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Research Note

Tāngata Whaikaha in Tech

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Introduction

Technology is now Aotearoa New Zealand's second biggest export and fastest growing sector (Toi Mai, 2023a), with productivity (measured through GDP per FTE) over 20% higher than the general economy (Infometrics, 2023). Historically, our local technology workforce has been mainly male, of European or Asian descent, and non-disabled (NZTech 2023). The remainder of the workforce has usually consisted of high-skilled migrant workers. This lack of local diversity undermines efforts to grow the industry and exposes it to shocks such as those caused by COVID-19. Tapping into our diverse populations can widen the talent pool, fill skill gaps and contribute to a more innovative, more mature and more resilient sector. NZTech has called this "the diversity opportunity" (2023).

Tāngata whaikaha have a role to play here, and not only by contributing to a better equipped local workforce. Greater participation of tāngata whaikaha can lead to increased business success while improving economic outcomes for whaikaha households (Toi Mai, 2023a). Therefore, we need to ensure tāngata whaikaha can successfully progress through study and into employment to attain those benefits.

This report explores experiences of tāngata whaikaha (disabled and neurodivergent people) in the Aotearoa tech sector and tech education. It asks: **how can we better unlock the diverse talent in the tāngata whaikaha community through improvements in tech education, recruitment and the workplace?**

"A mark of success is raising people's incomes. I know that when people are supported, they can go on to have a life. Self-determination, a successful career, supporting family."

To answer this question, we carried out interviews with representatives from industry, education, Disabled Peoples Organisations (DPOs) and Disability Support Services, and community groups. The interviews were supported by quantitative data and literature from government, academic and industry sources.

Research participants revealed how barriers may limit tāngata whaikaha participation in the sector, but also the opportunities that exist to overcome those barriers. With a strengths-based approach in mind, this report explores the outcomes tāngata whaikaha want for themselves in the sector, and what approaches can complement their skills, knowledge and experience, leading to success in their chosen pathways.

More information on the research design can be found in Appendix A.

Who do we mean when we say tāngata whaikaha?

At Toi Mai the term tāngata whaikaha refers to disabled and neurodivergent people.[1] The term tāngata whaikaha encompasses disabled and neurodivergent people in the following ways:

Disabled people are people living with long-term physical, sensory, neurological, psychiatric, learning or other differences who, due to social barriers, may not experience full and effective participation in society (Office for Disability Issues, 2022a).

Neurodivergent people are those people whose ways of thinking may appear different from what is considered neurotypical. This term was first coined by the autism community (Benians, 2022). Neurodiversity includes autism spectrum disorder, dyslexia, dyscalculia, auditory processing disorder, attention-related disorders and others. These may also be referred to as neurominorities.

Toi Mai follows the social model of disability, which states that "a person is disabled by society rather than by their body or abilities" (Office for Disability Issues, 2022a). Under the social model, disability can include neurodiversity. This model emphasises transforming our society to meet the needs of a person, as opposed to a person needing to be fixed to fit into society (as per the medical model of disability). The medical model of disability has been critiqued for negatively shaping how society understands tāngata whaikaha, resulting in "stigma surrounding disability and the marginalisation of disabled people" (National Disabled Students' Association, 2023).

Disability can mean different things to different people. There are people who have been disabled since birth, and there are people who have become disabled during their lifetime, such as through genetic conditions, injury, illness or aging. Some people have multiple conditions or disabilities; for example, dyslexia is sometimes experienced alongside dyscalculia, or physical and neurological disabilities occur together. Additionally, some individuals receive an early diagnosis, while others are only diagnosed later in life. Some people may never receive a formal diagnosis. A diagnosis often leads to individuals getting better support and can lead to better outcomes in education and employment.

Self-identification is crucial to understanding how people experience disability or neurodivergence. People may choose to use identity-first language (for example, "I am a disabled person") or person-first language (for example, "I am a person with a disability") to describe themselves (O'Meara, Dunstan, Debinski, & Ryan, 2023). Some people who identify as disabled or neurodivergent may choose not to disclose this to their education provider, employer or social circles. Others do self-identify. In all cases, it is important to acknowledge and respect how a person chooses to identify.

[1] The term tāngata whaikaha was developed by Maaka Tibble to express the strengths of people who experience disability (Whaikaha Ministry of Disabled People, 2023). While the term is commonly used in Aotearoa, it is not universal. Terms like disabled, neurodivergent and whānau hauā are also often used.

Photo by Makea Pokere

"Employment is the main route to getting somewhere financially, as opposed to being on a fixed income. The employment rate for disabled people is 50% less than those who are able bodied. That is documented; that is pretty clear."

Finally, people's experience of disability and neurodiversity can be strongly influenced by other aspects of their identity and background. Disabled women, non-binary, LGBTQIA+, Pacific and Māori people, and those representing other minorities within Aotearoa New Zealand, may experience additional barriers.

For example, Māori are more likely to experience disability than non-Māori, at 24% compared to 17% (Waitangi Tribunal, 2023).

Experience Disability

24% *vs* **17%**

Māori Non-Māori

Young tāngata whaikaha Māori have reported a higher likelihood of food insecurity and housing instability (51% and 29% respectively, compared to 23% and 9% for non-Māori), showing how barriers can stack up in home life and education (Office for Disability Issues, 2022b). Despite this, groups like Māori and Pacific peoples also bring different, often more inclusive, cultural understandings to the experience of disability (Hickey & Wilson, 2017).[2]

[2] Hickey and Wilson (2017) found that the Māori concept of Whānau Hauā considered "a collective endeavour of both the individual and the whānau as a whole", leading to enhanced inclusion and support in the face of institutional barriers.

What do we mean by tech?

Tech in this report refers the businesses, courses and occupations involving digital technologies in Aotearoa. At Toi Mai we call this sector Toi Whānui, which designates the:

"Innovative and emerging technology platforms, products and services for industry and end-users, including artificial intelligence, cyber security, virtual reality and software as a service (SaaS). Toi Whānui involves inventions that are applied to enable and improve user capabilities."

Tech can overlap with other sectors as well, such as the creative sector (often called CreaTech), financial sector (FinTech), agricultural sector (AgriTech) and many more. Digital technology has become hugely important today precisely because it is used across every major sector. Therefore, 'tech' in this report refers to all the courses and occupations relating to the following industries:

- Data processing, web hosting and storage services
- Computer system design and IT services
- Software as a product
- Software as a service
- Software publishing (interactive media).

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The value of diversity

The whaikaha community is diverse. In some instances, this diversity can cause leaders in private and public organisations to avoid making effective changes (what might colloquially be called the 'too-hard basket'). This issue is evidenced by a lack of effort to improve access and inclusion. We believe this position needs to be flipped: greater accessibility leads to better opportunities and outcomes for all New Zealanders. Diverse skills and experience are needed to help shape our industry and wider economy, with tāngata whaikaha offering a wealth of unique insights.

There are enormous business advantages in this diversity which needs recognition. Accenture have found that out of the 140 US companies using the Disability Equality Index, the top 45 in the index performed better in terms of revenue and economic profit margins (28% and 30% respectively) (Accenture, 2023).[3]

A more diverse team can better identify knowledge gaps and introduce innovative ideas. A diverse team is also more likely to understand the diversity of customer needs. In a highly digital world where accessibility challenges become more common, tāngata whaikaha can help make digital tools and platforms more accessible to a wider audience (Wu He, Watson, & He, 2022). With tāngata whaikaha facing greater digital exclusion and lower representation in tech than other groups, we are at risk of missing this crucial perspective of diversity.

[3] Accenture is a global professional services company specialising in digital and technology services. More information is available on their website.

Some advocates frame the qualities neurodivergent people bring as superpowers. This idea is based on the "non-conventional" ways of thinking neurodivergent people often have, which align well with today's emphasis on skills like creativity, problem solving and critical thinking. While this strengths-based framing can be positive, it can also have the adverse effect of alienating some members of the community. Rather than expecting superpower, it is more helpful to acknowledge that a strong workforce is one that includes "a blend of 'specialist' and 'generalist' thinkers" (Wallis, 2024). This approach recognises each person's individual strengths and talents without reinforcing stereotypes.

