Ka whati te tai: a generation disrupted.

The challenges and opportunities for Māori in the new work order post COVID-19

Ka whati te tai

Paenga-whāwhā

2020

TOKONA TE RAKI
Māori Futures Collective

berl

This report was prepared for Tokana Te Raki by BERL - Hillmare Schulze and Konrad Hurren

Continuing the conversation

This work fits into a series of Māori futures research assignments we are undertaking in partnership with Tokona te Raki (of Te Rūnanga o Ngāi Tahu). This report is in response to COVID-19, but also follows on from the work we completed on income inequality for Māori and investigating the education pipeline for rangatahi. Following on from this work will be a report on futures that work for Māori.

Reference No: #6117

Paenga-whāwhā 2020

Making sense of the numbers

COVID-19 has and will continue to have an unprecedented impact on the world, Aotearoa and the Māori economy – there is no going back to what we used to consider 'normal'. The structure of our economy will change and with that the nature of work as we encounter new and unchartered challenges. For Māori and the Māori economy, these challenges will be even more explicit due to the collective asset base and where the workforce is positioned.

- 66 percent of affected Māori workers will be negatively affected by COVID-19.
- Similarly, 73% of rangatahi workers working in affected industries will be negatively affected by the response to COVID-19. This is a generation disrupted.
- Entry level jobs in sectors severely impacted by COVID-19 such as retail, accommodation and forestry, are unlikely to be available for rangatahi entering the job market.
- Younger people are more likely to work in occupations that are at higher risk of being affected by automation – older people are less so.
- Rangatahi will need skills and experience for the future world, not the past.
- Part of considering a new work order is taking a critical look at what makes work suitable for each individual instead of assuming a single full-time job suits all.
- This mind-set of risk-taking needs to be combined with enterprise skills such as creativity and problem-solving.
- Levels of entrepreneurship for rangatahi are on a par with their peers (non-Māori) although overall levels of entrepreneurship for Māori are low.

The pandemic is a powerful reminder of two things: the shared challenges of our global village, and the deep inequalities we must grapple with to fight them.

- David Miliband,
International Rescue Committee

Contents

1	**Executive Summary**	8
2	**Introduction**	8
3	**Ka whati te tai: The Challenge**	10
3.1	Inequality	10
3.1.1	Inequality of outcome - Income gap	10
3.2	A generation disrupted	11
3.3	What sectors will be affected?	11
3.3.1	Negative direct impact	11
3.3.2	Positive direct impact	12
5	**The challenge for rangatahi (preassure points)**	16
5.1	Employment in lower-skilled occupations	16
5.2	Job growth in high-touch and higher-skilled jobs	16
5.2.1	Growing industries and occupations for Māori	17
5.3	Problem solving skills crucial	19
6	**Ka pao te torea - The Opportunities**	21
6.1	Entrepreneurship	21
6.1.1	Low barriers to starting a business in Aotearoa	21
6.1.2	Levels of entrepreneurship	22
6.2	Collaboration	22
6.3	Globalisation	22
6.3.1	Possible service imports	23
6.3.2	Manufacturing	24
6.3.3	Services	24
6.4	Technology	25
6.4.1	Digital divide	25
7	**Skills for the future**	26

Tables

Table 4.2 Industries affected directly by the response to COVID-19 12

Table 5.3 Fastest growing occupations for Māori 17

Table 5.7 PISA matrix of collaborative problem-solving skills 19

Figures

Figure 4.1 Income gap, Māori and non-Māori 11

Figure 4.3 Count of Māori people employed in COVID affected industries 13

Figure 4.4 Positively and negatively affected employment for Māori (percentages are the proportion of population) 14

Figure 4.5 Count of youth employed in COVID affected industries 15

Figure 4.6 Positively and negatively affected employment for youth (percentages are the proportion of population) 15

Figure 5.1 Employment in Aotearoa by skill level 16

Figure 5.2 Growth in occupations 2013 - 2018, for Māori 17

Figure 5.4 Proportion of employment in occupations by risk of being affected by automation, by age 18

Figure 5.5 Employment in occupations affected by automation, by ethnicity 18

Figure 5.6 Employment in occupations affected by automation, over time 18

Figure 5.8 Collaborative problem-solving skills in 15-year old´s 19

Figure 5.9 Adult proficiency problem-solving in technology rich environments 20

Figure 6.1 World Bank ranking on ease of doing business 21

Figure 6.2 Self-employed and employers by age and ethnicity (Census 2018) 22

Figure 6.3 Part-time and full-time employment, all ethnicities 23

Figure 6.4 Proportion of occupations that could be provided from abroad, all ethnicities 23

Figure 6.5 Manufacturing exports 24

Figure 6.6 Service imports and exports 24

Figure 6.7 Relative share of services imported versus exported 25

Ka whati te tai, ka pao te tōrea

This report takes its name from an Ōtākou whakataukī that talks of the oyster catcher that must strike at the low tide to gather its kai or else miss the opportunity and go hungry. We need to be like the oyster catcher and seize the day – when opportunity arises, we must be ready to strike before it passes.

This report is structured in two sections.

