Sector Accord⁴, a partnership between government and the construction industry with a workforce development stream focussed on building workforce capability, coherent long-term workforce planning, boosting the Construction Skills Action Plan and improving diversity in construction.

MSD leads social development. Its stake in the project is the delivery of the Construction Skills Action Plan, and in gaining a better understanding of the needs of industry so it can help new entrants to the industry find meaningful careers and lasting employment.

This relationship with industry is led by the Industry Partnerships Team, which has the objectives of minimising skill and labour shortages and maximising job and career opportunities, working closely with businesses and industry associations to help fill vacancies and provide a customised recruitment service, specific to them.

Both ministries have clear roles in the Government's Construction Skills Action Plan, which was established to increase the amount of skilled people working in construction. Some of the projects explored in this paper include the jobs and skills hubs founded by MBIE and the Skills for Industry and Mana in Mahi programmes managed by MSD, which were both expanded under the Construction Skills Action Plan.

1. See www.EPICwork.nz

2. See www.civiltrades.co.nz

3. See www.procurement.govt.nz/procurement/principles-charter-and-rules/government-procurement-rules

4. See www.constructionaccord.nz

Background

Introduction

This report comes at a time when the Government's Construction Skills Action Plan is nearing its end point, when immigration has been dialled back and emphasis on developing skills within New Zealand has increased. There is a significant increase in infrastructure spend required to overcome the country's infrastructure deficit, including projects to improve transport, residential infrastructure and the country's aging Three Waters network

The civil and infrastructure construction industry employs roughly 60,000 workers, who construct transport infrastructure, as well as water, energy, internet and communications networks. This is skilled work, requiring use of heavy equipment and technology. The skills to perform the work take significant time to develop – up to five years for a competent multi-skilled trade professional.

The industry currently sees generating a skilled workforce as its single biggest challenge. In the most recent *Construction Industry Survey*, conducted by Colmar Brunton for Civil Contractors New Zealand and Teletrac Navman in June 2021, 50 per cent of civil construction business owners and senior managers across the industry said it was the biggest challenge their business faced, with 80 per cent rating this issue as one of their top three challenges⁵.

5. [Construction Industry Survey 2021](#), produced by Colmar Brunton for Civil Contractors New Zealand and Teletrac Navman P14
6. *Draft New Zealand Infrastructure Strategy*, New Zealand Infrastructure Commission – Te Waihangā,

Knowing how many people we need to perform the work ahead

The civil infrastructure construction industry has consistently called for a clearer understanding of the forward work pipeline so it can plan to train and prepare enough skilled capability. An uncertain long-term pipeline and small pool of prospective workers in New Zealand has meant much of the industry has looked to retain existing workers rather than recruit and train new workers.

Based on research from the *Draft NZ Infrastructure Strategy* from New Zealand Infrastructure Commission – Te Waihangā and other Government research, the work pipeline must ramp up to meet the country's infrastructure construction needs.

The country is currently focussing on overcoming a massive infrastructure deficit, and more workers are needed to do this. The New Zealand Infrastructure Strategy highlights the need to build workforce capacity and capability, highlighting a massive shortfall of construction workers, the role of skills shortages in escalating cost, and illustrating the need for “the right people, at the right time, with the right skills”⁶.

Factoring in a projected 30 per cent staff increase needed for some parts of the infrastructure workforce, maintenance and upgrades to meet new quality standards, the implications of being unable to upscale the workforce within New Zealand are huge. The country is currently focussing on overcoming a massive infrastructure deficit, and more workers are needed to do this. There is an aging workforce and evidence

that there will not be enough skilled and productive young people entering the workforce to take their places and that the knowledge currently held by these people will be lost as they exit the workforce

The labour market has also changed drastically. A low unemployment rate and the inability to employ migrant workers means the emphasis on training and employing new entrants from within New Zealand is critical. This is a real challenge for a private sector-based industry that is focussed on hiring skilled people with five to ten years of experience that is unavailable to meet demand.

The inconsistent nature of how the work comes to market has meant recruiting trained and skilled professionals from overseas when needed has provided a quicker and sometimes cheaper solution when the industry has needed to ramp up, as rapid changes in the work programme do not fit with five-year training. But immigration is no longer an easy solution at a time when the country's borders are closed, and the Government has signalled it intends to maintain new immigration settings when the borders reopen.

Therefore, there is an urgent need to ramp up efforts to provide training and induction to infrastructure construction companies, leading to meaningful jobs for New Zealanders to construct and maintain the country's infrastructure – and stable long term career opportunities.



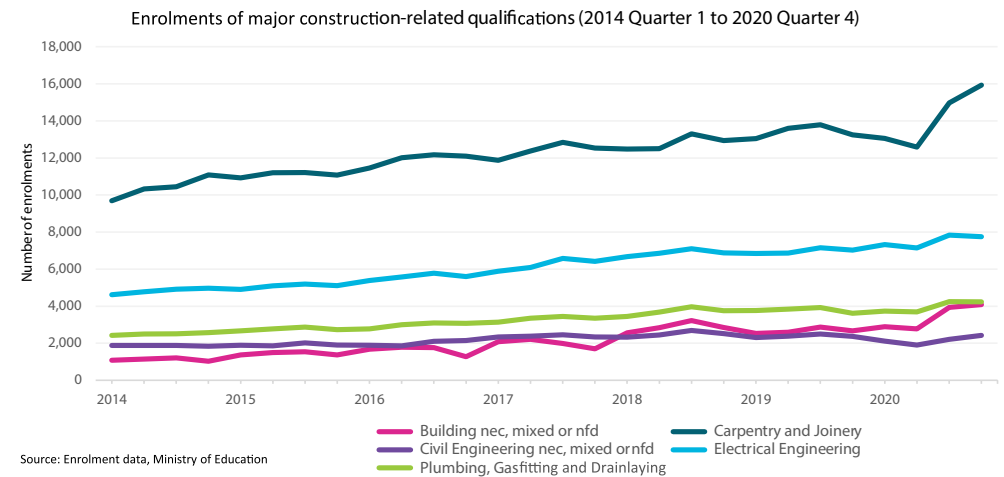
What's different about the civil trades?

Aspiring civil engineers can access knowledge and qualifications at the degree and diploma level through polytechnics and universities. But aspiring civil construction workers cannot currently access the training they need to join the workforce. To learn vocational skills, they must observe and perform practical tasks under supervision on a work site rather than studying theory in a classroom.

Although new, Infrastructure Works qualifications and Civil Trades certification were developed within the past decade. These are now functioning as the civil construction industry apprenticeship programme. But civil construction employers find it difficult to hire people as an apprentice from day 1. They prefer to develop a relationship with a person and assess attitude and aptitude before committing to offering an apprenticeship.

This represents the immature nature of civil construction apprenticeships system, which is still bedding in with industry, and is considerably different from the well-established apprenticeship systems held by other trades.

The low uptake of civil construction apprenticeships demonstrates the split between qualifications and training. Although the workforce is sizeable, civil construction trade qualifications uptake has been flatlining for the past decade, as illustrated in the graphic to the right, which shows the uptake of civil infrastructure qualifications, as opposed to other construction types.⁷



7. MBIE (2021). *Building and construction sector trends annual report 2021*. Wellington: MBIE. P.20. Published under Crown Copyright.

Increasing willingness to work together, and recognition of the role of clients

Government procurement has shifted to focus on employment, skills development and community outcomes. There is a real will amongst the civil construction industry and its supporters to address traditional gaps and come up with solutions.

With a clearer work pipeline, contractors and government are investing more in training for new entrants to the industry. But these initiatives are often operating in isolation from each other. Whether successful or unsuccessful, the knowledge they are generating is not retained or accessible.

The implications of being unable to upscale the civil infrastructure workforce within New Zealand are huge. The country is focussing on overcoming a massive infrastructure deficit, and more workers are needed to do this. There is an aging workforce, and evidence there will not be enough skilled and productive young people entering the workforce to take their place.

Government is undertaking significant reforms in the funding and delivery of vocational training. There is need for the civil infrastructure construction industry to take on a more diverse workforce and depart from large intakes of overseas migrants in the long term.

Implications of being unable to upscale the workforce within New Zealand are huge, so industry and government must work together to understand

and overcome the barriers that exist for new people entering the industry – work that is taking place in several Construction Accord initiatives.

Civil trades workers need practical hands-on skills training to be safe on construction sites and skills to perform work to a required standard of quality before they can be employed. More resource may also be needed in terms of supervision and skills assessment.

Vocational education is changing

The education system is also changing to provide greater focus on training vocational skills.

While recent Targeted Training and Apprenticeships Funding has made a massive difference for the sector, it should be recognised that the majority of funding for civil infrastructure construction went towards recognising current competence rather than training new skills. This is due to the small scale of intake training programmes for the civil construction industry, and because the industry recognises qualifications as a way to recognise existing skills developed on the job, rather than a way to take on and train new people.

Another challenge is that the average secondary school leaver is not currently well equipped to enter the civil workforce. People considering entering the industry from school often don't have driver's licences or practical aptitude and experience. The catch is if they don't enter early, they are less likely to enter at all. There are also limited opportunities to find training and development, without experiencing funded support from the Ministry of Social Development or entering employment.

A lot of positive re-invention, happening at small scale

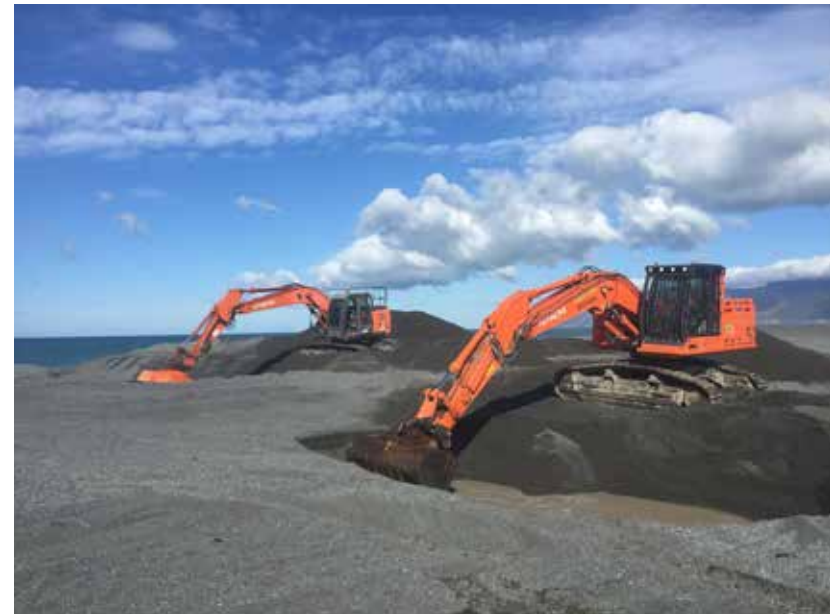
Although some specific programmes are delivered by individual companies, there is currently no industry-wide national induction programme or initiative that delivers training at scale.