"There are so many gaps that can be filled by people who know the barriers that neurodiverse and disabled people face. Having more representation means that the capability and people who are going through it, and know, will be identifying the barriers, not people who are just guessing or reading research papers or whatever, there's a difference."

Tāngata whaikaha participation in the tech sector

Recent publications on Aotearoa tech workforce demographics lack detail on tāngata whaikaha participation in the sector. Our own desktop research *Barriers to diversity in the Aotearoa tech sector* revealed that tāngata whaikaha face perhaps the highest rates of digital exclusion compared to other New Zealanders (Toi Mai, 2023b). Therefore, from the outset tāngata whaikaha are less likely to gain tech skills and enter that workforce due to limited contact with digital technologies.

Additional barriers can exist throughout the education journey such as feelings of stigma, obstacles in the learning environment, a lack of assistive technologies, and limited understanding of day-to-day challenges by teaching staff. Together these factors can limit progression from school into the workforce.

Upon reaching employment age, tāngata whaikaha may carry previous negative experiences with them, affecting confidence and openness about their experience of disability. Many people entering employment choose not to disclose disability/neurodivergence due to real or perceived risks to their employment outcomes. Recruitment and workplace norms can further disadvantage people with social, sensory, mobility or cognitive disabilities, and/or neurodivergence.

Toi Mai advocates for education providers and employers to anticipate and improve their understanding of these barriers so that every individual who has the interest and capacity to take up tech careers is enabled to do so (Toi Mai, 2023b).

A 2023 industry survey by Toi Mai and NZTech found that out of 164 organisations surveyed, 40% stated that they employed a disabled staff member (Toi Mai and NZ Tech, 2023).[4] Meanwhile, 55% stated they employed someone identifying as neurodivergent. Interestingly, approximately one in five (20%) organisations marked "don't know" in response to the number of whaikaha staff. This figure was roughly the same for disabled and neurodivergent employees – 18% and 19% respectively (or 29 and 31 organisations out of 164). The relatively high proportion of "don't knows" reminds us of the complexities around gathering this data in the first place (NZ Tech, 2023). Many organisations do not collect disability data on their employees. For those that do, employees may either not identify as being disabled/neurodivergent or may prefer not to disclose. There is no obligation for applicants to disclose a disability during the hiring process (Employment New Zealand, 2024).

Further discussion on tāngata whaikaha representation in the sector using data collected by Toi Mai can be found in Appendix B.

[4] This survey had a relatively small sample size of 164 organisations. However, the sample size represents roughly 20% of tech businesses with 10 or more employees. Out of 3,458 tech businesses with one or more employees in Aotearoa, only 864 businesses have 10 or more employees.

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Experiences of tāngata whaikaha in tech education

"What's best for neurodiverse learners is best for everyone, because the practices of understanding something like sensory needs, curriculum or pedagogy for student individual versus one size fits all, is going to work for everyone."

Previous research on the barriers faced by tāngata whaikaha in education found that it is common for whaikaha students to experience numerous barriers in learning environments (Toi Mai, 2023b). These barriers in turn limit the chances for students to achieve their learning goals. Barriers could include physical accessibility issues (such as a lack of accessible carparks) or lack of provision of alternate learning materials (such as lecture recordings) (Te Pūkenga, 2021). A common barrier is the limited understanding many teaching and administrative staff have of the everyday obstacles tāngata whaikaha can face.

The Tertiary Education Commission (TEC) now requires a Disability Action Plan from all providers receiving $5 million or more in funding. The plans are intended to improve outcomes for whaikaha students by identifying good practices and demonstrating how providers will implement changes. This requirement is important because it focuses on the responsibility of institutions to meet whaikaha student needs, thereby moving beyond understandings of disability and neurodivergence as an individual problem (National Disabled Students' Association, 2023).

Flexible learning environments can help accommodate students with diverse needs

One participant with ADHD explained how just showing up and fitting into the class environment can be draining.

"You sit in front of the teacher, you have your bag ready, you have your stuff out, everything's organised in front of you. But really, everything around you looks perfectly normal, and your brain is chaos. It's loud, and it's jumbled, and it's frustrating, and it's exhausting. Because you're doing everything within your power to just exist and pretend that everything's ok."

They went on to explain how primary education can be effective for neurodivergent learners because there is flexibility and variability in the learning environment throughout the day. Things often become more rigid in secondary and tertiary education despite flexibility better meeting diverse learning needs. On the other hand, many whaikaha students appreciate certainty over timetables and structure in order to plan their day with confidence. Providing a structured learning environment within which modifications can be made can be the best approach to meeting diverse needs.

Flexibility is even more important when we consider that many providers are uncertain about how many of their students have additional needs. According to one participant working for a tertiary provider, there is a likely gap between the number of whaikaha students identified by their institution and the number enrolled. Addressing this disparity can be a complex task. We must consider the diversity of ways students identify with disability or neurodivergence, whether they have been diagnosed or not, whether an impairment is permanent or temporary, and whether they simply do not want to be treated differently.

As one participant put it:

". . . there are other people who just do not want to put that on the form because people treat them differently. And that is my daughter with a learning disability. She does not want to tick that box, because she does not want to be seen as different; on the other hand, she does need the help and support."

One participant working in education considers it a win when a student feels comfortable to disclose a disability or neurodivergence. This is because it helps them to support the student from the outset. However, the onus is on the provider to offer a safe and confidential way for students to disclose. Knowing a student could face challenges with aspects like lesson delivery, self-directed study, assignment deadlines and technology needs can help a provider to offer appropriate wrap-around services. Gathering this data can also help a provider to plan its services and develop more accessible learning environments for long-term results (Tertiary Education Commission, 2022).

Disclosure is not only achieved by ticking a box on an application. It may mean having someone visible and available to speak to when a student feels ready. Yet another approach is providing staff training to recognise when a student may have an undisclosed impairment or need. Staff can then discreetly offer the student additional help in aspects of their course work. Staff should be empowered to recognise these needs and offer support through comprehensive training.

Photo by George Pak from Pexels

Strengths-based approaches can improve outcomes for all learners

When commenting on primary and secondary education, participants at a hapū-based community workshop believed that schools are yet to catch up with the interests and needs of rangatahi today. This is particularly true for those who do not easily fit into traditional teaching models, such as neurodivergent students. In tertiary education, despite concerted efforts to improve learning outcomes for tāngata whaikaha, teaching approaches are still largely lecture-based. As one participant remarked, to achieve greater flexibility and accessibility in education, "teachers may need to consider alternative modes to the way they learned themselves".

Using Disability Action Plans as a starting point, providers must anticipate and remove barriers to effective learning. Taking a strengths-based approach can help teachers appeal to the different talents, abilities and learning styles of students. One participant working as a lecturer gave the example of beginning a class as a full group, then giving students the opportunity to break off to complete work in a way that suits them best, whether in groups, individually or even with noise-cancelling headphones in the case of students who experience sensory overload. While this approach may not be practical in all learning situations, it demonstrates how teachers can think beyond traditional lesson delivery towards flexible delivery and assessment.

A strengths-based approach also means ensuring learners can access course material in a range of formats. A participant with auditory processing disorder commented that for them reading is a far more effective way of learning than listening (the norm in lecture-based courses). Having the study material in written, PowerPoint, video and audio formats can help learners to find their ideal approach and learn at their own pace.

Many of the approaches discussed so far are captured within the Universal Design for Learning (UDL) framework. It includes three principles designed to meet the diverse abilities of students by providing:

1. multiple means of engagement
2. multiple means of representation
3. multiple means of expression (Ministry of Education, 2024).

Many providers are already using the UDL framework, including Te Pūkenga who have detailed its implementation in their Disability Action Plan (2022).

It is important for academic staff to recognise that students are eager to learn but may require an adjustment to delivery to get the best results. Institutions need to support staff in this regard:

"It's actually an attitude, and in the end it's a person [teaching] and a person in a learning environment. One has got that knowledge, and one is willing to learn that knowledge, and if the person who is giving the knowledge hasn't got that attitude that everyone learns differently, and it's their job to meet those needs, then they will just do the bare minimum. Because they're busy."