Section One

Ka whati te tai – looks at the challenges facing the Māori workforce caused by the economic impacts of COVID-19 and is likened to the tide breaking. Our starting point is that the inequities facing Māori are a pre-existing crisis and that COVID-19 has merely exposed existing divides. Historic policy decisions by successive governments worked towards constructing a Māori underclass where education channelled our people to be the blue-collar workforce of Aotearoa. Every whānau will remember loved ones being shipped to the cities to work in manufacturing and labour in the 1960s only to be laid off by the economic reforms of the 1980s. These inequities are the underlying reason why Māori have been adversely affected by economic shocks in the past and by COVID-19 today. Our aim is to identify current risks and expose the underlying causes so that we don't repeat the policy mistakes of the past in our recovery. Building our way out of the recession risks digging a deeper hole for Māori if inequities in education and income that leave our whānau vulnerable and constrains their rights to determine their own path – rangatiratanga – are not addressed.

Section Two

Ka pao te tōrea – looks at the future opportunities for Māori and is likened to the tōrea bird going forth to gain sustenance. This section focuses on future-focused skills and how they align with our strengths as Māori.

Both pandemics and recessions are transformational. Recessions accelerate the pace of change and bring what was on the horizon closer. In just a week our country leaped forward into new ways of working remotely where our virtual bubble was bigger than our real one. Change is here and we need to equip whānau, hapū, iwi and decision-makers with future-focused insights so they can determine their path towards future prosperity.

Rather than being the rise of the robots, the future of work will be uniquely human. As automation and AI replace repetitive and predictable tasks what becomes valued are the human qualities that cannot be mechanised – human connection, teamwork, collaboration, creativity and critical thinking. These are all qualities where Māori excel.
The future is not just human, it's Māori. Between the 2013 and 2018 Census the Māori workforce grew by 50%. Our younger and faster growing population will be key to leading the nation forward and supporting an aging Pākehā population heading into retirement. Section two shows how a focus on future skills offers greater potential for transformation, equity and whānau wellbeing to create a free, fair and just Aotearoa.

The forecast economic harms resulting from COVID-19 ultimately stem from racist ideas that view Māori as labourers not leaders. The opportunity here is to change the narrative to 'see' the opportunities for our rangatahi and shift our mindset and approach to support them to be the future leaders we know they are.

We hope this report helps whānau, hapū, iwi, champions, allies, communities and decision-makers to seize the opportunity of a better future and tell a new story of how our future can be borne by the brains and hearts of our rangatahi, not their backs.

Pao tōrea!

Dr Eruera Tarena
Executive Director
Tokona te Raki: Māori Futures Collective

I Executive Summary

The impact of COVID-19 on Māori will be acutely felt by rangatahi. This research highlights that a significant proportion of rangatahi are employed in sectors negatively impacted by the response to COVID-19. Further, a substantial proportion of entry level jobs, might not be available in the near future as a fallout of COVID-19.

The question becomes, what are rangatahi to do? Historically, it was entry level positions such as retail, hospitality, and some manufacturing jobs that were attractive for rangatahi coming out of education. However, given the new reality, these might not be available. Also, not all rangatahi are interested in further formal education. Policies and plans by iwi and government need to ensure credible options, whilst considering the demographic structure of Māori and the inter-generational aspect of decisions made now for rangatahi in the immediate future.

These key points reinforce that preparation for the future is about upskilling, reskilling and understanding what rangatahi need to thrive in the new work order.

The response to COVID-19 will prompt a reallocation of capital around the economy and rising unemployment. From this reallocation comes opportunities. Skills for navigating the new work order are not just about formal education. In order to fully grasp these opportunities, we recommend a focus on:

- Designing programmes for life-long learning – education needs to be a life-long journey to accommodate future skill needs
- Exploring dynamic and agile education systems that keep Māori engaged in learning so that they are always growing to meet emerging opportunities and never left behind
- The FYA report *The New Basics* recommends a new curriculum to teach enterprise skills and creativity – this is just as relevant in Aotearoa
  - Addressing the digital divide – ensuring rangatahi have access to an internet connected device for recreation as well as education
- Not all skills are learned formally – rangatahi benefit from having a device to tinker with
  - Empowering whānau to make the home a place for learning.

Ka pao te tōrea – The dawn of Māori futures

The future is not just human, it's Māori. Our faster growing population will have an ever-increasing role in leading our nation forward. Furthermore, the skills in greatest demand in the future are intrinsically social and human. Our cultural values and strengths as Māori are a source of immeasurable value to us as Māori, and to Aotearoa. They are also going to be in hot demand in the new work order.

Limiting Māori potential to a blue-collar workforce was the solution of yesteryear that underpins the problems we face today. Like the outgoing tide we need to leave behind the idea that Māori are not capable, instead seizing the opportunity of Māori leading and 'seeing' our rangatahi as the leaders we know they are. Let us be like the tōrea and seize the opportunity of a future where we can all thrive together – pao tōrea.

2 Introduction

There is no going back to normal; COVID-19 will have an unprecedented impact on the world, Aotearoa and the Māori economy. The structure of our economy will change and with that the nature of work. COVID-19 will bring new and unchartered challenges. For Māori, these challenges will be even more pronounced due to the collective asset base and where the workforce is positioned. Of particular concern are Māori and whānau in medium-low skilled jobs who have historically been adversely affected by economic shocks.

Data stocktake and mapping

The inspiration for the set of indicators we present in this report was *The New Work Order*, a 2015 analysis by Foundation for Young Australians (FYA)[1]. This report also provided a useful framework to couch our analysis.