A lot of initiatives are taking place. Some are well-supported by government through the Construction Skills Action Plan under the Construction Accord, from MSD's Skills for Industry and Mana in Mahi initiatives to work going on at various skills hubs, including MBIE Regional Skills Hubs. Other initiatives are operated by local authorities or NGOs, while some civil industry trainers are exploring new and innovative models for training and use of new technology to train people.

CCNZ takes the view that many of the solutions to the workforce intake issues industry is facing are already in place but working at small scale and without widespread recognition. But these initiatives are often operating in isolation from each other. Whether successful or unsuccessful, the knowledge they are generating is not retained or accessible. There is a risk the knowledge from these pilot programmes will be overlooked by industry and education, and civil infrastructure construction training will be left behind again.

Solutions such as social procurement are yet to reach the market in a significant way. There is an urgent need to establish well targeted pathways for training and employment for hands-on civil infrastructure construction trade skills. But a lack of connection and a lack of skilled people at supervisor or trainer level is hampering efforts to scale up.

At a time when skills development is being built into procurement and there is a huge need to bring new workers on board, the industry risks only being able to train for existing workforce requirements.



Methodology

Over a six-month period from April – September 2021, interviews and discussions were undertaken by the Civil Workforce Forum project team. This involved meeting and discussion with civil construction business owners, trainers, educators, schools, community support programmes, labour hire and recruitment companies and others involved in training and employing new entrants to the civil construction industry.

The authors set out to challenge assumptions and test appetite for solutions to workforce intake challenges across entry points – from school, from tertiary education, from unemployment, from other industries, and from industry training programmes.

Discussions were initiated with civil contractors at all scales of operation, ranging from large civil construction companies that operate on a national scale to small regional family-owned businesses. Assumptions were also tested with polytechnics, private trainers, government programmes and community initiatives that operate relevant trade training programmes as an entry point to employment in the civil trades.

The aim of the discussion was to identify the challenges civil construction companies and their supporters were facing in onboarding newcomers to the industry and delivering the skills required to perform work safely, in a way that sets them up for a successful career in the long term.



The work undertaken to complete the project included:

- **A webinar** informing interested stakeholders about the Civil Workforce Forum and sharing initial findings
- **25 visits to contractors and trainers** in selected regions
- **A half day workshop** was held with stakeholders to consider the entry points and criteria for the industry
- **A session at the CCNZ conference** to present and test the initial project findings
- **More than 30 video conference meetings**, lasting between one and two hours long, held with contractors, trainers and others to get an understanding of their challenges and solutions they were implementing
- Several **working group meetings** to collate, analyse and report on the findings of the discussions with stakeholders
- The findings and report documents were prepared with the conclusions and recommendations for industry stakeholders to consider and discuss further the actions required to address challenges the project has identified.

Summary of findings

A wake-up call for civil construction

There is need to document the strong business case for a considerable increase in civil construction training investment.

The industry faces major workforce development challenges. Many companies are willing to work together and get behind coherent long-term action to resolve the workforce intake conundrum. Investment and leadership are both needed to put in place sustainable long-term solutions.

New Zealand's civil construction industry currently sees generating a skilled workforce as the single biggest challenge⁸. With a clearer work pipeline, contractors and government are investing more in training for new entrants to the industry.

A number of entry to work programmes are operated successfully to introduce people to key work skills and find employment for them. These programmes are primarily funded by MSD and other agencies, including MBIE, local government and Te Puni Kokiri.

Training delivered to new entrants other than disadvantaged social groups or long-term unemployed is not widely funded or currently delivered at scale. It is also not available to people outside those groups who might be inspired to join the industry.

Pathways for new workers to join the civil construction industry are unclear and the education system does not currently train or prepare people at scale for the work they need to perform prior to entering the workforce. This means the aspirational career path is not currently serviced for the civil trades at a time when it is needed to provide the people or skills needed to address New Zealand's infrastructure deficit and carry out the future work programme effectively.

Training programmes are happening. But they are happening as pilots, at small scale and in isolation. Some civil construction companies are taking on new entrants and investing heavily in their training, at significant cost per new entrant and mainly to cover turnover within their ranks. Others are solely looking for people who already have relevant skills and experience – an ever-shrinking pool of talent.

There is need to establish more direct avenues for pre-entry, entry and pre-apprenticeship civil construction training that aligns directly with employment opportunities and leads more directly into the qualifications and apprenticeship pathways.

A consistent and accessible industry induction and vocational training process is needed to enable people to join the civil construction workforce with the skills and knowledge they need for a successful career in the civil trades.

People need clearer pathways to gain the skills they need and enter the industry. From school, from tertiary education, from other jobs and from unemployment. It is very important for the civil construction industry to have consistent input into how vocational training will be provided in the future.

8. *Construction Industry Survey 2021*, p.14, produced by Colmar Brunton for Civil Contractors New Zealand and Teletrac Navman

The workforce intake and development issues the civil construction industry faces are significant, and can be summarised as follows

Limited connection to the schools system

Most secondary schools are disconnected from entry to civil trades. The entry path for people to join the industry is unclear to those who would take up the tools of the trade, or those who advise them. New entrants to the civil trades do not gain the skills they need at school and see civil construction as a career opportunity or get introduced to entry points.

Lack of support for work-ready training and industry induction

The industry delivers the majority of civil trades training and skills development on the job. Employers do not take in school leavers on a large scale as they are not work-ready. Polytechnics do not deliver entry-level training at scale. While vocational education supports qualifications, it does not currently deliver a significant amount of industry induction or pre-trades civil construction training. Tertiary education thinks there is no demand from career seekers or employers. Employers do not trust the tertiary education system to deliver on their needs, so refuse to engage.

Cost of training, limited supply of trainers

The investment required to train a skilled civil construction worker is considerable. Because of this, most companies prefer to recruit skilled workers rather than taking on and training new entrant. In recent years, immigration been used to offset trade skills shortages. With closed borders, this is no longer possible. This means the industry is recruiting from a shrinking pool of workers, at a time when there is a low unemployment rate and strong competition from other industries.

Employers want skilled, dedicated people from day one

Expectations of new entrants to the workforce around flexible working hours do not align well with expectations of employers. Many employers are hesitant to employ new entrants, who may not understand or be able to meet work conditions, which are often inflexible. Every company has a part to play to understand its role as on the job training organisation.

These findings are explored in more detail on page 24.

Opportunities and recommendations

The following are key opportunities identified that can help overcome civil infrastructure construction workforce intake challenges.

Use technology to overcome the barriers posed by site safety requirements and equipment cost

Simulators, e-learning modules and virtual reality tools have recently been deployed by contractors, private trainers and government agencies. Some contractors have built simulator training programmes into their businesses to familiarise staff with equipment and requirements.

These technologies can be used as introductory ‘taster’ experiences, But also have potential to be used for micro-credentials, ongoing training and specific skills development.

Learning management systems can be based on existing systems developed by civil contractors to measure competency and gauge training needs. If it is possible to have a shared system for employers, this may significantly reduce costs of on-job training, making training and development much easier to embed in civil construction businesses.

Showcase the aspirational career path and inspire people to take up the tools of the trades

New technology will assist in addressing people shortages and increasing productivity, but requires additional skill to operate. The industry will increasingly be looking for tech-savvy people that can quickly adopt new technology. And these people are more likely to enter through an aspirational career path, and new entrants inspired by attraction strategies and programmes need either roles or training to go to.

CCNZ has invested significantly in career promotion through its EPIC

Careers in Infrastructure platform. This platform can be used by careers advisors, civil contractors and industry stakeholders to show career seekers why the work is meaningful and important, and connect them with the entry points for training and employment. Couple this with CCNZ’s Civil Trades certification, which recognises that someone has become a skilled tradesperson, and this sets the stage for recognition of civil construction for what it is – a trade career path for skilled craftspeople.

Inform the Reform of Vocational Education

There is an opportunity to move from a funded assessment model to a funded training model. The vocational education model is shifting from demand-based to needs-based. With the establishment of the Construction and Infrastructure Centre of Vocational Excellence and Waihangā Ara Rau Construction and Infrastructure Workforce Development Council alongside Connexis and Te Pukenga, the new system must take the opportunity to deliver the training that is needed to help people become work-ready and find meaningful employment.



Invest in starting up long-term training programmes rather than short-term pilots

Too often, programmes are started for a short term. This enables the programme to get set up, build some relationships and deliver to a small group of people, before the project concludes. Longer term partnerships can provide better results, at a bigger scale.

Successful programmes should be evaluated, the findings of the programme shared, and the ability to build on positive outcomes and scale up to meet needs should be included. Even if a programme is seen to have ‘failed’, this gives useful information that can be used to build better solutions.

Template programmes that are working so they can be shared

Templating and sharing workforce intake programmes is an opportunity to consider. Several contractors attempt to develop relationships with schools and career seekers, but without an understanding of costs, time commitment or activities. Many dip their toes in the water and don’t try again if they don’t get the outcome they are looking for first-time. Templating a method for career seekers and schools to gain work experience and sharing this for civil construction employers is an opportunity worth investigating. This will allow relationships to build over the long term, and not just for today’s needs. It is important for employers to create meaningful work experience programmes and opportunities for new entrants.

Truly understand social procurement

Social procurement offers an opportunity to fund training for new entrants to the industry and help them overcome barriers to entry. If this can be recognised by contractors and clients and worked toward collaboratively, this will provide better support for businesses and new entrants to the industry. Making social procurement work will require a change of mindset amongst clients and contractors.

The key is funding workforce training and development in contracts. Clients and contractors share the benefits of well-trained, experienced and capable people. Gaining the benefits of the new social procurement approach requires clients and contractors to behave as long-term asset owners, and better sharing of how this can be measured and implemented.

“ This is a great industry. With the right training and development, we can show people a career path beyond machine operator. These jobs can take you into senior management if you want to be there. If you put in the time and effort, you can be the best at something and get well rewarded financially.”

– Chief Executive, Canterbury

Conclusion

There are significant workforce development challenges for the industry. Coherent action and investment are needed to find solutions.

If it takes five years for a school leaver to be sufficiently trained and experienced to the level required, and there are no processes for this training happen at scale outside of companies training to replace their existing workforce, the obvious conclusion is the country will not have the skilled civil trades workforce available to complete the work required. We will be fully reliant on immigration, which is currently not possible at scale either.

Findings from the Construction Industry Survey 2021 show the major shortage of workers is at the field worker, machine operator and site supervisor level.¹ These are trade roles rather than roles entered through obtaining a degree or diploma.

To establish a functioning pathway for trades training, a consistent and accessible industry induction is needed to enable people to join the civil construction workforce with the skills and knowledge they need for a successful career in the civil trades.

Government is undertaking significant reforms in the funding and delivery of vocational training. It is important for the civil construction industry to have consistent input into vocational for the future. There needs to be a strong business case for a considerable increase in the investment in training delivery, alongside the qualifications and frameworks.

There is a strong business case that needs to be documented to fund and implement programmes that connect with companies and regional contractor networks, such as CCNZ branches, with schools to 'bridge the gap' for people who are not yet work-ready.