Providing a range of learning approaches, and particularly making sure lectures and learning materials are available for students to access later, demonstrates a willingness to meet learner needs. Learners will appreciate teaching staff being available to discuss course content and any challenges with tasks.

Teaching staff may not be able to provide this extended learning support all the time, which is why a provider's learning support and pastoral care services are vital.

Support services and pastoral care benefit teachers and learners alike

Considering the multiple, sometimes compounding barriers experienced, whaikaha students can benefit greatly from extended outreach and support through their studies. This can come in the form of learning advisors who help navigate administrative and study challenges, peer-to-peer support or whaikaha-specific services that provide assistive technologies and learning aids. Counselling services provide social and mental health support and are in increasing demand (Tertiary Education Commission, 2022).

Participants remarked that some institutions are better equipped to support whaikaha learners than others. For one participant, support services were highly valued, stating that they

". . . provide a base for those that are neurodivergent or physically impaired. Just so that we have things that can help us learn, and basically level the playing field for people like me, who are learning still."

Despite support services being available in many institutions, some whaikaha students can miss out on those services, particularly if they have not been diagnosed or lack the confidence or capacity to disclose. One student with auditory processing disorder described how having a writer accompany them in exams helped them to achieve better results. This assistance came when a teacher noticed how they struggled to write by hand and so helped them to get special assessment conditions. Such attention to learner experience is crucial for whaikaha students to feel they are seen and supported.

Assistive technologies can play a key role in bridging the accessibility gap. The following tools have been suggested for meeting learner needs:

Software assistive tools

- Glean – helps to record classes and make and refine notes to later study.
- Grammarly – provides spelling and grammar assistance.
- Microsoft Immersive Reader and Dictate – Microsoft Word tools to support reading and writing.
- Halfbold – browser extension to assist those with ADHD and dyslexia to read effectively.
- Dragon Speech Recognition – dictation software for word processing and general computer tasks used in education and business.

Hardware assistive tools:

- Neo SmartPen – converts handwriting into digital writing.
- C-Pen – scans text and reads it out loud.
- Audio Pen – converts voice notes into text.

One provider specialising in tech programmes described how they endeavour to support their students from enrolment through to completion. Those that disclose a disability or neurodivergence receive regular check ins from a staff member specialised in providing support. They consider it important to separate this service from the teaching staff for safety and confidentiality reasons. Nonetheless, if teaching staff identify that a student needs more help, the support team is alerted, and the student is approached to offer support. The central tenet of this approach is providing ad hoc support that meets the needs of individual students but through a discreet, robust and consistent process carried out across all learning programmes.

Advice for educators

- **Consider ways for students to disclose disability or neurodivergence safely and discreetly.** Consider anonymous disclosures when students sign up for programmes and processes to support disclosure during study. Having visible dedicated staff available for support can encourage students to seek support once they feel comfortable to do so. Staff who are aware of a student's needs may wish to seek out their educational records to further tailor supports.

- **Provide learning resources in different formats, accessible at any time.** Victoria University of Wellington's recent policy to give students universal access to lecture recordings is a positive step towards accessibility and inclusion (Victoria University of Wellington, 2023). It can greatly benefit students who find it difficult to get to campus regularly and those who need more time digest lecture material. Providing alternate formats aligns with the Universal Design for Learning framework now in use by many providers.

- **Provide thorough training to academic staff on the experiences of whaikaha students.** In the same way that students want to do well, teachers want to their students to succeed and likely want to have inclusive teaching practices but may not know how. Supporting whaikaha students is not the job of teaching staff only, and providers should ensure their staff have the tools and processes available to support their students' diverse needs. Case studies or testimonials from former students can help bring the whaikaha student experience to life, developing understanding and empathy in staff members.

Experiences of tāngata whaikaha in recruitment

"Something I say on one of my websites is: that young lady that can type 200 words a minute had an accident and became a paraplegic. But her chances of getting a job are 70% less now that she can't use her legs, even though they are not required for the job."

The recruitment process can be a challenging experience for groups underrepresented in the tech sector. Recruitment can come with numerous unspoken norms and expectations (Toi Mai, 2023b). For those who have experienced negative bias throughout their life journey, demonstrating self-confidence and belief in high pressure situations like interviews can bring additional challenges.

Writing for Diginomica, Cath Everett states that space needs to be given to candidates who may not present a traditional path into employment (Everett, 2021). Tāngata whaikaha may take longer to become work ready than non-disabled people and therefore sometimes enter the workforce later in life. A traditional recruitment process focused on employment experience can overlook the qualities and potential people bring to a role. Tech organisations looking to quickly fill roles with the best candidate on paper are likely to prioritise the usual demographic groups or hire candidates from abroad (Everett, 2021; Toi Mai, 2023b). In the New Zealand context, this practice further entrenches a tech workforce that is mostly Pākehā and Asian, middle-class, and non-disabled and/or neurotypical.

Unemployment is high for tāngata whaikaha, even for those individuals with good academic credentials. In 2023, Stats NZ recorded the employment rate for disabled people aged 15–64 years at 39%, compared to 82% for non-disabled people (Stats NZ, 2023).

Employment rate 2023

39% *vs* **82%**

Disabled people — Non-disabled people

If we are to shift these statistics, we must first acknowledge that a one-size-fits-all recruitment process excludes many New Zealanders from the outset of their employment journey.

Confronting ableism can ensure a fair go in recruitment

Ableism is a term used to describe bias against disabled people (Ministry of Education, 2024). It can include tacit assumptions and stereotypes people carry about those who are disabled by society. Ableism was a topic that several participants touched on when describing the recruitment process. Some stated that they do not hide their disability from potential employers, but nor do they state it explicitly. Even candidates who are confident in their abilities know that disclosing disability or neurodivergence can jeopardise their chances of successful employment.

"For example, if you have two people, one of them is disabled, one of them is not. Exact same qualifications, exact same experience, more times than not, the non-disabled person will be hired. Because of the perceived extra work that's required to hire the disabled person. Those kinds of biases need to be removed."

Another participant put it more plainly:

"… the interview process will generally reject them, because ableism tells the employer that they're not going to be as good as someone who is not disabled."

Interview participants agreed that a common assumption is that disability means more cost and/or complications to accommodate a new team member. One participant argues potential employers should reframe this perceived "cost" and consider the cultural contribution of hiring a whaikaha employee. They asked, "what is the contribution that someone with this ability can bring to your organisation?" This is a crucial question, particularly in the tech sector where human-centred design underpins so much of the work tech companies do.

Ableism in recruitment extends beyond the tech sector and deserves serious consideration. Another participant recommends that recruiters seek training about what ableism is. As they succinctly put it: ". . . recruiters need to be made aware that a disability does not cancel out ability." Understanding how ableism manifests is the first step to resetting individual attitudes, which can have flow on effects for an organisation's culture, work environment, hiring processes and more.

Recruitment practices must be overhauled to be more flexible and inclusive

Today, many job ads include a non-discrimination policy. Some participants stated that these policies need to be backed up with stronger wording or proof that the policy is being put into practice. One way to do this could be describing in the statement how ableism and unconscious bias will be countered, such as through training. Another approach could be stating the value of non-technical skills and experience. Avoiding biased language can also go a long way, particularly phrases that can be deemed ableist, such as “hitting the ground running”. Finally, recruiters can offer alternative recruitment processes to people with additional needs. Ultimately, a non-discrimination policy needs to be backed up with evidence of an inclusive workplace culture for whaikaha candidates to feel confident in applying.

Following this, candidates should be given the opportunity to discuss how their needs might be accommodated by the employer if their application is successful. While this appears a simple ask, many candidates never get to have this conversation, instead feeling that negative bias has impacted their chances of employment. Reflecting on an unsuccessful application, one participant wondered how it could have gone differently had they been given the chance to discuss their needs:

“It was pretty obvious for me that it was around my disability, but there was no chance for a phone conversation or any conversation to find out how could we have made this work. How do you see this job working for you in your situation? What accommodations would we need to make?”