We have done our best to replicate the data presented in *The New Work Order* in an Aotearoa context.

The main themes, supported by the data are:

- COVID-19
- Impact of COVID-19 and other pressure points, challenges and opportunities.

Under each of the themes we provide analysis and data to support your story to whānau.

COVID-19 – Global shock, uncertain future

The shock being experienced is widely recognised as greater than the 2007/08 Global Financial Crisis. In response to the COVID-19 outbreak, governments around the world have implemented large-scale health and economic support measures. As expected, economic activity in Aotearoa has fallen as a result of the lockdown, as illustrated by the latest Treasury Weekly Economic Update. [2]

The future of our economy is uncertain. What is clear is that whatever path the global and domestic economies follow, the effects of COVID-19 will be severe and long lasting.

Income will be lost for many businesses and households, and the economy. The magnitude and duration of the recovery depends on many unknown factors, including:

- The course of the virus
- How long restrictions are in place
- How quickly the global health and economies recover
- How behaviours might change
- How successful government policies are in supporting the wellbeing of nations, regions, communities, firms,households and individuals.

As the public health risks decrease and restrictions ease, global and domestic economies will begin to recover, supported by the government packages. The timing and pace at which this happens is unclear, and will be very different domestically and internationally, depending on how countries respond.

[1] *https://www.fya.org.au/wp-content/uploads/2015/08/fya-future-of-work-report-final-lr.pdf*
[2] *https://treasury.govt.nz/publications/research-and-commentary/weekly-economic-updates*

3 Ka whati te tai: The Challenge

Although the full impact of COVID-19 has yet to be determined, it will continue to disrupt our lives for some time to come. We expect a significant economic slowdown to occur from this shock, bringing increased uncertainty. What will this mean for our nation's economy in 2020? It is going to be a bumpy ride.

It is very difficult to understate the importance of the COVID-19 outbreak in shaping the short-term and long-term behaviour of individuals, families, whānau, iwi, businesses, and governments. In recessions of the past, the unskilled and least paid were most vulnerable to job loss and community dislocation. Without doubt, Māori have been disproportionately represented in such groups. Some suggest the current focus on 'essential work' may mitigate this impact, due to the concentration of Māori in such work.

However, given the scale of the job reduction – many in non-food manufacturing, not to mention forestry, and also retail and tourism activities – it is difficult to see how Māori would escape. Even if Māori did escape from large job losses this time around, a post-crisis scenario where Māori are stuck in the same 'essential', but low-paid jobs is likely to be unappetising to many.

3.1 Inequality

A major pressure point iwi and government need to solve is inequality of wealth and income.
The unfortunate reality of this subject is that official statistics obscure rather than reveal information.

In general, a U shaped relationship has been observed between the level of wealth and income inequality and economic growth in a significant proportion of countries across the world.[3] For developing countries, high inequality is associated with low growth, while in developed countries high inequality is associated with higher growth. It also highlights that we can't treat income and wealth inequality as the cause of low growth.
We must treat them as symptoms and look at structural causes.

Iwi and government should be thinking and conversing on the kaupapa of the structural causes of inequality.
A starting point can be the kaupapa of describing inequality as a duality:

- *These are the structural causes:* Inequality of opportunity is often measured in availability of education. These inequalities of opportunity are the structural causes of inequality of outcome.
- *Inequality of outcome:* Equality of outcomes, often dependent on equality of opportunity, can also be measured in both financial and non-financial terms and are components of a person's long-term wellbeing. An inequality of outcome that can have a significant impact is income. In Aotearoa, there is a significant gap between average incomes for Māori and the average income for the total Aotearoa population.

3.1.1 Inequality of outcome – Income gap

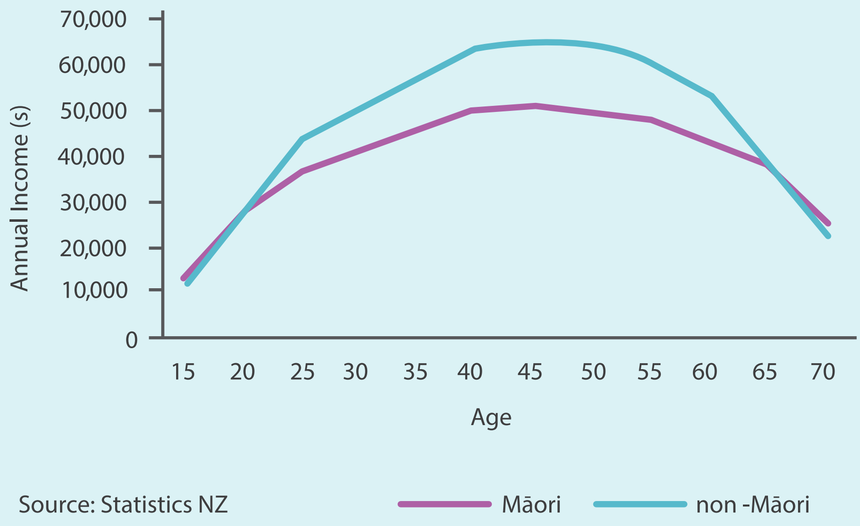
A report by BERL in 2017, Change Agenda – Income equity for Māori, investigated the income gap between Māori and non-Māori.[4] Between 2006 and 2013, the income gap between Māori and non-Māori increased slightly. In 2006, Māori aged from 30 to 60 years old earned approximately 17 percent less than the average income for their age group. In 2013 the gap increased to approximately 22 percent less. Between 2013 and 2018, there was no significant change in this gap. In each of these years, the income gap is more pronounced for men than for women. In 2018, Māori men aged 40 to 60 years old earned 25 percent less than average for their age, while Māori women of the same age earned 15 percent less than the average woman.