Technology has a part to play as well, and there is need to investigate whole-of industry training and development systems – for instance investigation of industry-specific Learning Management Systems to deliver appropriate training and competency.

Simulators and virtual reality are emerging as tools to support induction and assess people against entry requirements, and these tools should be further explored as tools that do not demand so much of people whose primary job is working on infrastructure construction sites at supervisor level.

Many businesses, people and organisations are working to help people start successful careers in infrastructure construction, and many good ideas that have reached the pilot phase. The challenge now is how we can work together to share knowledge and help an industry of pilot programmes to scale up training to support the next generation of infrastructure construction workers.

Continuing the CCNZ Civil Workforce Forum is required as a step forward to providing a consistent and credible voice for industry employers to engage in discussion, better communicate their needs as an industry, to interface with partners and stakeholders and learn from and share successful workforce intake solutions. This will provide a consistent point of engagement and credible voice for industry employers.

1. *Construction Industry Survey 2021*, p19, produced by Colmar Brunton for Civil Contractors New Zealand and Teletrac Navman.

New ways of working

The civil construction industry has a set of challenges that require a paradigm shift in the ways we develop and grow talented people.

From this

Educators are currently the only officially recognised trainers

Immature industry apprenticeship system

People enter the industry without practical skills

New entrants to the industry are turned away because they don't have the required skills

Delivery of infrastructure-specific training is funded at a small scale

Contractors primarily recruit skilled people, or use labour hire organisations to offset risk

Requirements for employment are poorly defined

There is a critical skills shortage

To this

Supervisors are recognised as trainers to provide on the job training

A working apprenticeship model is developed and sustained

Practical, industry-specific skills are delivered prior to employment.

New entrants are sent to appropriate training to become work ready

Delivery of training is funded consistently. Funding is accessible to the right trainers

Career pathways are clear and accessible to new entrants

A clear description of skills and knowledge requirements for entry

A steady pipeline of talent is supported to enter the industry

Recommendations

The following are recommendations CCNZ and the Civil Workforce Forum proposes to address civil infrastructure construction workforce development challenges.

R1 Civil workforce development leadership

CCNZ to appoint a Workforce Development Manager to lead and develop the Civil Workforce Forum, Civil Trades and civil construction-specific workforce development initiatives and engagement.

R2 Connect industry with schools

Industry, education and government should partner to establish an industry-recognised programme for engaging with schools that can be templated, shared with contractors, and used as an avenue for new entrants to enter the industry with job-specific skills and an understanding of work site expectations.

R3 Government funding for industry-specific education

Government must adequately fund programmes delivering nationally civil trade skills to meet the needs of the industry. In turn, industry should engage and partner with tertiary education to consider how Te Pukenga and private trainers can support civil infrastructure construction as an aspirational career pathway. Programmes such as MSD's Skills for Industry programme that are currently working well must continue. Agencies and regional skills hubs that facilitate training and support people into employment should be supported.

R4 On the job training

Funding mechanisms and incentives for civil construction employers need to be established to support and deliver on-job training, leading to a skilled workforce and recognition of competent Civil Tradespeople.

R5 Support and embed Civil Trade Certification

Civil Trades represents the aspirational career path. Trade certification should be supported and promoted by the industry and clients as the professional standard for civil construction workers engaged and supervising construction activities

R6 Clarify social procurement

An agreed approach between the construction industry and clients is needed for social procurement to work as intended.

R7 Work readiness

Support long-term programmes, embed new technology in industry training, retain learning from short term trials, consider opportunities to overcome systematic barriers.

These recommendations are described in more detail ahead.

R1

Civil workforce development leadership

CCNZ to appoint a Workforce Development Manager to lead and develop the Civil Workforce Forum, Civil Trades and civil construction-specific workforce development initiatives and engagement.

- to lead civil construction workforce development initiatives
- to better connect training programmes with industry
- to provide leadership on the workforce development challenges the industry faces
- to drive and promote Civil Trades certification and qualifications framework
- to act as an information conduit with CCNZ members on shared workforce and industry training initiatives



R2

Connect industry with schools

Industry, education and government should partner to establish an industry-recognised programme for engaging with schools that can be templated, shared with contractors, and used as an avenue for new entrants to enter the industry with job-specific skills and an understanding of work site expectations.

- Ensure appropriate skills are delivered at school level, and students can upskill and follow an established pathway to a job and career.
- A consistent civil construction trade skills programme for schools should be developed and embedded, supporting driver's licencing and other key entry skills and knowledge. Ideally, some civil trade skills should be delivered through this programme.
- A national mechanism should be developed to help and encourage companies to engage with their local schools. This includes involvement in programmes and where possible providing work experience.
- Agencies that provide this brokerage service need to connect with civil construction specific employers, and vice versa.
- Consistent processes and work experience programmes tailored and suitable for industry should be developed and shared with contractors and schools. This should include a shared template that provides practical, hands-on skills and an idea of how much employer time and involvement is needed.
- CCNZ branches should support and encourage development of local school-contractor relationships.
- Any programme established should connect through to further training or employment.



R3

Government funding for training

Government must adequately fund programmes delivering nationally civil trade skills programmes that meet the needs of the industry. In turn, industry should engage and partner with tertiary education to consider how Te Pukenga and private trainers can support civil infrastructure construction as an aspirational career pathway.

- Work with Te Pukenga to establish practical civil construction training delivery at polytechnic for Infrastructure Works Level 2 and 3 qualifications. The aim should be to provide a pathway for school leavers and unemployed to gain the skills required to enter employment in the industry.
- Recognise courses that offer value, and connect in pathways for people on these courses to get work experience while training and employment following their courses.
- Continue to support programmes, agencies initiatives and regional skills hubs that facilitate training and support people in gaining the skills they need to be successful in employment.



R4

On the job training

Seek funding mechanisms and incentives for civil construction employers to support and deliver on-job training, leading to a skilled workforce and recognition of competent civil tradespeople.

- Industry to work with government agencies to develop frameworks and funding models that support civil companies delivering on the job training towards civil trades qualifications
- This should include establishing managed apprenticeships, similar to other construction industries.
- Those delivering industry-specific on-job training need access to consistent up to date resources and support. This supports consistent industry induction.
- Te Pukenga, Connexis and the Waihanga Ara Rau Construction and Infrastructure WDC need to ensure that workbooks and repositories of knowledge are available to company training managers, supervisors and trainers.
- This should include consideration of consistent industry induction process and functional training management systems that companies can choose to adopt.

- Work with Te Pukenga to provide funding and support for Infrastructure level 4 qualifications that includes off site theory training and supporting on the job apprenticeship training.
- There is a clear business case for an accessible whole of industry Learning Management System, matched with industry qualifications and competencies. This would considerably reduce the cost of training and assessment systems on companies, and would allow for much greater clarity around training and development.



R5

Support and embed Civil Trade Certification

Civil Trades represents the aspirational career path. Trade certification should be supported and promoted by the industry and clients as the professional standard for civil construction workers engaged and supervising construction activities

- Industry, clients and Waihanga Ara Rau Construction and Infrastructure Workforce Development Council must work together to ensure the Civil Trades qualification framework is sustained and continues to provide professional trades standards and inspiring career paths for the civil workforce.
- CCNZ must work more closely with existing civil tradespeople to understand their needs and how Civil Trades can better deliver and support them as masters of their trade.
- Civil Trades requires considerably more effort and resource to align with other industry trade certifications.



R6 Clarify social procurement

An agreed approach between the construction industry and clients is needed for social procurement to work as intended.

- Industry needs to collaborate with central and local government to build understand the drivers of social procurement and advise practical ways for social procurement can be implemented.
- A cost line, practical guidance and KPIs are needed for how employment and skills development initiatives can be put into action in civil construction as a funded part of day-to-day business, rather than a clip-on or PR exercise.
- Industry should work with client organisations to establish and embed a national working tool kit for procurement policies that incentivise and encourage companies to engage in meeting social procurement policies, in particular employment and development of new entrants and the disadvantaged.



R7

Work readiness

Support long-term programmes, embed new technology in industry training, retain learning from short term trials, consider opportunities to overcome systematic barriers.

- Government should support skills hubs and others career broker agencies to provide consistent long-term programmes and funding in all regions that connects in with industry.
- A lack of people entering the workforce with their driver's licence is a huge barrier to entry for work. Industry needs to discuss better work-based driver licensing requirements and endorsements, providing avenues that recognise site health and safety requirements a training framework from this discussion.
- New technology for training is entering the market – including simulators, virtual reality and electronic learning modules. Information on the best use of these new technologies should be collected and shared to reduce the learning curve and reduce costs for companies and training programmes introducing these technologies and improve training productivity.
- Successful programmes supporting people to gain work-ready skills, such as the Ministry of Social Development's Skills for Industry programme and the MBIE Skills and Jobs Hubs must continue and be supported to deliver work-ready skills to more people in a way that connects with industry.



Research findings

The findings of this research project are documented ahead. Key findings include

1. A crisis spurred on by a changing labour market
2. Unclear pathways to enter the civil construction workforce
3. Training programmes find it hard to scale up and connect with industry
4. New entrants to the industry are not work-ready
5. Schools do not give people the right skills to succeed in infrastructure construction
6. The level of investment required to start a sustained training partnership is high
7. Social procurement is not well understood
8. Civil infrastructure construction is a high-performance, demanding industry
9. Few programmes share success or templated approaches widely
10. Contractors aren't widely supportive of external training programmes
11. Funding for the delivery of practical hands-on training is needed
12. New technology can improve efficiency and effectiveness
13. Developing leadership is key

1. A crisis spurred on by a changing labour market

The labour market has changed drastically following the recent COVID-19 pandemic. A low unemployment rate and inability to employ migrant workers means emphasis on training and employing new entrants from within New Zealand is critical. Government has also stated it intends to change migration rules to focus on improving skills within New Zealand rather than employing migrant workers for the foreseeable future.

This is a real challenge for a private sector-based industry typically focussed on hiring skilled tradespeople with five to ten years of experience from offshore to meet demand where necessary – such as following the Christchurch earthquakes. Coupled with an unemployment rate of 3.4 per cent⁷, this indicates there may not be many unemployed people to develop.

Emphasis should be placed on building better pathways for people to join the industry, quality training to improve skill levels and efficiency, efforts to retain the existing workforce and expand to accommodate more diverse groups (including more women) and use of technology to maximise project efficiency.

Accommodating a more diverse workforce is widely recognised as part of the solution. But before the industry can succeed in employing a more diverse workforce the current education and vocational training system must provide for everyone entering the industry - something that is not currently happening at scale.



7. Stats NZ, Labour market statistics: September 2021 quarter

2.

Unclear pathways to enter the civil construction workforce

Pathways for new workers to join the civil construction industry are unclear. The secondary school education system does not currently train or prepare people for civil trades work at any scale, pathways to enter the industry through the tertiary education system aren't operating at scale, and contractor recruitment of new entrants is usually done by word of mouth rather than cadetship programmes. This makes it very difficult for people to understand how they can join the civil construction workforce.