Having an open and honest discussion on the needs of a candidate helps to reduce stigma around disability and neurodivergence, while easing any concerns on both sides about meeting needs and expectations within the workplace.

Offering clarity and flexibility along the recruitment process can appeal to the different strengths and/or needs of whaikaha candidates while empowering them to turn up as their whole selves. Examples include providing a schedule of the recruitment process, making interview questions more open-ended and character-based (as opposed to typical competency-based interviews), holding wānanga where candidates discuss ideas with the recruiter, or asking candidates to prepare a short speech or piece of writing about themselves. Another option is running simulated tasks where candidates demonstrate their skills. For one participant with a senior position in the tech sector, the most important thing was moving beyond CVs and cover letters, instead getting a candidate in the room so they can express themselves and demonstrate their potential. For candidates with mobility or sensory impairments, this can be achieved through online interviews.

For future job candidates, it can be helpful for young tāngata whaikaha and their families to understand what is needed to enter employment. Organisations can offer more exposure to the world of recruitment and employment by taking part in job fairs, tech sector events and engaging in education spaces. By meeting directly with the whaikaha community, employers have the opportunity to not only introduce young people to the world of work, but to back up their non-discrimination policies in person.

Advice for recruiters

- **Reflect on what norms and assumptions are embedded in your recruitment process.** Be aware of implicit bias (ableism). Be openminded about what is really needed to succeed in your organisation rather than applying standard recruitment procedures (and wording in job advertisements). Some whaikaha candidates may have limited work experience. Therefore, an emphasis on their talents, skills, training and potential can be more appropriate.

- **Ask candidates what works for them.** Your candidate or new hire is the best person to inform you of their needs. Provide a space for open dialogue on any physical, sensory, social, cultural or other barriers the individual might encounter. Then work together to meet those needs. Cultural responsiveness, particularly for Māori, Pacific and ethnic minority groups, as well as sensitivity to past negative experiences, can enable a candidate to be transparent on their situation and needs.

- **Take guidance from experts to refresh application and interview processes.** Often recruitment processes are based on standard human resource procedures. Disabled People’s Organisations (DPOs) can help you to think about where your advertising is targeted and how you might pinpoint different skills and needs. Importantly, DPOs can help you identify whether your approach is accessible to different abilities and support you to adjust them.

Photo by Kampus from Pexels

Experiences of tāngata whaikaha in the tech workforce

For tāngata whaikaha who successfully navigate the recruitment process, entering the world of work can present another set of norms, expectations and potential barriers. Inaccessibility of the work environment, concerns around disclosure and hidden costs of going to work are common (Infometrics, 2022). This is not to say that all workplaces are hostile environments for tāngata whaikaha, nor that all tāngata whaikaha will struggle in a typical workplace. Rather, it is an acknowledgement that many employers lack a level of understanding and preparedness needed to accommodate people whose impairments, neurodiversity or additional needs could impact their full and active participation in the workplace.

Quantitative and qualitative data gathered through this research suggest that tāngata whaikaha are still significantly underrepresented in the tech workforce.

60% of survey respondents did not knowingly employ disabled staff in their digital teams (NZ Tech, 2023).

45% had no neurodivergent staff that they knew of.

At an industry level, the New Zealand Game Developers Association found that 8% of its workforce identified as neurodivergent and 2% as disabled (NZGDA, 2023). While non-disclosure may contribute to these low figures, they may also signal a lack of policies and processes to ensure whaikaha staff are accommodated within tech organisations. This in turn limits diversity within the tech workforce and contributes to ongoing talent shortages.

Value tāngata whaikaha for the skills and experience they can bring to your team

Tapping into the tāngata whaikaha talent pool is about more than meeting labour needs. Using their lived experience, tāngata whaikaha can offer perspectives on products and services that non-disabled people may not. This is before we even consider the skills, qualifications and work ethic they have developed over the course of their life.

One participant working in education reflected on students completing their studies but struggling to find roles that fit their capacity and ambition:

". . . they have been through high school say, on a programme like ours, and we are empowering them to make good choices and understand their disability, and how to use it . . . and the workforce is a few steps behind, they are not ready to meet those needs."

This insight indicates a need for cultural and attitudinal shifts in education, employment and society more broadly. Changes in one area alone are not enough because improved outcomes for tāngata whaikaha in education, for example, are wasted if graduates cannot apply their skills and knowledge in the workforce.

Another participant working for a non-tech organisation commented on how their digital technology skills were recognised by their employer, leading to permanent employment:

"I started as a junior advisor. So, I was doing advisor work, and kind of delivering. And basically, for lack of a better word to describe it, I was offered this job because no one else knew how to do it."

While this participant downplays their unique position within their organisation, they offer a vivid example of an organisation recognising their specialist skills and ensuring those skills are retained. Breaking down stereotypes around employing whaikaha employees requires commitment at a leadership and organisational level. Considering the lack of tāngata whaikaha in the tech sector currently, organisations need to be proactive in demonstrating both the potential and the successes of bringing whaikaha employees into their team. The same participant went on to say:

"So, all you really need is a few organisations, or a few people to take that lead and be like 'I see the potential in these people, and we're going to employ them and do what it takes to make it work for them.'

And then everyone else is like 'oh, that organisation's productivity has gone up. That organisation's overall quality of engagement has gone up. They're doing great work. Maybe we can do something like that.'"

Representation is a major factor in encouraging underrepresented groups to enter tech. Senior staff who are open about their own experiences as disabled or neurodivergent help pave the way for others. The burden cannot fall on whaikaha staff to advocate alone, though. Business leaders of all backgrounds must help to make their successes visible. Demonstrating this leadership carries additional benefits too. A progressive company culture helps to retain staff who increasingly place value on social impact (Toi Mai, 2022). Furthermore, as organisations move beyond traditional markers of value like financial performance and physical assets, demonstrating progressive employment practices builds their social license to operate (Jenkins, 2018).


Photo by Mikhail Nilov from Pexels

Even small organisations have the tools to support tāngata whaikaha in the workplace

Supporting tāngata whaikaha in the workplace often means making use of the same tools and technologies organisations rely on every day. For instance, people who are hard of hearing can benefit from online meetings with closed captions and access to headphones (Clegg, 2022). Headphones can also be helpful for people who become overstimulated by a busy office environment. For people with blindness or low vision, screen readers can help them to carry out their day-to-day tasks effectively. Having an open conversation with an employee at the outset of their role helps employers to establish a comfortable and effective approach to work. The key is remaining flexible and providing space early on for the individual to communicate their needs:

"We have all these very simple tools that are now out of the box. If you've got a Microsoft Suite in your office, there's tools where you don't need to write, you can listen. Some other industries might be different, but [the tech sector] is particularly blessed with the ability to have different ways of being able to record ideas to share information. We're just not offering those options as a standard."

The COVID-19 pandemic led to several shifts in workplace norms. Online and remote working became commonplace, and technologies previously used by sectors like tech became universal. For people living with physical or sensory impairments, work from home options can be offered. This approach is beneficial to smaller organisations that may struggle to afford accessibility modifications at their office. Wheelchair users, for example, likely already have modifications at home and may only require support to set up their workstation. While fully accessible workplaces should be the goal, remote working ensures many tāngata whaikaha can seamlessly fit into most work activities.

Additionally, with remote working comes more flexible work hours. For people with mobility challenges, for example, a flexible work schedule can alleviate time pressures involved with getting ready for work in the morning or getting to and from the office. For some neurodivergent people, a typical 9–5 workday may be detrimental to their productivity. One participant with ADHD highly values the flexibility given to them by their employers:

"A good employer is someone who understands the way that your brain operates. And I've been very open and very honest, and very transparent with my two employers. They know that there's afternoons that I will be here until seven o'clock at night, because I work better at night. They also know that, if I've had a bad day, at three o'clock I need to clock off and go home. But then last night, I was sending emails at nine o'clock. They understand that flexibility matters."