Māori over 65 years old, the income gap inverts, with Māori earning relatively high incomes in 2018.
This is expected to be a long-term effect of the income gap throughout working life, with Māori spending more time working when over 65 years old.

[3] *Barro, R. J. (1999). Inequality, growth, and investment. No. w7038. National Bureau of Economic Research.*

[4] *https://www.berl.co.nz/sites/default/files/2019-11/Tokona%20te%20Raki%20-%20Income%20Equity%20for%20Maori.pdf*

Figure 4.1 Income gap, Māori and non-Māori



3.2 A generation disrupted

According to the 2018 Census there were 71,079 Māori between the ages of 15 and 19. This cohort will be leaving formal secondary education during the most severe impacts of the COVID-19 response.

The question becomes, what are rangatahi to do? Historically, it was entry level positions such as retail, hospitality, and some manufacturing jobs that are attractive for rangatahi coming out of education. However, given the new reality, these might not be available. Also, not all rangatahi are interested in further formal education. Policies and plans by iwi and government need to ensure credible options, whilst considering the demographic structure of Māori and the inter-generational aspect of decisions made now for rangatahi in the immediate future.

Rangatahi Māori will need skills and experience for the future, not the past.

3.3 What sectors will be affected?

We know that the impact of the response to COVID-19 will be felt economy-wide. Some sectors will be directly affected positively on aggregate, others negatively. In this section we attempt to organise each sector of the economy into whether it will be directly affected positively or negatively.

We approach this analysis from the point of view of the worker in each sector - will there be more or less work in the immediate future as a direct consequence of the response to COVID-19?

3.3.1 Negative direct impact

The largest negatively affected sector will be retailing. Retailers of all shapes and sizes, except supermarkets and pharmacies, have been required to close their doors for the time being. Workers in these sectors are receiving income from the wage subsidy programme, however the lockdown has severely impacted demand for these workers.

We include in this section food retailing, as although supermarkets are allowed to operate normally, other food retailers are not. On balance, the sector will be negatively impacted.

Construction is another sector that has been required to cease operations, apart from essential infrastructure. In the immediate future, demand for this sector will be lower than prior to the lockdown.

Forestry and logging is another sector that will experience a slowdown as a direct result of the response to COVID-19. Log prices are already in a slump and this lowers demand for forestry labour. Demand from China is unlikely to pick up in the near future as they deal with the economic fallout from their COVID-19 response.

The tourism sector, specifically accommodation and air transport sectors, as well as all the supporting sectors within the tourism industry, is the next sector identified. International travel is now impossible and domestic travel is limited. This implies a severe curtailing of demand for air travel and accommodation services.

Various other sectors will be negatively impacted due to a requirement to cease operations. There is a high level of uncertainty around how many of these sectors will survive and in what format.

3.3.2 Positive direct impact

The most positively affected sectors are those related to health and care. From the perspective of workers in these industries, there are more hours and more positions required to be filled. This includes new roles for extra sanitisation staff and extra care staff, as well as extra hours for medically trained staff.

The social assistance sector has already experienced greater demand, and this will continue to grow. This sector includes the Ministry of Social Development (MSD) offices, which are experiencing their highest level of demand for services. More workers will be required across the board in this sector.

Postal and transport support services will experience an increase in demand for workers as supermarkets experience extra demand for delivery services. The demand for delivery workers has increased as supermarkets respond to, or pre-empt, "panic buying".

In the immediate future demand for workers in the agriculture and horticulture/viticulture harvesting sectors has increased and the supply of foreign demand for workers is near zero. This implies there is more work for Aotearoa workers in these industries.

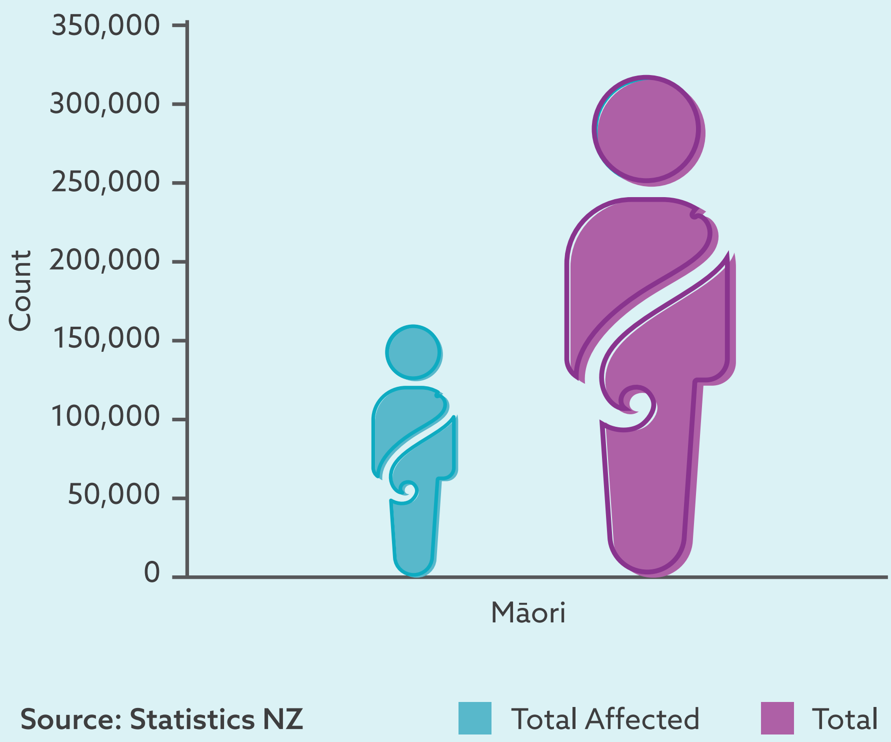
Table 4.3 Industries affected directly by the response to COVID-19