The majority of employers mentioned their most reliable method of hiring new entrants to the industry was word of mouth or labour hire. By hiring someone who was a family member or friend of someone in the company, they could be more assured the person would stay with them.

Civil Contractors New Zealand is working to address this issue with its EPIC Careers in Infrastructure career promotion campaign, and through establishing partnerships with government, schools and support agencies to better connect career seekers with opportunities.



3.

Training programmes find it hard to scale up and connect with industry

Several contractors and support agencies operate training programmes, however many of these programmes are not operating at scale. Pilot programmes are often viewed as unsuccessful because they are short-term.

Most companies can only take on a few new entrants or apprentices at a time, and this constraint is imposed by the number of staff at supervisor or foreman level as these staff are expected to supervise and train the new entrants.

The number they can take on and train is also restricted by certainty of forward work, availability of equipment and capacity of the supervisory staff to provide the on-job training and verification requirements that lead to qualifications.

“ The most important thing is the mentor, buddy or supervisor. That person is the critical success factor. We need to keep the next step in front of the person and support them so they can see and reach for the goal”

– HR Manager, Southland



4.

New entrants to the industry are not work-ready

Contractors are obliged to manage significant risks of construction, including protection of staff on hazardous work sites and protection of underground services such as internet cables and gas pipelines.

The risk involved in the work means they find it difficult to take on new entrants as field workers, as because they want to understand the person they are employing. Because of this, many new workers joining the civil construction industry gain their first work experience through labour hire companies, which are often used as a 'try to buy' service where the contractor can get to know prospective employees and assess their practical skillsets before hiring them as recruits.



5.

Schools do not give people the right skills to succeed in infrastructure construction

Even if a school leaver finished their education with the highest possible marks, they would still leave lacking the skills and knowledge required to achieve an Infrastructure Works Level 2 qualification.

The majority of school leavers graduating from secondary school are not ready for entry into the civil industry. They do not have driver licences and aren't prepared for the nature of the work. More work-ready programmes are needed to train civil construction-specific skills and develop students to the next level ready for the work.

Current programmes are limited to isolated memorandums of understanding between individual schools and contractors. There needs to be a consistent, visible and well-funded schools programme that connects with industry around the country. This is the start of the career path towards civil trades and personal development.

“ We need a nationwide structure for how people to get into the civil construction industry. It needs to address those who are struggling with the school system and give a basic understanding of how to be safe on a work site.”

– General Manager, Otago



6.

The level of investment required to start a sustained training partnership is high

Civil contractors invest significantly in training once people join the workforce and are established as a contributing member of a company, sometimes spending tens of thousands of dollars each year on training a single new person.

Some companies are currently spending hundreds of thousands of dollars on complex systems and training programmes to intake workforce and measure training and competency for those who operate their equipment, which is sometimes worth hundreds of thousands - or even millions - of dollars. But apart from the programmes operated by the largest companies, these intakes are often small-scale.

Tertiary education, private provider and MSD-funded workforce intake programmes are also limited in their delivery scale by the cost of machinery and supervision.

Community programmes run by Jobs and Skills Hubs have found success by working with people to help them understand the opportunities on offer, and upskill to become employable. An example is the Northern Skills and Jobs Hub in north Auckland, which helped



7. Social procurement is not well understood

The *Government Procurement Rules (4th edition)* were revised and released with specific provisions for community outcomes in terms of workforce and training, which are compulsory for large government infrastructure projects and encouraged for all other infrastructure projects.

Social procurement sets terms for on-job training to be funded as part of day-to-day business. The benefits for government clients are that a skilled workforce can be developed locally, improving industry capacity and capability. The benefits for contractors are that they have a skilled workforce to deliver at a high level of quality.

But many clients are asking for the outcomes without providing any funding to achieve them. Contractors are also having trouble adjusting from the lowest-price conforming model, and are concerned if they embed training outcomes into their contracts, they will lose contracts because their tender prices are higher than their competitors.

“I agree with the intent, but I disagree with the level of commitment. It seems reasonable to expect social procurement would be a commitment from clients to fund training and development for the workforce, but we’re finding it reverts to price... The stated intent is one way, but there doesn’t seem to be any practice.”

– Chief Executive, Canterbury



8.

Civil infrastructure construction is a high-performance, demanding industry

Generating a long-term sustainable skilled workforce is identified as the biggest challenges facing NZ's civil construction companies. The industry is focussed on high-performance. The work required from the civil workforce is physically and sometimes mentally demanding.

There are safety risks, a high skill level is required to operate machinery, work weeks are long and demands to deliver high quality workmanship are high. The rewards and opportunities are high.

The fact is the work is not suited to everyone, but those who approach the work with dedication and commitment to develop their skills can have a rewarding and successful career.

This message is not presented to new entrants to the workforce or those who support them by industry, which commonly says 'all people need is a full driver's licence, a clean drug test and a good attitude'.



9.

Few programmes share success or templated approaches widely

With a clear work pipeline, contractors and government can invest significantly in training for new entrants to the industry. But training initiatives are often operating in isolation from each other, meaning industry and government are spending a lot of time and resource inventing and re-inventing programmes, rather than templating, sharing and embedding training programmes.

Whether successful or unsuccessful, the knowledge generated is not retained or accessible. Often the ability to deliver these programmes is limited to a single staff member, and if that person leaves, the programme stops.

Significant cost can be saved by recording and sharing successful programmes, and embedding this as the new normal across the industry. Examples include the Infrastructure Skills Centre programmes, which worked as a pilot throughout 2021 and innovative industry induction programmes.



10.

Contractors aren't widely supportive of external training programmes

Contractors are not supportive of long training programmes delivered by polytechnics and private trainers in general, favouring short block courses rather than half year or full year training courses, with the view that people gain more skill and experience from on-job training.

This is because the work civil construction workers perform is practical and hands-on. Workers learn by watching and doing, rather than listening and understanding classroom theory. Many contractors do not support training through polytechnics, with the view that any off-site training complicates things for the company and employee considerably, and the training delivered is not generally industry specific or fit for purpose.

“ From a compliance point of view, there is so much you need to do to ensure compliance. To be a responsible employer, you need to know your team is working safely and understand exactly how people have been trained on a task. Quality is important too – and on-job trades training helps with that. Because of that, the on-site model is preferred.”

– Managing Director, Auckland



11.

Funding for the delivery of practical hands-on training is needed

Civil contractors train staff extensively. Many invest tens of thousands of dollars in training a single person. But they are highly selective about who they employ as their business and their clients must absorb the cost of training, and the person is likely to be responsible for expensive equipment worth tens or hundreds of thousands of dollars, or equipment that can cause significant damage if used incorrectly.

Private trainers deliver successful and appropriate hands-on training. But these trainers are not connected with the education system, and outside of programmes funded by the Ministry of Social Development and training delivered by civil construction companies or private trainers, training for new entrants to the industry to provide the people or skills needed to perform coming infrastructure work is not widely funded or delivered.

Many government education providers have significantly underestimated the training needs and the significant investment required for a new entrant to be work ready for years. Training costs are anecdotally around \$8,000 for Infrastructure Works Level 2 and \$16,000 for Infrastructure Works Level 3.



12.

New technology can improve efficiency and effectiveness

Contractors are investing in new technology to showcase and onboard staff. Some contractors have purchased simulators and developed training programmes using them to reduce emissions, reduce risk, simulate complex projects and improve the skill level of their operators.

Virtual reality is also entering the frame to support workforce intake and introduce people to the tools and tasks they may be required to use on the job. An example is Skills for Industry virtual reality programmes for earthmoving and traffic control, developed by the Ministry of Social Development in partnership with industry. E-learning modules are also beginning to find uptake.

Many of the new technologies being used for training are in trial phase and at the early point of entry into the market, rather than embedded into industry training. There is potential for these technologies to be put to good use as a pre-employment assessment tool to improve intake capacity, and a tool for skills development. This requires investment and a sharp learning curve.

“The simulators are a big investment, but we think it is a good one. We recognised the need for more training without disrupting production and work sites. They also allow staff to have more training time and build their skills.”

– HR Manager, Auckland



13. Developing leadership is key

There is a shortage of skilled workers for the current infrastructure investment. Demands on an aging workforce, a severely restricted number of young people entering the industry, and restricted immigration means the industry is facing a workforce crisis as there are not enough experienced people working at supervisor level to allow many companies to scale up.

Contractors are desperately looking for skilled people with trade qualifications and experience. But this pool of people needs to be built from the ground up. Contractors are therefore recruiting from an ever-shrinking pool of skilled people, which is increasing project timeframes and escalating costs.

“If we really want to shift towards delivery of more training, we need to fund leadership development. This is really important as they are the trainers. Funding for leadership development would enable businesses to develop more people.”

– Training Manager, Canterbury



Entering Employment

Entry criteria for new entrants to gain employment are not clear

From interviews with employers, agencies and discussions at workshops it is clear that the entry criteria for a new entrant is not clear or well defined and has not been agreed upon collectively.

A demanding, high-performance industry

Civil construction is a skilled physical outdoor job similar to high-performance sport in many ways.

People entering the industry need

- Clear entry points where they can get training or a job
- Full class 1 driver's licence and transport to and from work sites, which are often in remote locations where there is no public transport. Higher classes of licence are an advantage
- The ability to manage the time and commitment the work demands
- Basic skills, plus commitment and time to develop more skills
- Support and coaching to address any of these things that aren't adequate

The skills employers want people to have prior to beginning work are

- The ability to stay safe on a civil construction work site
- The ability to contribute on a civil construction work site
- The ability to drive and transport themselves to and from work sites, which can be remote
- Punctuality and the ability to get up early each morning and be at work every day
- The ability to listen to requirements and learn from direct instruction
- Basic knowledge of the tools and equipment workers use in their jobs
- Basic understanding of job-specific concepts, such as soil compaction, drainage, machinery maintenance, timekeeping and financial management
- Respect for health and safety rules, and acknowledgement of the importance of safety on-site
- The ability to adapt to use different tools to address different materials and challenges
- Qualifications have been developed and approved and need to be a key part of the development of the new construction worker. These are Infrastructure Works Level 2 for new entrants or school leavers, and Infrastructure Works Level 3 for skilled field workers developing plant operator skills

Encouraging diversity as the new normal

The civil construction industry traditionally employs significantly more men than women.

Many companies see the benefits of employing a more diverse range of workers, and 50 per cent have specific efforts in place to support a more diverse workforce in their business, with 41 per cent looking to create new initiatives to recruit and support a more diverse range of staff.¹

The industry has historically employed a large number of Māori and Pasifika, and many companies have significant programmes in place that incorporate cultural values into their practices. Some businesses have incorporated diversity certification programmes, for instance Rainbow Tick into their business practices, although these are more likely to be large corporates with well-resourced human resources departments.

Diversity in a broader sense based on neurodiversity, physical ability, sexuality or gender orientation is less well understood. While civil construction companies may not discriminate against people based on these factors, many of the entry level trade positions require a high level of physical strength and fitness for sustained activity over long periods of time, so this will be a factor in how they assess new workers, although as new technology enters the market this may become less of a factor.