Many tech businesses in Aotearoa are too small to support a People and Culture team. Nearly 95% of our tech businesses have fewer than 10 employees (Infometrics, 2023). Without dedicated staff it can be more difficult to identify and support additional needs of team members. Nonetheless, even small businesses can establish a process for onboarding staff with additional needs. Clear and open communication between employee and employer should be underpinned by a robust policy where the organisation, leaders and team members commit to supporting those needs.

"The policies are really important. They have to have policies around recruitment and induction, so that they understand that orientation may take longer. Having things set up around your needs. Those are critical things that I immediately look out for.

Large organisations have a greater responsibility to ensure they are creating an inclusive workplace because they are less limited by personnel and resources. Larger public and private organisations should fulfil the role of providing pathways to early career people. They are better equipped to absorb challenging moments and provide the wrap around care needed as team members develop transferable skills and technical knowledge. What might begin as internships or targeted programmes can help whaikaha workers to explore their career aspirations long term.


Photo from Freepik

Call an expert: support is available for employers too

Employers cannot be expected to understand the diverse needs of every candidate or new employee. For people employing staff with additional and often specific needs, it is important they receive informed guidance from experts in the tāngata whaikaha community.

Reflecting on a programme to bring neurodivergent people into their data team, one participant commented that receiving guidance from a Disabled People's Organisation (DPO) transformed their outlook on the hiring processes, onboarding and supports they offer people in their workplace:

"It's one of the big things that we learned going both through the onboarding process but also the ongoing training process . . . A lot of training documentation makes assumptions of understanding and general societal norms.

It's really beneficial for someone who has some knowledge and expertise on that to go through the training document to ensure that it actually covers all of those specificities that you're going to get so that you get the best outcomes from whatever training materials you're providing as well."

DPOs provide valuable expertise. As the case above shows, they can fulfil critical roles as partners in a programme, assisting in development and contributing to the support network of new employees. Equally important is the support they can provide employers as they seek ongoing improvements.

Government agencies like the Ministry of Social Development can support organisations to employ tāngata whaikaha through disability advice, modification grants and pay subsidies like Flexi-wage.

Industry can also share expertise, particularly those organisations already leading the field. Again, sharing programme successes becomes important and helps build momentum to create greater shifts across industry. Finally, Accessibility Tick is an initiative that partners with organisations to become more accessible and inclusive by providing action plans and ongoing support. Organisations that meet their accessibility goals are awarded a Tick. Initiatives like these ensure that organisations remain accountable:

"A number of employers say that they employ disabled people, but they do not have anything in their policies that reflects that. You have a policy that every disabled person who applies for the job is going to be interviewed. That is starting to come in. We are starting to see places, particularly around Accessibility Tick that are bringing that in. That is a fantastic innovation."

Advice for employers

- **Focus on the abilities whaikaha staff have, not the ways they have been disabled by society.** Place emphasis on the experience, skills and abilities whaikaha team members can bring to the team. Shifting your organisational culture begins with a shift in attitude and takes organisation-wide initiative.

- **Make use of the tools that already exist in your organisation to support whaikaha team members.** Many whaikaha staff do not require major adjustments to effectively do their work. Flexibility in work environment and schedule go a long way for most. Enable remote working and flexible work hours so team members can organise their day in ways that work for them. Seek advice from team members on how to adapt the office space for their needs.

- **Seek guidance on accessibility and inclusion from experts and peers.** DPOs and disability service experts can provide invaluable guidance on how to support whaikaha team members – see what local organisations provide these services. The Ministry of Social Development provides additional support and some funding, while non-profit organisations like Accessibility Tick, Access Advisors and Be. Lab can partner with your organisation to assess your workplace and establish a long-term accessibility plan. Occupational therapists can provide additional practical advice on adapting work environments. Finally, employers can look to their peers for advice on accessibility and inclusion. Educational events, conferences and training programmes can be safe spaces to unpack challenges around accessibility and inclusion.

“Obviously, being able to live without having to worry about the next pay cheque is a factor, but that’s not a major thing for me . . . it’s more about the excitement and the quality of life that comes from the job that you’re doing and knowing that it makes a difference. And especially in technology, there’s so much scope to do that in wildly creative ways, which I really like.”

Conclusion

This research has focused on the experiences of tāngata whaikaha in tech education and employment. The aims have been to:

1.

contribute to filling a knowledge gap in how disabled and neurodivergent people are participating in the tech sector, including what their first-hand experiences are

2.

provide educators and industry with ideas and tools for making work and study spaces more inclusive and accessible.

Some limitations exist in what this research could achieve. One key limitation is a discussion on funding and how it is distributed to individuals, institutions and employers to support tāngata whaikaha. Opportunities for further research include how funding can be “unlocked” to better support individuals in their educational and employment journeys. This could include investigation into the principles and benefits of Enabling Good Lives, a recent approach by government to give tāngata whaikaha greater autonomy and choice in how they receive fundings and other supports.

Accessibility challenges will increase as our world becomes more digital. Like all groups in Aotearoa New Zealand, tāngata whaikaha deserve the opportunity to apply their lived experience and potential to the digital world, influencing the tools and services we use every day. While recognition of the barriers tāngata whaikaha face is growing, there is a long way to go for tāngata whaikaha to have a meaningful place in tech and the wider workforce.

Tech is a high-growth, high-value and highly productive sector with scope to include diverse skills and abilities. The onus is on providers and employers to ensure that people of all abilities are able to participate and benefits from the opportunities the sector offers.

Appendix A

How was the research designed?

Qualitative research consisted of:

11 11 in-depth interviews

2 two community workshops

6 six additional meetings with disability advocates, Disabled People's Organisations (DPOs), and experts in education and industry.

Participants were based in Te Taitokerau/Northland, Tāmaki Makaurau/Auckland, Te Whanganui-a-Tara/Wellington, Ōtautahi/Christchurch, Tahuna/Queenstown and Ōtepoti/Dunedin. Participants represented a broad range of occupations including students, lecturers, CEOs, team managers and researchers.

Interviews were held to gain in depth information from individuals on topics they have specific knowledge and experience in. Interviews were semi-structured, meaning that broad, open-ended questions were asked to allow participants space to share their perspectives. Interviews ran for a minimum of one hour.

Workshops were held when group information sharing was more appropriate. Workshops provided a space for participants to discuss and build on each other's ideas. The workshops ran for 2–3 hours.

Photo by Campaign Creators from Unsplash

Participants were given a participant information sheet and confidentiality agreement before taking part in interviews or workshops. The confidentiality agreement assured participants that their names and personal details would not be shared in the final report and would only be known to the Toi Mai research team and a contracted transcriber.

The research had a particular focus on how tāngata whaikaha experience tech education and the workforce. We prioritised research participants who could speak to experiences taking tech courses, applying or hiring for tech roles, and working in the industry. However, participants with non-tech specific experience also took part to broaden our understanding of learning and employment experiences.

This research seeks to improve understanding of tāngata whaikaha experience for Toi Mai, the Government, and the institutions and sectors we represent. Nonetheless, such research can never be representative of all whaikaha experience. Nor can it be representative of all educational and employment situations. This report is based on a small sample of personal experiences, as well as quantitative data and current literature. When interpreting findings, we should always consider the intersectionality of tāngata whaikaha, as well as their diverse experiences of disability, difference, identity and/or disclosure.

Appendix B

Recent data collection by Toi Mai provides another view of tāngata whaikaha representation in tech roles in recent years.[5] Using census data from 2018, we asked how many people identified as tāngata whaikaha and as an ICT professional.[6] We found that tāngata whaikaha were most strongly represented in 'Computer system design and related services' with 303 people. 'Central government administration' came in at a distant second with 45 people. All other industries, such as 'Wired telecommunications network operation' and 'Higher education' had less than 20 people.