Positive	Negative
Agriculture	Forestry and Logging
Fishing, Hunting and Trapping	Food Product Manufacturing
Agriculture, Forestry and Fishing Support Services	Beverage and Tobacco Product Manufacturing
Postal and Courier Pick-up and Delivery Services	Building Construction
Transport Support Services	Construction Services
Warehousing and Storage Services	Food Retailing
Hospitals	Other Store-Based Retailing
Medical and Other Health Care Services	Non- Store Retailing and Retail Commission Based Buying and / or Selling
Residential Care Services	Accommodation
Social Assistance Services	Food and Beverage Services
	Water Transport
	Air and Space Transport
	Property Operators and Real Estate Services
	Building Cleaning, Pest Control and Other Support Services
	Sport and Recreation Activities
	Gambling Activities

We found that just over 169,000 Māori are employed in industries which will be directly affected by the response to COVID-19. This is approximately half the Māori workforce of 329,000.

Figure 4.3 Count of Māori people employed in COVID affected industries

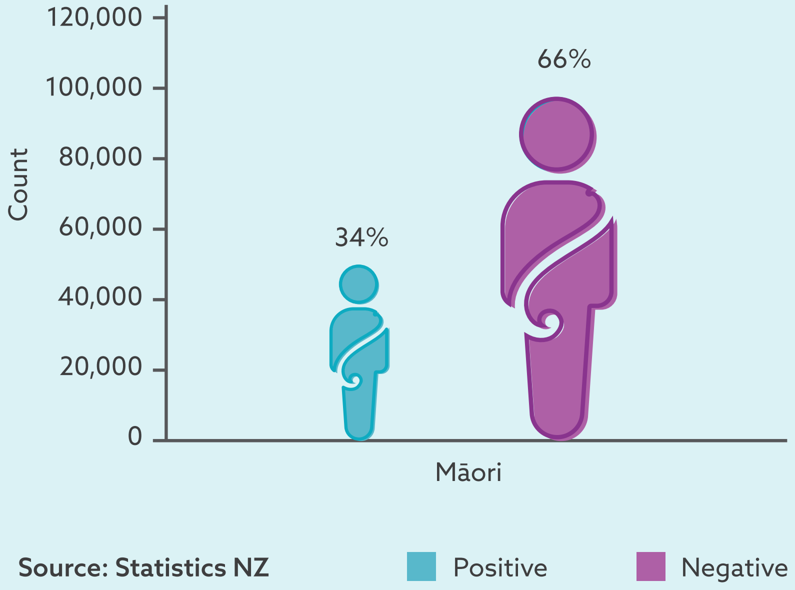
We estimate that around half of all Māori work in industries that will be directly impacted (negative or positive) by the response to COVID-19.



We estimate that 66 percent of those impacted work in sectors that will be negatively impacted by the response to COVID-19. These include forestry, agriculture, and food and beverage manufacturing. The remaining 34 percent work in sectors that will benefit by the response to COVID-19 as shown in Figure 2.2

Even more pronounced, 66 percent of Māori work in sectors negatively impacted by the response to COVID-19.

Figure 4.4 Positively and negatively affected employment for Māori (percentages are the proportion of population)



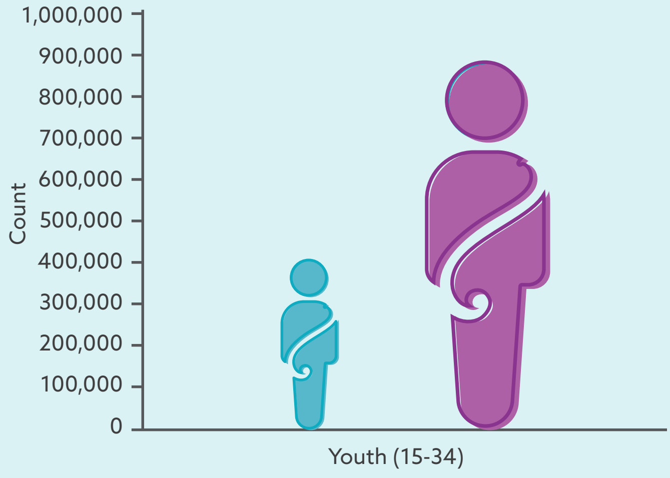
Next, we present similar data for New Zealand rangatahi aged between 15 and 34 years.