Several initiatives are in place to gauge current construction industry diversity practices and overcome barriers to entry and retention for a more diverse range of staff, in particular, the Construction Diversity Roadmap project currently in progress and led by the Construction Sector Accord and Diversity Works New Zealand. Significant efforts are also happening to showcase opportunities on offer to young women who may consider joining the industry, including Women in Trades, Girls in Infrastructure, and Girls with Hi-Vis.



1. *Construction Industry Survey 2021*, p18, 21, produced by Colmar Brunton for Civil Contractors New Zealand and Teletrac Navman

The unrecognised skills of the civil worker



Team worker

Adaptable

Follows instructions

Spatial awareness

Follow routines

Safe worker

Drug Free

Safety awareness

Arithmetic

Timesheets

Practical technical knowledge

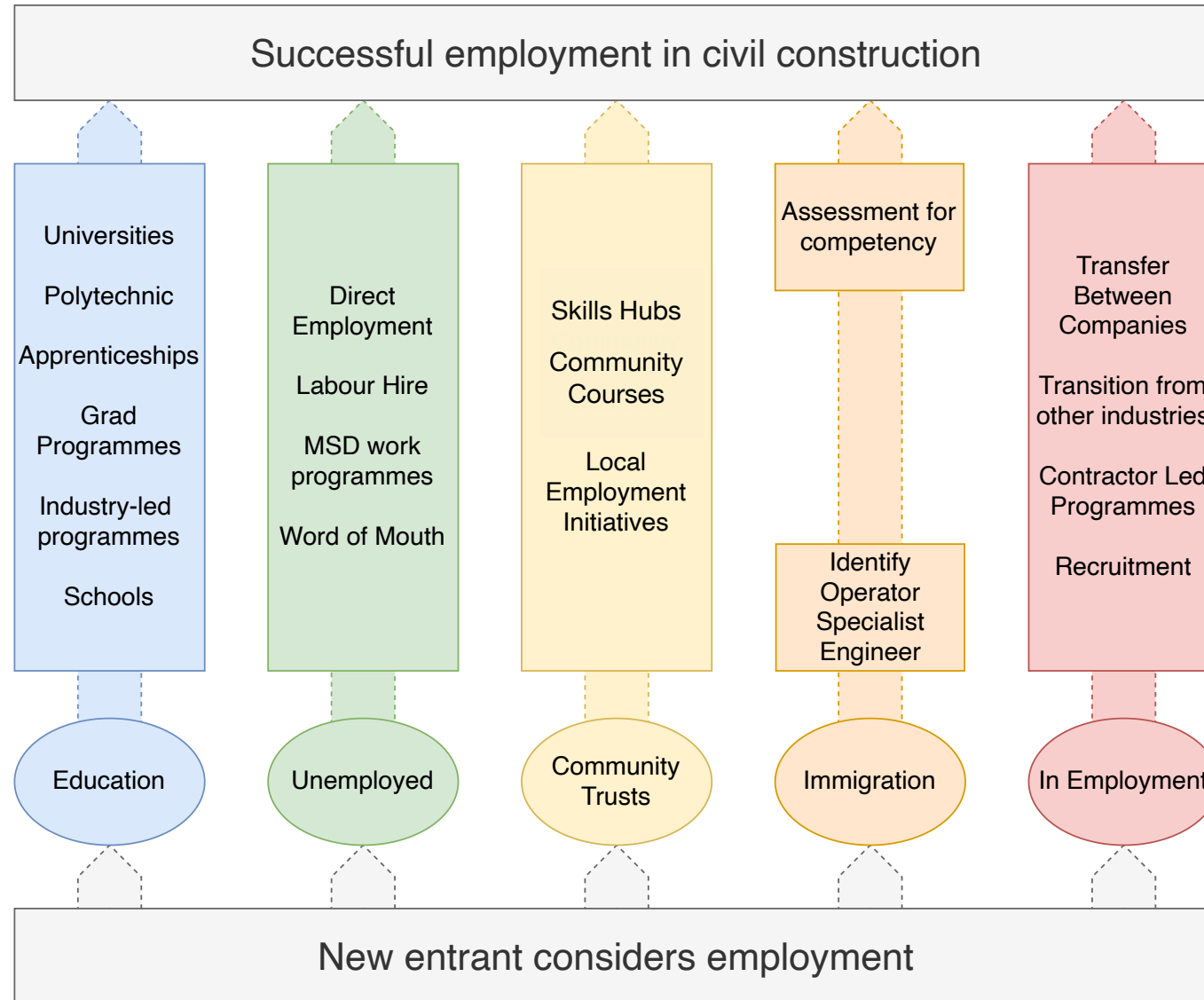
Able to work hard in challenging conditions

Resilient to long work hours

Licences Class 1, WTR

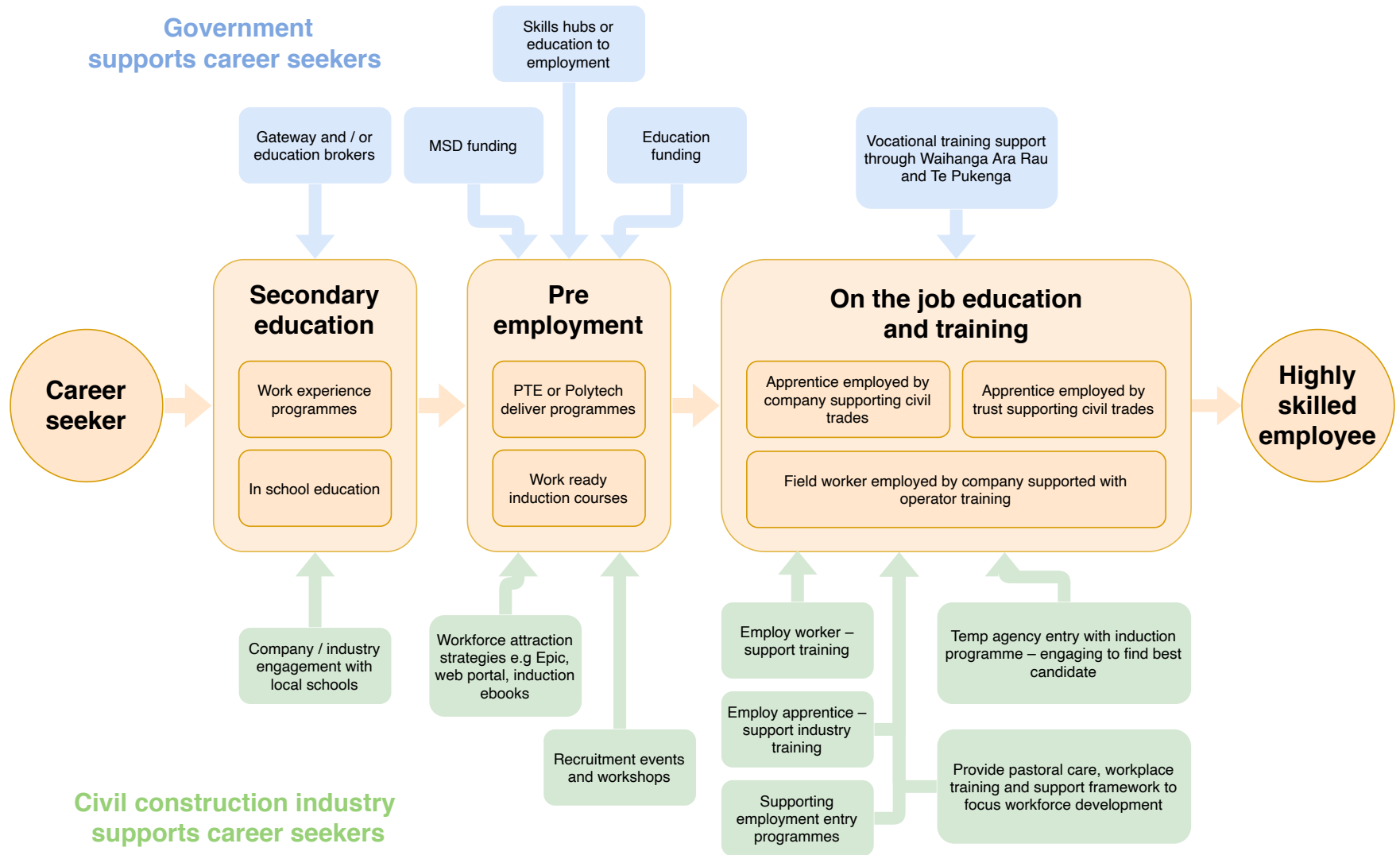
Digital literacy

What are the entry points to civil construction?



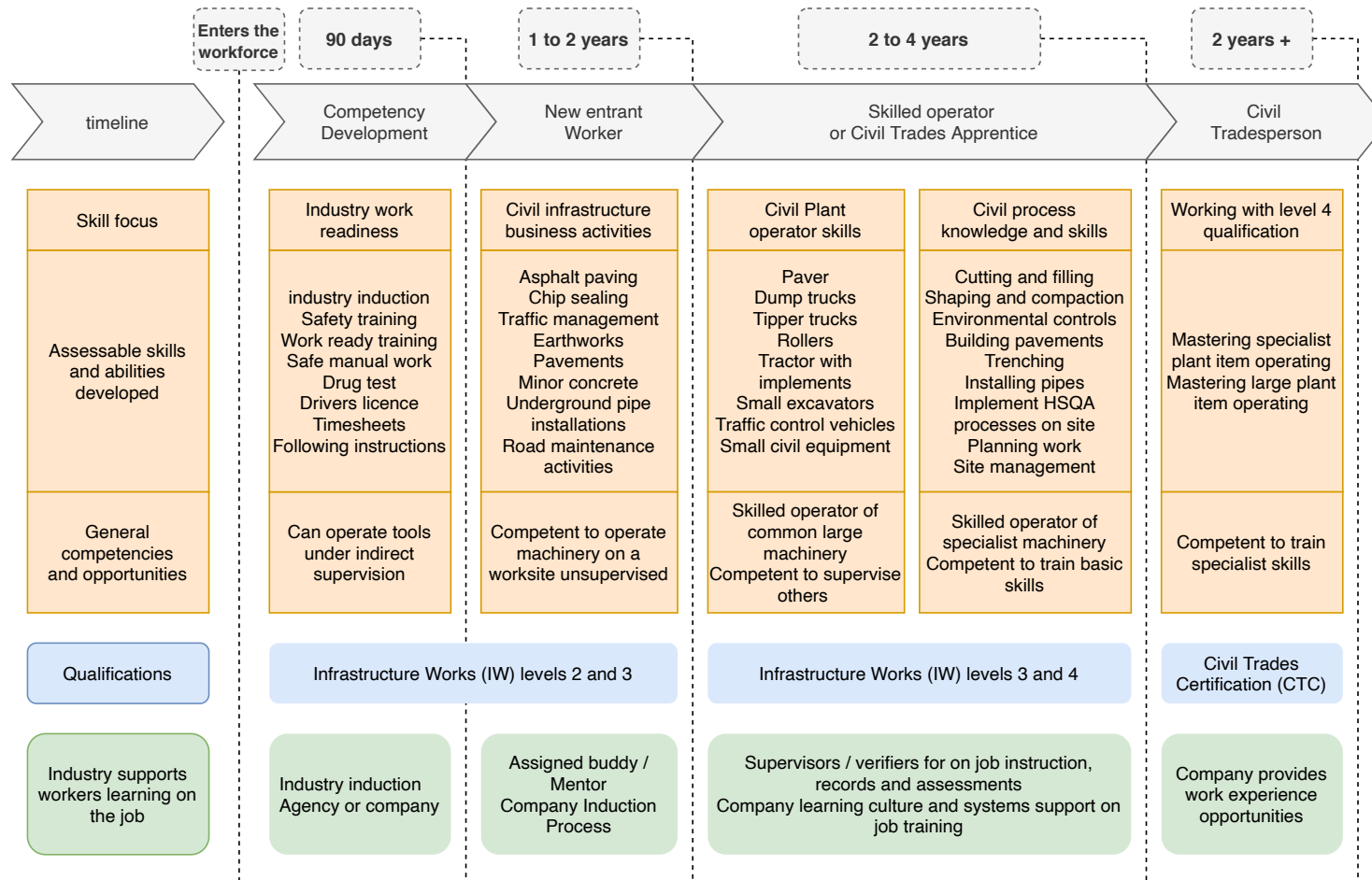
Career seekers need targeted support

Support must come from government and industry and be tailored to each stage of a career seeker's journey