Number of Tāngata Whaikaha worked as an ICT professional by Industry

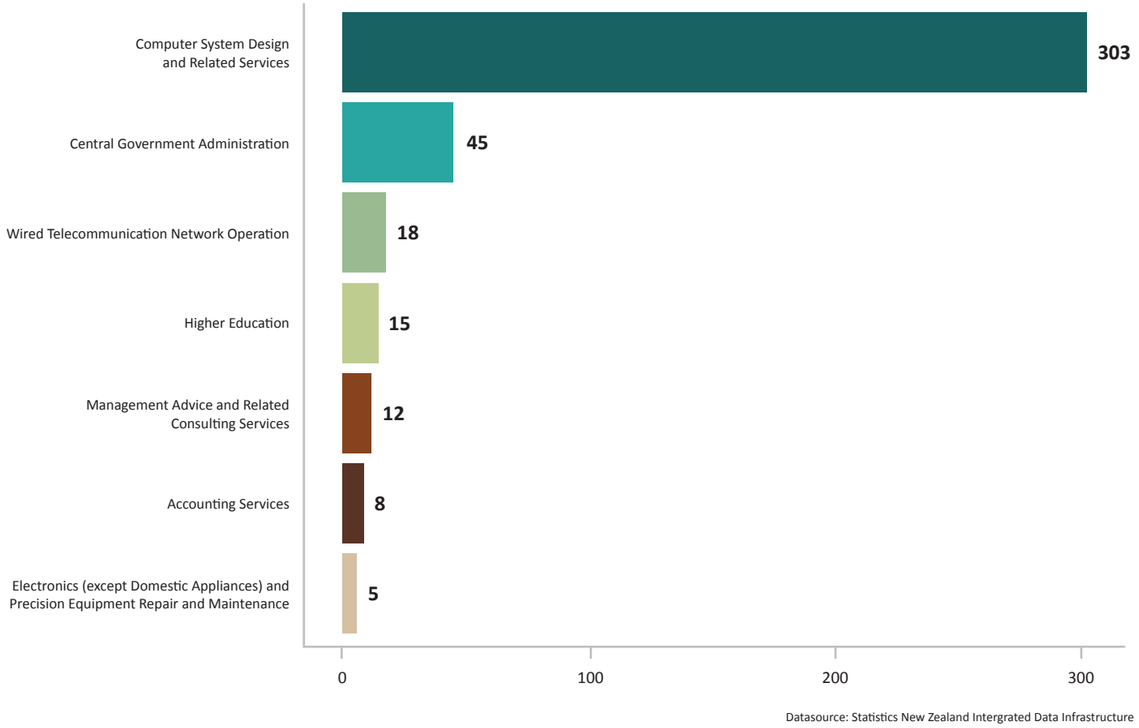


Figure 2 Number of Tāngata Whaikaha who worked as an ICT Professional using 2018 Census data. Source: Statistics New Zealand Integrated Data Infrastructure.

Despite relatively high numbers for tāngata whaikaha in 'Computer system design and related services' compared to other ICT professions, this figure pales in comparison to the 33,300 total professionals in that field in Aotearoa. Therefore, according to census data, tāngata whaikaha made up less than 1% of that profession.

The figures for 'Central government administration' are even more alarming, with tāngata whaikaha making up just 0.1% of tech workers in government.

When we broke down this participation by profession, we found that the majority of whaikaha ICT professionals worked as 'Systems analyst' with 120 people. 'Developer programmer' and 'Software engineer' had 78 and 72 people respectively. Again, these figures are much lower than the overall number for each profession. When looking at the general population in ICT professions in 2018, we found there were 5,550 Systems Analysts, 5,724 Developer Programmers, and 5,704 Software Engineers. That means that according to the census, on average tāngata whaikaha made up only 1.6% of workers in these three professions.

Number of Tāngata Whaikaha worked as an ICT Professor

Census 2018

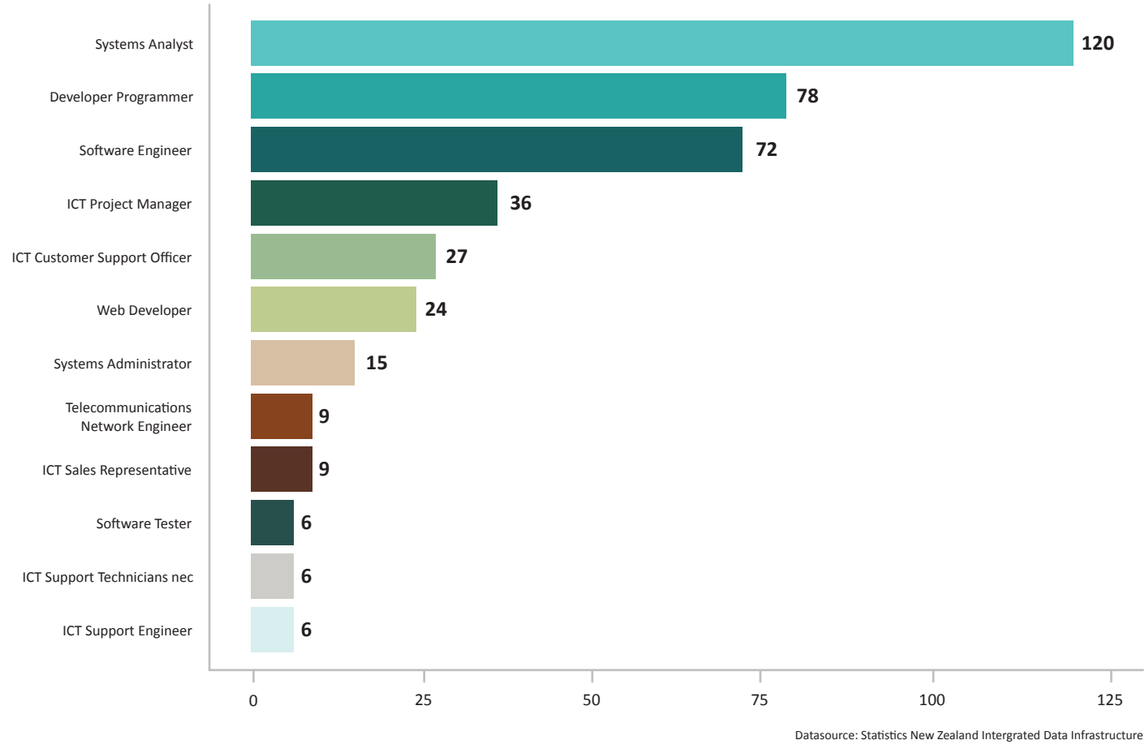


Figure 2 Number of Tāngata Whaikaha who worked as an ICT professional using 2018 Census data. Source: Statistics New Zealand Integrated Data Infrastructure.

[5] Access to the data used in this study was provided by Stats NZ under conditions designed to give effect to the security and confidentiality provisions of the Data and Statistics Act 2022. The results presented in this study are the work of the author, not Stats NZ or individual data suppliers. These results are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) which is carefully managed by Stats NZ. For more information about the IDI please visit https://www.stats.govt.nz/integrated-data/.

[6] The 2018 Census was notable for a significant drop in respondent numbers (83.3 compared to 92.2 in 2013). This was mainly due to a lack of field collection that may have disproportionately affected people with poorer digital access (Berl, 2019). Owing to the reduced digital access for many tāngata whaikaha, this group may be underrepresented in the Census data. One counterpoint is that whaikaha ICT professionals likely had better access and digital competency that those left out of the census and therefore may still be well represented.

While there is a limitation on the data collection with reliance on self-reporting, the findings from this research leads us to question whether the private and public sector are providing equitable pathways for tāngata whaikaha into their organisations. For tāngata whaikaha who do make it into tech roles, we ask whether adequate supports exist to retain them. Nonetheless, considering the disparity between figures from organisational reporting (the Toi Mai and NZTech survey) and self-reporting of tāngata whaikaha in the census, understanding their participation in tech roles remains difficult. We know that disability and neurodiversity are underreported for a range of reasons, such as stigma, perceived risk, non-diagnosis, overlapping conditions or personal preference (Doyle, 2020). With an estimated 15–20% prevalence for neurodiversity globally, and 1 in 4 New Zealanders identifying as disabled (Office for Disability Issues, 2023), there is a good chance whaikaha participation is higher than the census suggests. Despite uncertainty around these figures, the qualitative accounts provided below go some way to explaining tāngata whaikaha experience employment in tech. Further monitoring of census figures may help to clarify our understanding of tāngata whaikaha participation in future.[7]

Tāngata whaikaha in education

Investigating participation in tech courses can indicate how many tāngata whaikaha have been enrolling in tech programmes, and therefore formally gaining the skills needed to enter the workforce. Results from the 2018 census indicates that enrolments in levels 4–6 IT courses have trended downwards since 2015, with a rise to 726 learners for levels 4–6 in 2022. Levels 4–6 largely relate to advanced trades and technical qualifications (Robinson, 2022). This trend is consistent with the general population, with the Targeted Training and Apprenticeship Fund (TTAF) leading to increased enrolments in IT related programmes in 2021 and 2022. Overall, 9,520 learners enrolled in IT courses under TTAF in this period.