4.1. Impact on youth (ages 15-34)

Our analysis revealed that just over 462,000 (around 53 percent) of the 875,000 New Zealand youth workforce (Māori and non- Māori) work in industries which will be directly affected by the response to COVID-19.

We found that over half of all youth (ages 15 – 34) work in industries that will be directly impacted (negative or positive) by the response to COVID-19.

Figure 4.5 Count of youth employed in COVID affected industries

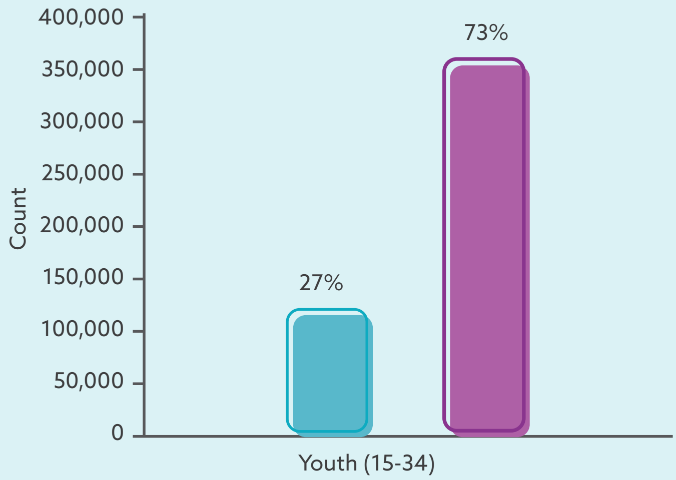


Source: Statistics NZ

Finally, we present an estimate of the number of youth workers positively and negatively affected by the response to COVID-19. We found that 73 percent of all youth workers in New Zealand are working in industries which will be negatively impacted by the response to COVID-19. This is a generation disrupted.

We found that 73 percent of youth who are affected are negatively affected, just like the statistic for Māori.

Figure 4.6 Positively and negatively affected employment for youth (percentages are the proportion of population)



Source: Statistics NZ

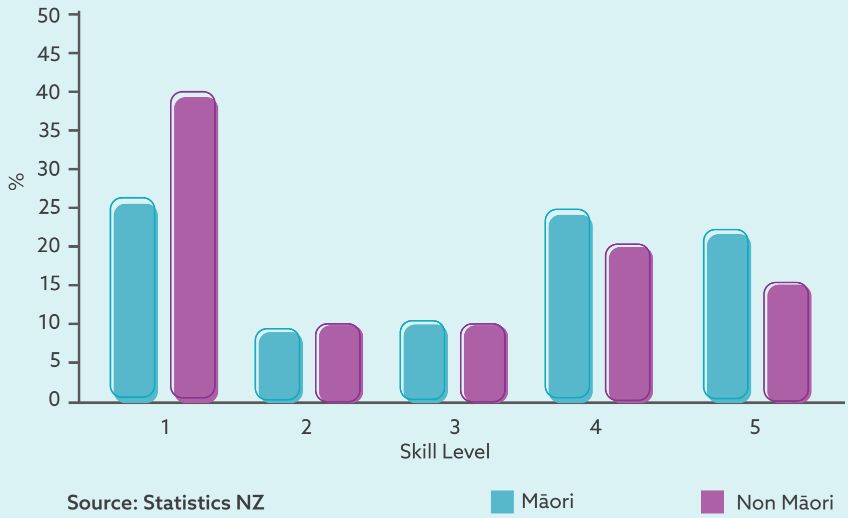
5 The challenge for rangatahi (pressure points)

Prior to the pandemic, rangatahi weren't being inspired and prepared for future opportunities and our education system was not addressing the shifting population demographics that will determine our future. The response to COVID-19 has exposed existing fault lines in our society that need to be addressed. The world was already changing; the response to COVID-19 has hastened this change. In this section we detail the pressure points Māori were already facing.

5.1 Employment in lower skilled occupations

Current statistics of Māori employment show that Māori are generally overrepresented in low skill occupations (level 4 and 5 ANZSCO skill level) as shown in Figure 3.1. This does not reflect the skills of Māori, rather this is a proxy of the skills required for an occupation. Further, ANZSCO skill levels are loosely related to qualification but are not qualification levels. [5]

Figure 5.1 Employment in Aotearoa by skill level



This pattern has persisted over the past decade and will not be turned around without targeted actions.

Entry level low-skilled jobs in sectors severely impacted by COVID-19 such as retail, accommodation, and forestry might not be available for rangatahi entering into the job market.

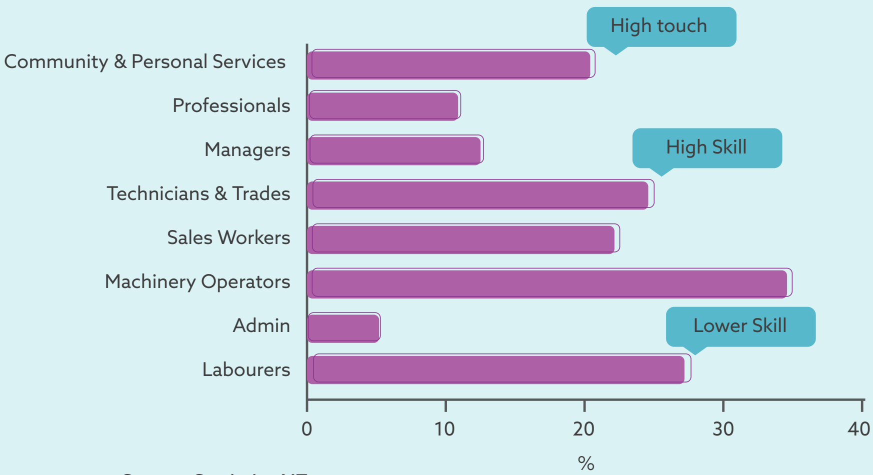
5.2 Job growth in high-touch and/or higher-skilled jobs

Technology has many effects on the labour market, some of which are positive for workers, the quality of work and jobs.