It takes 4–8 years in the industry to develop a skilled Civil Tradesperson

To be successful, a programme of work is needed to set people on the career path from entry points to becoming skilled tradespeople.



Barriers to taking new entrants on board at scale

Qualifications and training split

While the degree and diploma route to entering the industry as a civil engineer is clear for new entrants and their advisors, the trades pathway is currently broken. Delivery of trades training is largely unfunded, appropriate skills aren't delivered through the school system, and the vast majority of workers do not enter the civil trades directly through the education system.

Cost of machinery, equipment and supervisory staff

On-job training costs include supervisory staff, trainers, equipment, productivity costs, and risk. For a new person to gain the skills they need to contribute safely on a work site and learn the job properly also takes a significant amount of supervision from senior staff members. Because of this, contractors have a low capacity to take on new staff as this represents a significant investment for their company. And companies cannot accept the risk of untrained people on site unsupervised.

Six months to productive contribution

Training new entrants to work in the civil trades is resource-intensive and comes at significant cost to employers. Anecdotally, it takes roughly six months for a new entrant to the industry to contribute meaningfully to a business they join, as opposed to incurring training and induction expenses. The key qualification for people to start work in the industry is Infrastructure Works Level 2.

Existing programmes

There are several programmes providing a successful workforce induction and supporting people to become work-ready, however these are largely funded for people who are long-term unemployed and require significant pastoral care to contribute to the workforce. Unless they are supported in employment, these people may have a lower retention rate and require a significantly higher investment than people who would enter civil construction directly. Anecdotally, company investment in induction training and worker support has achieved a higher retention rate for companies that build this into their businesses, and also shortens the time before a worker contributes financially to the business.

Industry induction

To be productive on a work site, a person must undergo industry induction. This process involves building familiarity with complex work sites, extensive safety practices and tools that people are not trained to use outside of the industry, for instance plate compactors.

Taking on new entrants

There are differing philosophies to taking on new staff. Some contractors outsource the initial risk to labour hire companies, and take the majority of new trades staff on as temps to try them out before hiring. Some contractors refer to this as a 'trial period', and rarely hire direct.

Contractors are highly selective about the people they employ as they train highly skilled operators for heavy machinery. These companies have heavily invested in systems to train and recognise competency across different equipment and terrain types. Often larger companies will ask for a CV and two references, creating an insurmountable hurdle for new entrants that do not have any practical skills or experience.

Addressing the key issues

How do we address the challenges the civil construction industry faces in onboarding new entrants? Interviews and discussion forums identified several key challenges.



Limited connection to the schools system

Most secondary schools are disconnected from entry to civil trades. The entry path for people to join the industry is unclear to those who would take up the tools of the trade, or those who advise them. New entrants to the civil trades do not gain the skills they need at school, see civil construction as a career opportunity or get introduced to entry points.

There are two keys to addressing this challenge. Firstly, civil construction skills such as soil compaction and operation of machinery such as plate compactors, excavators or even simple tools like shovels is not taught at schools.

Few relevant civil construction trade skills are delivered through the school system, and trades academies are not delivering civil-specific entry programmes.

Even if someone graduated from school with the highest mark possible, they still would not have fulfilled the basic requirements of an Infrastructure Works Level 2 qualification. There are limited opportunities for school graduates to gain the skills required unless they gain employment.

This means most people enter the civil trades without relevant skills, knowledge, or qualifications. And they can't gain employment unless they have the skills to work – a catch-22 situation.

Secondly, understanding of the work is poor. Because there are few connections between school and the industry, students don't understand

the opportunities in the civil trades, know the work exists, or have access to opportunities.

Civil construction is often seen as a career of last resort for unsuccessful students because it is not connected to the education system and students are not presented with the civil trades as an option. Because of this, demand for further training at tertiary level is low, rendering the competitive and demand-driven education model of the past decades inoperable.

There are limited number of contractor-led programmes aimed at providing the skills required at school. However, most intake events are one-day type events rather than offering practical work experience over a period of months as an entry to employment.

Contractors are aware of the need, and sometimes speak at schools or engage in one-off work experience, but the lack of a templated approach or an understanding of time commitment required means there is a lot of uncertainty, and most approaches are sporadic and do not deliver significant value for students or contractors.

Some exceptions exist, including regional cadetship programmes led by large contractors, or school partnerships led by local contractors or alliances.

These challenges needs to be addressed with programmes that introduce students to key knowledge of work site requirements and equipment used to perform the work, as referred to in recommendation R2, above.

“ When we have completely unskilled people coming to work without any awareness of what’s expected, it’s hard work for them, and it’s hard work for us. What we need is a nationwide structure and programme for how to get into the civil construction industry so people can understand basic tools, be safe and know what’s expected of them on a worksite.”

– General Manager, Otago.



Industry employers are generally unclear about the entry criteria for a new entrant.

Most employers will say “all people need to join the industry is a full driver’s licence, a clean drug test and a good attitude”. This is an unclear statement and doesn’t set expectations of what skills are required and where people can go to obtain the skills they need to work.

Civil construction companies want to employ skilled operators. But many are not investing in comprehensive training for new entrants on the job unless these people demonstrate willingness and aptitude. The exception is when funding is received from MSD or other government agencies, which enables contractors to deliver more comprehensive training programmes for specific groups.

This lack of clarity around who is ‘employable’ is making it difficult to scale up the limited pre-employment programmes that exist. Some regional initiatives and polytechnic courses provide pre-employment training. But these are not operating at scale. Often the only way to get funded training prior to employment in the industry is through a Ministry of Social Development or Te Puni Kokiri funded training programme, delivered by a private training company, meaning the aspirational carer path is not open to many people.

The new vocational education reforms are an opportunity to address the need for better industry induction and training programmes to raise awareness and deliver skills. The industry will need to have a strong and informed voice to ensure it can attract the investment needed to develop the number of new entrants that need develop the skills required work safely and productively.

This key issue can be addressed with the leadership approach proposed in recommendation R1, funding for programmes proposed in recommendation R3 and broader sharing of on-job training knowledge, as proposed in recommendation R4.

“ We’d look at someone with no training if they wanted to work, as long as we were convinced they could be drug and alcohol free on our work sites. We’d look at their work history and the duration of the jobs they have held. But really it comes down to whether we’re convinced they will stick around, and whether they are someone we can work with and have the right personality.”

– Managing Director, Auckland

An immature apprenticeship system

Apprenticeships are embedded as a part of other trades industries, for instance plumbing, residential building and electricity supply. The apprenticeship structure for civil construction is newly developed, and still needs a significant amount of work to embed as part of industry.

Civil Trades apprenticeships and Infrastructure Works qualifications are new and the apprenticeship pathway is still connecting in with employers. Clients and employers need to support the civil trades qualifications as key standards of professional competency. The benefits are to provide career paths that are attractive, provide recognition for the skilled work civil construction workers provide.

While large companies may be able to offer apprenticeships at scale, this is a challenge for small to medium companies, who may not be able to fulfil all the requirements of a qualification on their work sites alone.

Because of this, some companies partner with subcontractors or head contractors to be able to fulfil some requirements.

Considering how to retain apprentices is also big challenge for civil construction companies. An apprenticeship lasts years, but projects can only last weeks or months. Committing to take on an apprentice is therefore significant, and many companies are reluctant to do so if they cannot be sure they will have work for the apprentice when the current projects on their books are completed.

Because of this, a business model for a civil construction specific managed apprenticeships programme or trust must be considered, as this will enable companies to employ apprentices without the risk they will be unable to employ them for the whole of their apprenticeship.

This key issue is addressed with the actions proposed under recommendations R4 and R5.

Civil Infrastructure Qualifications – Enrolment and Achievement Numbers

Total enrolments each year for each qualification and achievements

Qualification	2018		2019		2020		2021	
	Enrolments	Qual Awarded	Enrolments	Qual Awarded	Enrolments	Qual Awarded	Enrolments	Qual Awarded
Infrastructure Works Level 2	111	156	81	93	91	87	280	50
Infrastructure Works Level 3	97	125	99	76	180	53	282	71
Infrastructure Works Level 4	887	609	795	671	1496	669	1859	561
Civil Trades RPL	282	377	318	330	542	285	601	297
Civil Trades Apprentice	167	23	516	23	967	278	1235	367

Contractors want people to learn in real-world situations rather than classrooms

On the job training is primarily delivered by supervisors or team leaders who are often not formally developed or recognised as trainers. Supervisors don't have access to the training material that supports on job training towards qualifications.

Companies take on a limited number of trainees each year due to the high cost and the uncertainty of the work. A number of companies have stated they often go to the expense of training a person, only to find they leave to work for another company for a company that hasn't paid for the training but can afford to pay a few more dollars in wages.

“ Off-site training through the education system is disruptive for business. We prefer the on-site model, which works well when it is understood and built into a business. But where a lot of businesses fall over is that they don't understand it is a two-way conversation and they need to do the work to embed it within their businesses.”

– Managing Director, Auckland

The industry is increasingly being asked to employ more diverse workforce

Companies understand the need for more workers can be addressed by employing more people who have not traditionally entered the civil construction industry as workers. Companies are keenly aware of the need and opportunity to employ more women. There is a lot of enthusiasm amongst companies to employ more women, although change is gradual.

They are also being asked to employ more Māori and Pasifika, although these groups already make up a very significant portion of the civil construction workforce and many companies already exceed the employment thresholds for these groups that procurement initiatives are looking to set.