[7] The results of the 2023 census should help us understand how tāngata whaikaha participation is trending.

Enrolment Patterns of Students with Disability enrolled in tech related programmes
2012–2023

Figure 3 Enrolment patterns of students with disability enrolled into tech related programmes using Ministry of Education data. Source: Statistics New Zealand Integrated Data Infrastructure.

Enrolments in degree courses (level 7 and higher) have increased since 2015, with a slight dip in 2019–2020 and reaching their highest number in 2023 with 1,767 whaikaha learners (approximately 7% of total enrolments). Proportionately, this has increased from approximately 4% in 2015. This trend of an increased proportion of degree-ification is consistent with overall enrolment data and is a significant trend in Aotearoa IT delivery.

Completion rates for tāngata whaikaha between 2018 and 2021 offer another perspective of work readiness. We can see that the number of students who have completed courses successfully for levels 4–6 has fallen slightly since 2018, while the number has remained fairly consistent for levels 7 and above. Meanwhile, the number of students who completed their course unsuccessfully or did not complete their courses at levels 4–6 and 7+ has risen slightly since 2018 after showing dips between 2019–2020. While these variations are not large in terms of total numbers, considering the relatively small number of whaikaha learners in IT they cannot be ignored. Figures for levels 4–7+ are important because these students are most likely to be work ready upon completing their courses.

Number of Tāngata Whaikaha completed Tech related Programs by Completion Status

2018–2021

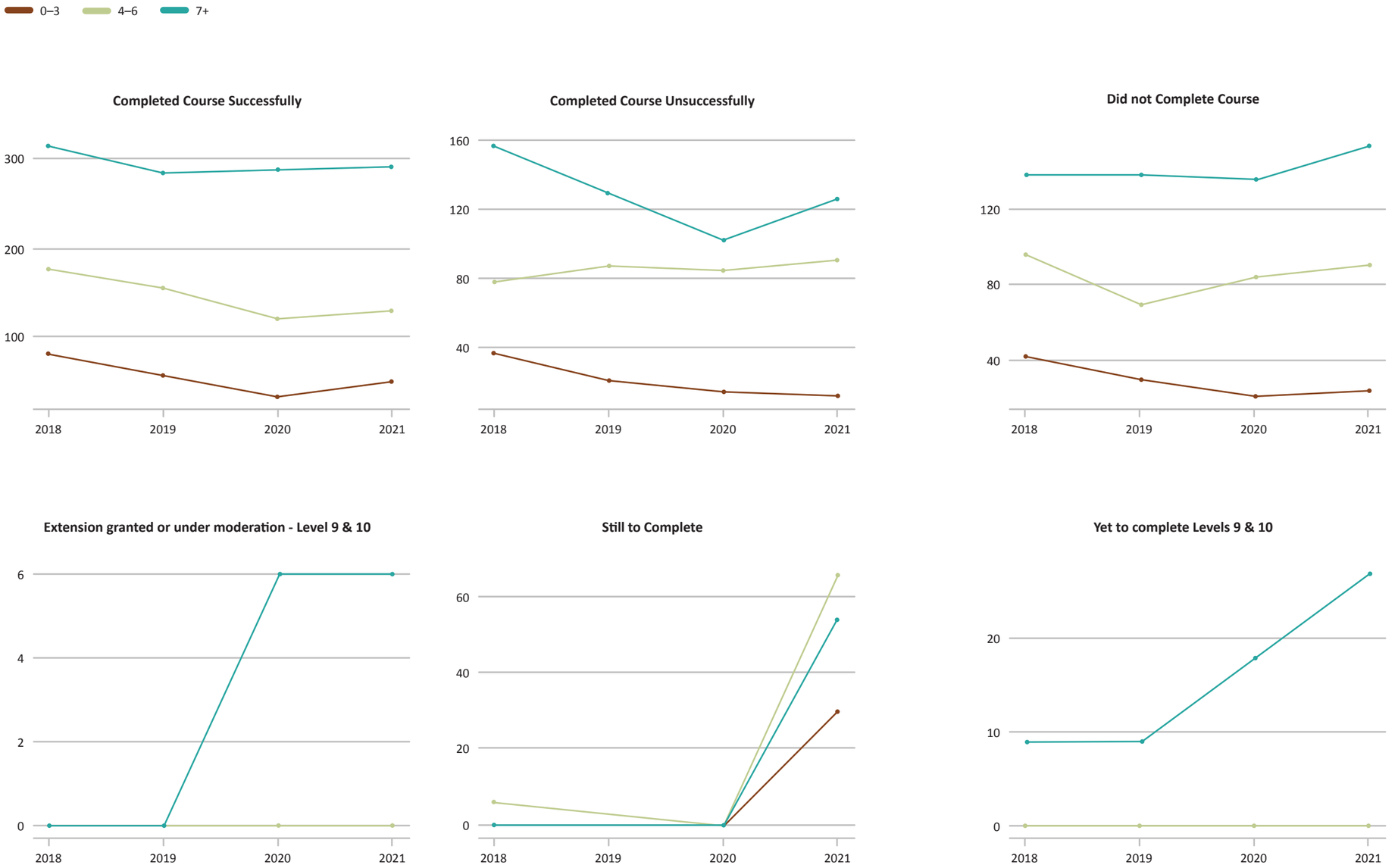
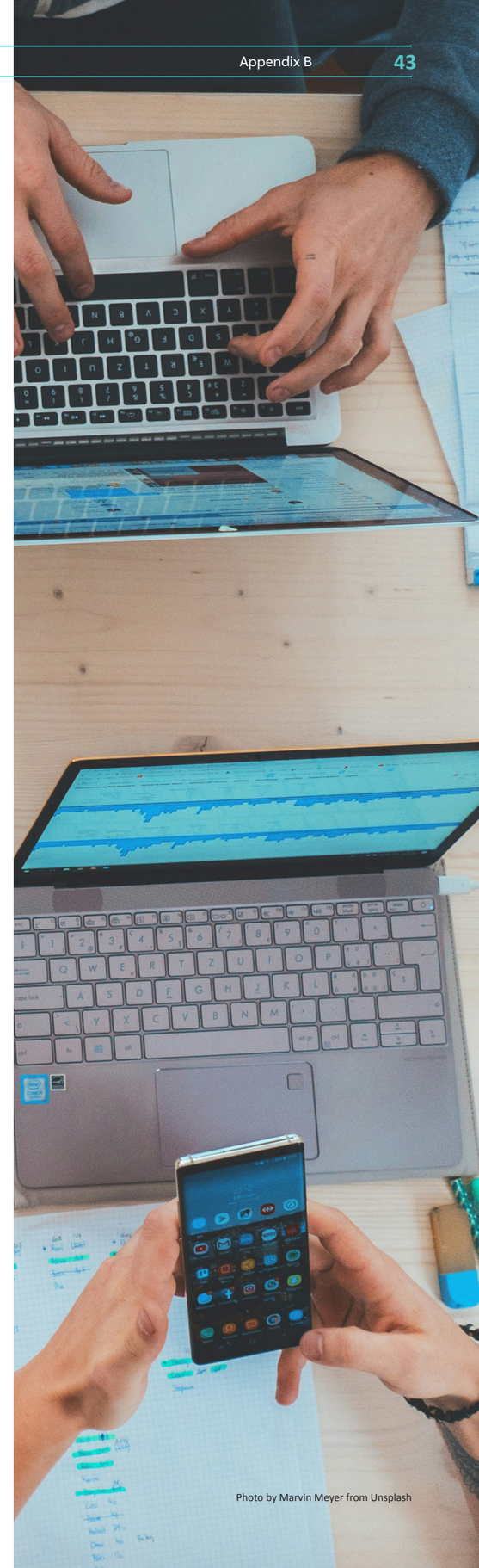


Figure 4 Number of Tāngata Whaikaha who completed tech related programmes by completion status using Ministry of Education data. Source: Statistics New Zealand Integrated Data Infrastructure.