Over the past 25 years, the highest job growth has been in occupations that are either high-touch, such as community and personal services, or high-skill, such as professionals as shown in Figure 3.2. In Aotearoa some lower-skilled occupations have seen high growth, such as machinery operators and labourers. These occupations can be made easier and more productive by automation that augments workers skills.

[5] *www.abs.gov.au*

Figure 5.2 Growth in occupations 2013 - 2018, for Māori



Source: Statistics NZ

5.2.1 Growing industries and occupations for Māori

Over the period 2013 to 2018, office managers were the fastest growing occupation for Māori, This occupation is classified as ANZSCO skill level 2, which indicates that it requires a diploma level qualification or equivalent experience. We suggest caution in interpreting this statistic as the role of an office manager has changed significantly between 2006 (which is when the ANZSCO standards were revised) and the 2018 Census. In 2020, an office manager may be somewhere between level 2 and 3 skill and no longer requires a diploma.

Figure 5.3 also shows the estimated proportion of these roles that will be impacted by automation. Office managers are the fastest growing occupation with around 40 percent probability of being affected by automation. Many of the tasks in this role are high-touch and automation tends to increase the value provided by an office manager.

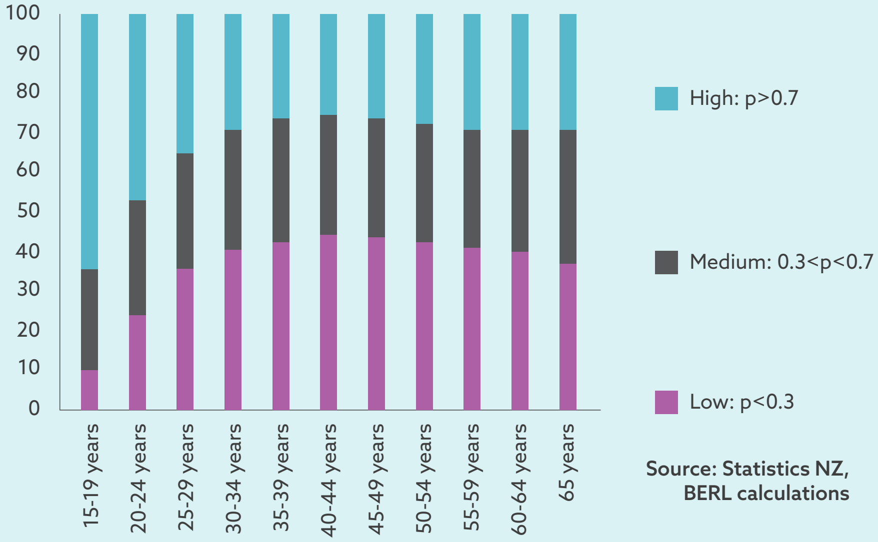
Table 5.3 Fastest growing occupations for Māori

Māori				
Rank	**Occupation**	**Growth in absolute numbers (2013-2018)**	**Skill**	**Probability (%)**
1	Office Managers	7,710	2	39.03
2	Sales Assistants (General)	6,798	5	76.47
3	Other Miscellaneous Labourers	6,420	5	78.02
4	Truck Drivers	4,737	4	40.95
5	Construction Managers	4500	1	9.58

We need to understand how these occupations and the numbers working in them might change in the future.

The CEDA (2015) report referenced by the FYA report (2015) contains a description of a methodology to approximate the probability of each occupation being affected by automation. We have replicated this methodology to provide an estimate of how many people are working in occupations at risk of being affected by automation.

Figure 5.4 Proportion of employment in occupations by risk of being affected by automation, by age

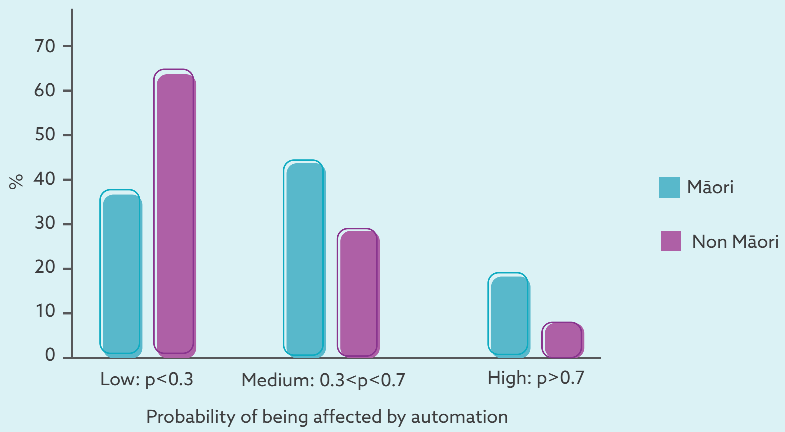


Source: Statistics NZ, BERL calculations

Similarly, we found that, in general, Māori are more highly represented in the occupations that are at greater risk of being affected by automation.