Government procurement, and government funded programmes are increasingly funding training programmes for workforce diversity, company and the industry culture and the extent to which it supports and nurtures diversity. Some contractors have entered successful industry-government partnerships in this space.

Social procurement is not well understood or consistently implemented

A better understanding of how to implement social procurement initiatives is needed between clients and contractors so this can be used as a way to bring new people into the industry. Rather than viewing social procurement as a clip-on, it should instead be used to support and fund existing training pathways, providing greater training capacity as part of day-to-day business.

Employers will also need to look at their business models as clients are increasingly asking for employment of women, Māori and Pasifika. A significant proportion of the civil construction workforce is made up of Māori and Pasifika and many civil construction companies already meet or exceed the employment numbers suggested in some of these initiatives.

Creating environments where new entrants receive the pastoral care, mentoring and structured on the job training towards relevant civil trades programmes.

New social procurement guidance released for clients in November 2021 may help with clarity, but how this is put into practice by industry will require significant engagement to make sure social procurement initiatives are practical and deliver the outcomes that are intended.

“It’s very hard to put social procurement on a line in a contract. We could use it to bring more people on but cost and risk are a major barrier. It’s often put in tenders or contracts as a general statement without a cost line. We need to recognise costs of training a person in procurement. If nobody is funding it, it shouldn’t be in there.”
– HR Manager, Southland



Industry induction

Companies take on and develop new entrants in different ways

There are competing philosophies around onboarding people in civil construction.

More than 50 civil construction companies were interviewed, with some great examples of successful new entrant recruitment and training. Many companies are providing well developed systems and pastoral care for new entrants to enter the industry and find opportunities to establish a civil trades career with the company.

The approaches are diverse. Some companies offer cadetships, others try and form relationships with schools or the Ministry of Social Development.

Companies make a significant effort to understand a person's character, lifestyle and personal needs is often needed for new employees. Pastoral care requirements are significant. Employers understand this and frequently use labour hire as an entry point to filter out people who need a lot of support.

There is a common process followed by companies, anecdotally described as follows.

- The candidate is assessed at the interview stage.
- If a new entrant to the industry, the company needs to educate on site health and safety requirements and basic job skills from scratch as few practical skills for tools use and maintenance are delivered before people join the industry.
- Companies rigorously assesses a person at interview stage or take a person on after labour hire to offset risk as they are aware a new entrant to the industry costs the company money in terms of supervision time, training and the amount of work the person can reasonably be expected to perform.
- The company trials the person for six months prior to offering an apprenticeship or career development plan based on that person's skillset and aptitudes (this is mostly employer-driven rather than employee driven as the employer makes the investment decision).

There is a lot of evidence that smaller companies spend a significant amount of money on developing their people. Often their competitors are companies who do not spend money on training, and are able to use the money they save to raise wages to 'poach' skilled workers from companies that do train staff.

Labour hire

Labour hire companies are an intake path for many new entrants, and some contractors only use labour hire for new entrants to the civil construction workforce, so they are taking on people with some skills and knowledge, as well as exposure to the work environment.

In some regions, companies take on new entrants primarily through labour hire and do not direct hire. This acts as a trial period reduces risk since the 90-day trial was done away with, but it also increases cost. Some labour hire companies operate on a ‘hire to buy’ relationship, with the goal of placing people in a full-time job after some time working for the company.

While some labour hire companies invest in upskilling people to the point of offering apprenticeships to some of their workers, this is not always the case. Other companies are said to keep people unskilled (or without recognition of their skills to keep wage rates down. The approach often depends on the philosophy of the labour hire company, and the willingness of clients and contractors to pay for training.

The challenge is to get training of people moving forward and ensure labour hire workers can gain skills on the job and use this career entry point well. There are recognised costs of labour hire, so differentiating how training costs are recognised in labour hire are rated is the key in this space.

Labour hire is by default acting as the industry’s entry point and training ground in many situations, however this takes time, adds cost, and is often not adequately resourced for this reason.

Challenges for school leavers

The majority of secondary school leavers are not ready to be employed in this industry. Some key statistics are that only 12% of school graduates will have a class 1 restricted licence. It will take a minimum of 18 months to get a full class 1 licence that is the minimum criteria for obtaining wheel tracks and rollers. Without transport to work sites that are often remote, they are unable to work.

It is expected school leavers have an NCEA level 2 or 3 qualification when they leave school. But even if they complete school, no school leavers leave school with the job-specific skills relevant for an Infrastructure Works Level 2 qualification, let alone level 3. This means nobody is prepared to work in infrastructure when they leave school.

“Some clients are happy to pay for quality, but usually only after the people have been working on their sites and they can see the difference. Training and upskilling of people is not recognised in the rates, and a lot of the companies don’t have an appetite for increasing costs.”

– Business Development Manager,
national labour hire and recruitment
company

If the student has not been part of the Gateway programmes specific for the civil construction industry they will not have had any training or induction into the industry. If they have limited literacy or numeracy, they are even further on the back foot. They will also not have any practical training in safety awareness, being safe on site, physical manual labour or working in construction teams and work environments.

Unless they are employed directly by an employer or labour hire company, they are unlikely to receive the training required to be work ready. If they want to attend one of the limited available polytechnic courses, they will need to be employed or sponsored as the equipment is costly.

“ We do use Gateway, but we have a small capacity for it. Young people can also come in on a fixed term. We’re going to a lot of school career days, and we will encourage young people into technical and engineering. We’ll hire you as a labourer because we see you becoming something.”

– People Development Manager, Waikato

Taking on the long-term unemployed

Another entry point is for a person to become unemployed and go on a Ministry of Social Development funded course.

There are many well-established training programmes funded by the Ministry of Social Development, which funds this training to help the unemployed transition to work. People in these programmes get the opportunity to decide if they want to join the industry and gain critical life skills for their future.

While MSD funds courses, it’s industry, or the employers and trainers to industry, who recruit and run the courses to industry requirements. Here they are likely to get funding support, good support in the life skills needed to do the work, and opportunity to attend some practical training to help gain the licences and training from private training companies – as well as support into a job and pastoral care to learn skills such as budgeting, meal planning, goal setting and other life skills.

This training varies from support to get licence endorsements, delivered by providers like Assess It and Kiwi Can Do, to four-week courses to give people basic site and machine operation knowledge.

Several contractors are well set up to help the unemployed join the workforce thanks to Ministry of Social Development, Te Puni Kokiri and local government programmes, including The Southern Initiative and some mayoralty funds.

Government co-funded workforce redeployment programmes

The government has also funded some workforce redeployment programmes through the pandemic. This includes ‘Skills for Industry’ funded programmes through the Ministry of Social Development, which has long-term industry partnerships with contractors, and supports social outcomes.

Some contractors run week-long induction training programmes for new entrant workers under this partnership, enabling new employees to gain skills faster and get exposed to a range of activities. This is often ‘awareness training’ rather than skills and capability training, and provides introductory knowledge for new workers to put their tasks in context of a project or outcome.



The importance of Civil Trades qualifications and the need for industry support

Civil Trades certification is relatively new to the industry. It was developed in 2015, and awareness of Civil Trades as a professional trade certification is still building.

It is important for an industry to have professional trade standards that every company works towards. A well developed and supported qualifications framework provides recognition and a sense of achievement for the person who holds the qualification. It sets a measurable minimum standard of professionalism and is likely to contribute to significant productivity improvements.

It also should provide opportunities for a long-term career people can aspire to. There is a significant cost to providing training and assessment required to develop a fully qualified Civil Tradesperson.

The pathway to Civil Trades needs to be fully understood and a commitment made by the whole industry in order for it to be a key part of the solution to the Civil Industry workforce development challenge.

Civil construction training is an industry of pilot initiatives without a coherent strategy

Outside of direct training delivered by companies themselves, there have been significant gaps between what industry and candidates require and what education agencies have provided in terms of training delivery.

There have been a number of good pilot initiatives set up by some companies and private training providers. Often these initiatives have been funded by MSD (funded industry induction programmes), MBIE (skills hubs) or Te Puni Kokiri for companies to pilot. These programmes are focussed on helping candidates become employment ready and achieving the basic knowledge and awareness they need to set them up for a successful career.

Recent examples of this are the National Driver Training Centre at Manfield (a Provincial Growth Fund project) and the Infrastructure Skills Centre, which is a partnership between Fulton Hogan, Civil Contractors New Zealand, the Ministry of Social Development and the Construction Sector Accord.

To date most pilot projects have been limited to a few companies, are regionally based, have a limited lifespan, and are dependent on the energy of the single person who got them started. Often the best outcomes are coming from the people who are doing the work directly with communities and contractors.

The opportunity and need in this space is to have a co-ordinated approach that scales up successful pilots regionally, and retains and supports the grass-roots knowledge of how these programmes are delivered from their front-line staff.



Induction stocktake

This section explores different types of programmes that deliver industry induction.

Programmes overcoming key barriers to entry for specific social groups

Current norm: Civil construction companies do not restrict Māori and Pasifika from being employed. The barriers are the same as any school leaver, with the added consideration of company cultures needing to provide the supportive cultures and providing pastoral care and support. Māori and Pasifika make up a large proportion of the existing civil construction workforce.

Some contractors have extensive, successful and specific programmes to onboard Māori and Pasifika, such as Downer's Whakatipu Tetekura programme. There are also several Māori and Pasifika employers and business directors who have a clear perspective. We need to make the most of the leadership we have in this space. There are opportunities in civil construction for people from all social groups.

Examples:

- The Southern Initiative
- Te Aratika Academy

Women in the civil trades

For many women, working in the civil workforce is not attractive. The key reasons are long and inflexible work hours, perceived work culture environments, physically demanding activities, and site hygiene factors.

Despite these barriers, women are in demand in many civil construction companies. Many companies see the opportunity and are working to help women join their teams and develop into skilled civil construction workers. Several industry-wide programmes are operating to try and showcase infrastructure careers to women and provide them with a pathway to enter the industry.

Examples:

- Women in Trades
- Girls with Hi-vis
- Women in Infrastructure

“Promote it as an industry of choice. Promote it to women. They keep the gear clean and have a real eye for detail. We'd love to get a few more women on our team.”
– HR Manager, Auckland

Delivering programmes through tertiary education

Current norm: Few programmes, operating at small scale. These programmes are not widely understood or supported by industry. Some polytechnics are trialling partnership models with industry, but this is the exception rather than the norm.

Infrastructure Works Level 3 is currently delivered at a small scale by Tai Poutini Polytechnic. This training seems to be largely fit for purpose, and should be adopted by Te Pukenga and offered across the country. However, the cost per student to be trained is significant.

A few polytechnics and private trainers in the regions have trialled delivering Infrastructure Works Level 2 and Infrastructure Works Level 3 in partnership with local companies and local secondary schools. Most of these programmes are trials, and do not operate at scale, accommodating about 12 students per annum.

The New Zealand Institute of Highway Technology has a national programme for Infrastructure Works Level 2 and 3 that covers the theory. The student then requires an employer to provide the required practical experience. The uptake for these programmes in 2021 was very low.