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Bibliography

Accenture. (2023, November 27). *Companies Leading in Disability Inclusion Have Outperformed Peers, Accenture Research Finds*. Retrieved from Accenture.com: https://newsroom.accenture.com/news/2023/companies-that-lead-in-disability-inclusion-outperform-peers-financially-reveals-new-research-from-accenture#:~:text=NEW%20YORK%3B%20Nov.,People%20with%20Disabilities%20(AAPD).

Benians, A. (2022). *Learning Analytics from a Neurodiversity Perspective: Considerations for co-design project*. Dunedin: Otago Polytechnic Press.

Berl. (2019, November 11). *Census 2018: Mistakes must not be repeated.* Retrieved from berl.co.nz: https://berl.co.nz/economic-insights/census-2018-mistakes-must-not-be-repeated#:~:text=The%20key%20issue%20for%20the,emphasis%20on%20field%20collection%20operations.

Clegg, J. (2022, July 4). *Tips for Employers working with hard-of-hearing students.* Retrieved from Summer of Tech: https://www.summeroftech.co.nz/blog/tips-for-employers-working-with-hard-of-hearing-students

Diversity Works. (2022). *New Zealand Workplace Diversity Survey 2022.* Auckland: Diversity Works.

Doyle, N. (2020, October 14). *Neurodiversity at work: a biopsychosocial model and the impact on working adults.* Br Med Bull, 135(1), 105–125.

Employment New Zealand. (2024). *Hiring disabled people.* Retrieved from employment.govt.nz: https://www.employment.govt.nz/workplace-policies/employment-for-disabled-people/hiring–disabled-people/

Everett, C. (2021, December 3). *International Day of Persons with Disabilities - how the tech sector can do a better job of recruiting disabled talent.* Retrieved from Diginomica: https://diginomica.com/international-day-persons-disabilities-how-tech-sector-can-do-better-job-recruiting-disabled

Hickey, H., & Wilson, D. (2017). Whānau Hauā: Reframing disability from an Indigenous perspective. *MAI Journal, 6*(1), 82–94.

Infometrics. (2022, August 21). *A milestone for the disabled community.* Retrieved from Infometrics: https://www.infometrics.co.nz/article/2022-08-a-milestone-for-the-disabled-community

Infometrics. (2023). *Toi Whānui Sector Profile.* Wellington: Infometrics.

Jenkins, K. (2018, November). 'Can I See Your Social License Please?'.*Policy Quarterly, 14*(4), pp. 27–35.

McKay, D. (1995). *Disability and Tertiary Education: A Study in Three Settings.* Wellington: Ministry of Education.

Ministry of Education. (2024). Guide to Universal Design for Learning. Retrieved from Inclusive Education: https://inclusive.tki.org.nz/guides/universal-design-for-learning/

Ministry of Education. (2024). *Let's Get Accessible: Disabled students' experiences navigating the tertiary education system.* Ministry of Education, the National Disabled Students Association, Tertiary Education Commission, and the New Zealand Qualifcations Authority. Wellington: Ministry of Education.

National Disabled Students' Association. (2023). *Literature Review: Disabled Learners' Experiences in Tertiary Education.* National Disabled Students' Association.

NZ Tech. (2023). *Digital Skills for Tomorrow, Today.* Auckland: NZ Tech.

NZGDA. (2023, December 19). *NZ Interactive Media Industry Survey 2023.* Retrieved from NewZealand Game Developers Association: https://nzgda.com/news/nz-interactive-media-industry-survey-2023/

O'Meara, R., Dunstan, L., Debinski, A., & Ryan, C. (2023). *Disability and Screen Work in Australia.* Melbourne: Disability Institute.

Office for Disability Issues. (2022a, January 10). *New Zealand Disability Strategy 2016–2026.* Retrieved from Office for Disability Issues: https://www.odi.govt.nz/assets/New-Zealand-Disability-Strategy-files/pdf-nz-disability-strategy-2016.pdf

Office for Disability Issues. (2022b, April 27). *Tāngata whaikaha Māori data.* Retrieved from Office for Disability Issues: https://www.odi.govt.nz/guidance-and-resources/tangata-whaikaha-maori-data/

Office for Disability Issues. (2023, 3 24). *Key facts about disability in New Zealand.* Retrieved from odi.govt.nz: https://www.odi.govt.nz/home/about-disability/key-facts-about-disability-in-new-zealand/

Robinson, J. (2022). *New Zealand's Vocational Education System.* Auckland: Skills Consulting Group.

Shaheen, N. L., & Lohnes Watulak, S. (2019). Bringing Disability Into the Discussion: Examining Technology Accessibility as An Equity Concern in the Field of Instructional Technology. *Journal of Research on Technology in Education, 51*(2), 187–201.

Stats NZ. (2023, August 15). *Labour market statistics (disability): June 2023 quarter*. Retrieved from Stats.govt.nz: https://www.stats.govt.nz/information-releases/labour-market-statistics-disability-june-2023-quarter

Te Pūkenga. (2021). *Te Rito: Insights from learners and staff – opportunties to enhance success for Te Pūkenga disabled learners.* Hamilton: Te Pūkenga.

Te Pūkenga. (2022, April). *Strategic Disability Action Plan.* Retrieved February 19, 2024, from Te Pūkenga: https://www.tepūkenga.ac.nz/assets/Our-Pathway/Learner-Journey/Te-Pukenga-Strategic-Disability-Action-Plan-Brief-for-ELT-April-2022-with-tables.doc

Tertiary Education Commission. (2022). *Disability Action Plans 2022: A report back to the tertiary education sector.* Wellington: Tertiary Education Commission.

Toi Mai. (2022). *The COVID-19 Recovery Baseline Engagement and Data Project.* Wellington: Toi Mai.

Toi Mai. (2023a). Briefing to the Incoming Minister: Technology. Wellington: Toi Mai.

Toi Mai. (2023b). Barriers to diversity in the Aotearoa tech sector. Wellington: Toi Mai.

Toi Mai and NZ Tech. (2023). Digital Skills Survey 2022. Wellington: Toi Mai.

Victoria University of Wellington. (2023, November 22). Lecture Recording Policy. Retrieved from Victoria University Wellington: https://www.wgtn.ac.nz/documents/policy/academic/lecture-recording-policy.pdf

Waitangi Tribunal. (2023). *Hauora: Report on Stage One of the Health Services and Outcomes Kaupapa Inquiry.* Lower Hutt: Blue Star.

Wallis, J. (2024). *The benefits of a neurodiverse tech team in the workplace.* Retrieved from Hays Insights: https://www.hays.net.nz/it/blog/-/blogs/benefits-neurodiverse-tech-team

Whaikaha Ministry of Disabled People. (2023). *Finding our name.* Retrieved from Whaikaha Ministry of Disabled People: https://whaikaha.govt.nz/about-us/who-we-are/finding-our-names/#our-journey

Williams, S. (2022, November 22). *Accessibility for New Zealanders Bill – Susan Williams.* Retrieved from New Zealand Parliament: https://www.parliament.nz/en/pb/sc/submissions-and-advice/document/53SCSS_EVI_125643_SS4579/susan-williams

Wu He, S., Watson, S., & He, Y. (2022). Promoting Inclusive Online Learning for Students with Disabilities in Information Systems Courses. *Journal of Information Systems Education, 33*(1), 7–14. Retrieved from https://jise.org/Volume33/n1/JISE2022v33n1pp7-14.html

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