There is a lot of frustration amongst industry about learners being steered into classrooms rather than work sites, and little trust for educators. Many programmes do not result in direct employment because they lack practical physical skills delivery on a realistic construction site, meaning people need to be re-trained when they start work.

Some feedback from employers is that simulated work sites do not offer good practical experience, and people often need to be fully re-trained after classroom and theory-based courses.

At this stage it appears that no Polytechnic in the country is offering support and training for candidates to complete IW4 qualifications and manage apprenticeships towards Civil Trades qualifications and trade certification.

Up until now apprenticeships for Civil Trades and Infrastructure Works Level 4 have been managed by the Industry Training Organisation Connexis, alongside each company that employs the candidate. Connexis provides the qualification enrolment and award process and the workbooks to the candidate and some support in the way of follow ups from regional support staff.

The employer is required to fund and provide on-job training with verification from supervisors within the company and fund the assessor (who may be internal or external). The candidate requires security of employment throughout an apprenticeship in order to be successful.

For Civil Trades there are no managed apprenticeship models provided by trusts like the building construction industry has. This is an opportunity for the civil industry to consider further.

Examples:

- UCOL partnership with Tararua Alliance and local schools
- New Zealand Institute of Highway Technology at Western Institute of Technology in Taranaki
- Tai Poutini Polytechnic

Regional examples of agencies working together

Several communities are trying to resolve regional skill shortages with employment initiatives. These initiatives are aware of the employment opportunities on offer, and working to 'bridge the gap' to enable people to work.

These initiatives work to help people overcome the barriers to employment, and often creating their own industry-focussed workshops and entry level events.

The main examples of these are where skills hubs have been established by MBIE and MSD to address the predicted skill shortages where significant infrastructure projects are being undertaken. These are mainly in Auckland and recently the Manawatu.

In some regions local authorities are taking active roles working with local companies on initiatives to help school leavers in the communities to develop the skills to become employed locally. Some funding is provided through procurement initiatives and Mayoral funds.

The programmes are primarily a recruitment service focussed in finding candidates to work on the projects. There is some effort to provide entry level training. There is no visible evidence that the projects are providing measurable training and development for civil trade apprenticeships. Currently it is primarily up to the contractors and subcontractors to provide this and manage the costs and risks.

Examples:

- City Rail Link
- Te Ahu a Turanga Manawatu Tararua Alliance
- New Plymouth District Council Supply Chain Leadership



A new way of doing things – well-resourced infrastructure training hubs

Several companies, regions and clients are considering establishing well-resourced infrastructure training hubs to help overcome the skills shortage and provide people with the foundation skills they need to succeed in civil infrastructure construction.

A pilot Infrastructure Skills Centre was stood up following a Ministerial Delegation to Australia to investigate what a well-resourced infrastructure training hub looked like.

The Fulton Hogan initiative is an example of a six-week programme that provides the candidate the opportunity to achieve 80% of the IW2 qualification. This programme is funded by MSD and is aimed at providing employment opportunities.

Examples:

- Ministry of Social Development, Civil Contractors New Zealand, the Construction Sector Accord and Fulton Hogan partnering with regional employers to pilot an industry-wide training programme for the unemployed



Clients and social procurement strategies

Clients have a key role to play in encouraging workforce development and social employment within the construction contracting industry. Social procurement is being introduced by central and local government agencies. There are clear policies but there appear to be different approaches and tools applied to different regions.

Some processes appear to be meeting the desired objectives. Several contractors are hiring Social Outcomes Managers, who are tasked with building this into their businesses.

Evidence from some contractors is that it can just another tendering exercise and is often not achieving the desired outcomes. There is some evidence and feedback from leaders of Māori owned companies that we need more dialogue to achieve a better shared understanding of what is required, rather than imposed outcomes.

Other processes are not fit for purpose, and tacked onto projects as a community PR exercise rather than built into the business to fund training as a costed, measurable part of the work.

Procurement is a key success factor for ensuring the desired civil construction workforce development outcomes are achieved. A key component is certainty of work so that small to medium sized companies can sustain and invest in a developing workforce. The other component is a nationally consistent procurement process that will provide a level playing field that all contracting companies will commit to long-term.

At this stage, social procurement is collaborative rather than prescriptive – and perhaps that’s a good thing while clients and contractors are coming to terms with it.

Examples:

- Auckland Council Healthy Waters partnership
- Te Ahu a Turanga partnership with Conservation Volunteers, offering work experience to employment



Funding

Industry clients pay for training to have the resources to complete contracts for services

Tertiary Education Commission

- Funds vocational education to provide qualification administration.
- Limited funding for Polytechnics and private trainers to run specific training courses for qualifications.

Civil construction companies

- Fund employees tertiary enrolment fees and assessments for employees.
- Provide the on the job training and administration.
- Fund any external training providers and pastoral care.

Ministry of Social Development

- Funds programmes provided by private trainers and civil construction employers to train the unemployed, providing entry level skills required to be safe and productive on a civil construction work site.

Other agencies

- Other agencies provide funding for social initiatives. These usually require employers to develop programmes that meet criteria for specific social or ethnic groups.

Education reforms and the future

Do we know the size of investment required?

Education reforms and the future

The Reform of Vocational Education is well underway. The key steps of the reform are

1. Create workforce development councils
2. Establish regional skills leadership groups
3. Establish Te Pukenga
4. Shift the role of ITOs as workplace learning support to Te Pukenga
5. Establish Centres of Vocational Excellence (COVEs)
6. Unify the vocational education funding system

This is a significant once in a generation change, aimed at providing better education outcomes. A key part of the restructure will be future consultation with industries to determine the best outcomes for the future.

There are steps underway for Te Pukenga to connect with industry and start expanding its offering and working with regional companies to deliver practical training for Infrastructure Works Level 2 and Level 3 qualifications, which are civil construction-specific.

It will be important for the civil construction industry to consult closely with the new entities. The training and development needs of the industry are unique and different to the vertical building construction industry. There will need to be an industry voice that supports the wider industry and not just a few strong or interested companies, as has happened in the past.

Understanding the historical funding system for industry training may not provide solutions for the future, and the industry has a great opportunity to work with the new vocational training system to make sure its needs are met.

The vocational education programmes required for new entrants to develop the knowledge and skills to enter the industry are expensive and require significant investment. To be able to provide quality programmes around the country to service the whole industry will require significantly more education investment in civil infrastructure. Strong, practical and sound business cases must be developed with strong support from industry to get these programmes accepted and implemented.

The importance of retaining industry induction programmes

The Ministry of Social Development and Ministry of Business, Innovation and Employment have supported successful industry induction programmes. It is critical for these to continue and better connect with industry, or the few programmes that are delivering successful outcomes for people entering the industry may be lost.

'Patch protection' from a highly competitive and commercialised tertiary vocational education sector has dampened the ability to grow these successful programmes, and we must avoid the risk of losing training delivery or undermining the successful outcomes these programmes deliver by shutting out the few capable independent providers that currently deliver industry-specific training.

The future role for CCNZ and the Civil Workforce Forum

CCNZ established the Civil Workforce Forum as an avenue for Civil Construction companies to discuss and evolve the pathways to employment for new people looking to join the industry.

From the findings in this report it is clear there is a real and complex workforce challenge for the industry to provide the pathways for the number of new people needed to enter the industry.

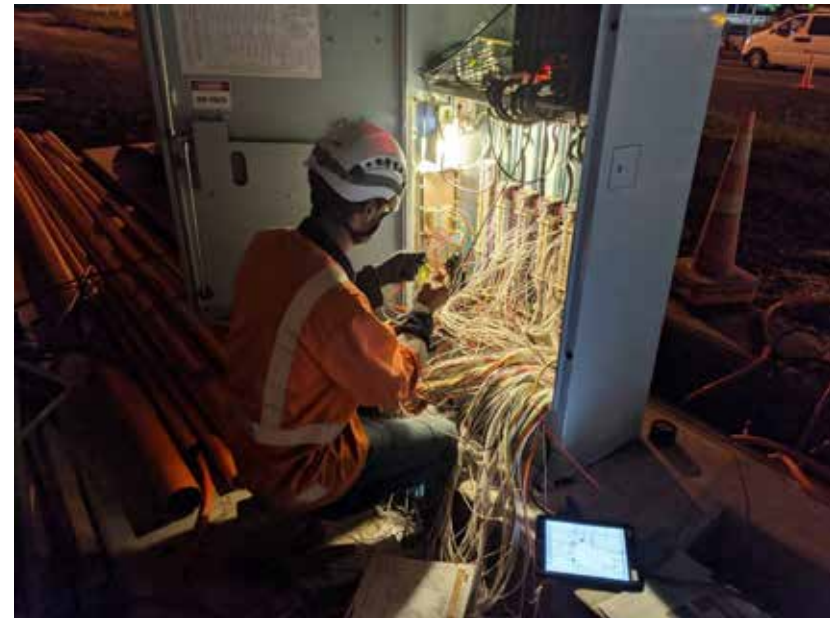
It is important for the Civil Workforce Forum to continue as a network for those with an interest in developing the civil construction workforce, and to provide leadership and support for civil construction contracting companies.

There are several key areas to focus on for the Workforce Development Forum going forward. Investment in a Workforce Development Manager will provide consistent energy and focus.

CCNZ can support and lead the challenge for the industry by providing a consistent leadership and consultation voice to the government agencies and civil contracting companies. Continuing to be the steward and promoter of civil trades for the industry is critical to ensure Civil Trade qualifications remain relevant, fit for purpose and fully benefit the industry.

Working and consulting with government agencies and clients will be critical at this time of significant change, reforms and industry growth.

Supporting, providing recourses, leading initiatives and communicating with CCNZ members to actively participate in employing and developing new entrants into the civil trades pathways and career opportunities with their companies.



What needs to be investigated further to support recommendations?

More industry statistics are needed to identify the scope and size of the challenge. It is presently very difficult to obtain statistics on civil construction-specific employment and education. A lot of the available data references the construction industry as a whole, and more specific data is needed to plan properly for civil construction's unique workforce challenges

This is important as future funding and investment will only come if there is a clear business case to address the need. Issues such as an increase in construction work, low immigration, lack of trainers and prospective new entrant candidates will be a real issue.

This work is happening at the moment through the CanConstructNZ Research Forum, the work of the New Zealand Infrastructure Commission - Te Waihanga, the Construction Accord and Work in Progress project, operated by Waihanga Ara Rau – The Construction and Infrastructure Workforce Development Council.

A stocktake of social procurement models around the country is still needed to help find the most effective models for the industry.

The appointment of a skilled, credible and passionate Workforce Development Manager is a starting point. The governance structure in the form of a subcommittee to the board, and the relationship with the Civil Trades Board needs further investigation and consideration.

There needs to be a project to fully determine the true cost of training and development required to qualify a civil tradesperson. Along with this the benefits and value of a fully training person needs to be evaluated.





CIVIL WORKFORCE FORUM



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