We found that younger people are more likely to work in occupations that are higher at risk of being affected by automation, while older people are less so.

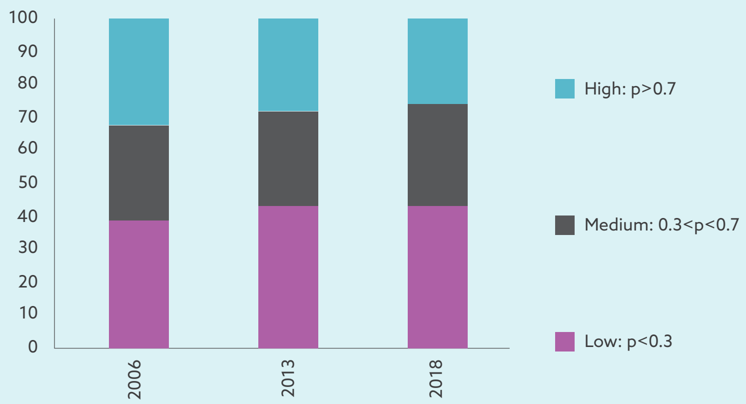
Figure 5.5 Employment in occupations affected by automation, by ethnicity



Source: Statistics NZ, BERL calculations

The total share of jobs with a high probability of being affected by automation has shrunk slightly over the period 2006 – 2018. About 20 percent of Māori are employed in occupations that have a high probability of being impacted by automation.

Figure 5.6 Employment in occupations affected by automation, over time



Source: Statistics NZ, BERL calculations

5.3 Problem-solving skills crucial

Skills for navigating the future of work are not just about formal education. The new world of work values the ability to problem-solve and think for yourself. As at 2015, 12 percent of students (Māori and non-Māori) assessed had below level 1 proficiency in collaborative problem-solving. Collaborative problem-solving is not a skill taught or encouraged in formal education. Rangatahi at below level 1 proficiency will fall between the cracks.

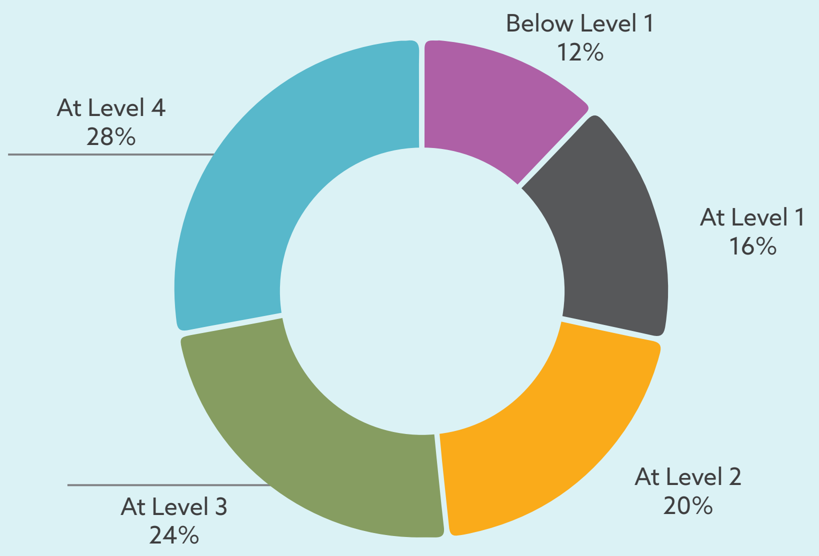
PISA has published a matrix of skill levels and descriptions which we reproduce in Figure 3.6.

Figure 5.7 PISA matrix of collaborative problem-solving skills

	(1) Establish and maintaining shared understanding	**(2) Taking appropriate action to solve the problem**	**(3) Establish and maintaining team organisation**
(A) Exploring and understanding	(A1) Discovering perspectives and abilities of team members	(A2) Discovering the type of collaborative interaction to solve the problem, along with goals	(A3) Understanding roles to solve the problem
(B) Representing and formulating	(B1) Building a shared representation and negotiating the meaning of the problem (common ground)	(B2) Identifying and describing tasks to be completed	(B3) Describe roles and team organisation (communication protocol/rules of engagement)
(C) Planning and executing	(C1) Communication with team members about the actions to be/being performed	(C2) Enacting plans	(C3) Following rules of engagement, (e.g. prompting other team members to perform their tasks)
(D) Monitoring and reflecting	(D1) Monitoring and repairing the shared understanding	(D2) Monitoring results of actions and evaluating success in solving the problem (D3). Monitoring, providing feedback and adapting the team organisation and roles. Note: The 12 skill cells have been labelled with a letter number combination.	(D3) Monitoring, providing feedback and adapting the team organisation and roles

Level 1 competencies are about establishing and maintaining understanding, while levels 2 and 3 are about taking action and leading a team. Students scoring below level 1 do not demonstrate that they can take part in building a shared understanding. A detailed methodology is available in the *PISA 2015 collaborative problem-solving framework.* [6]

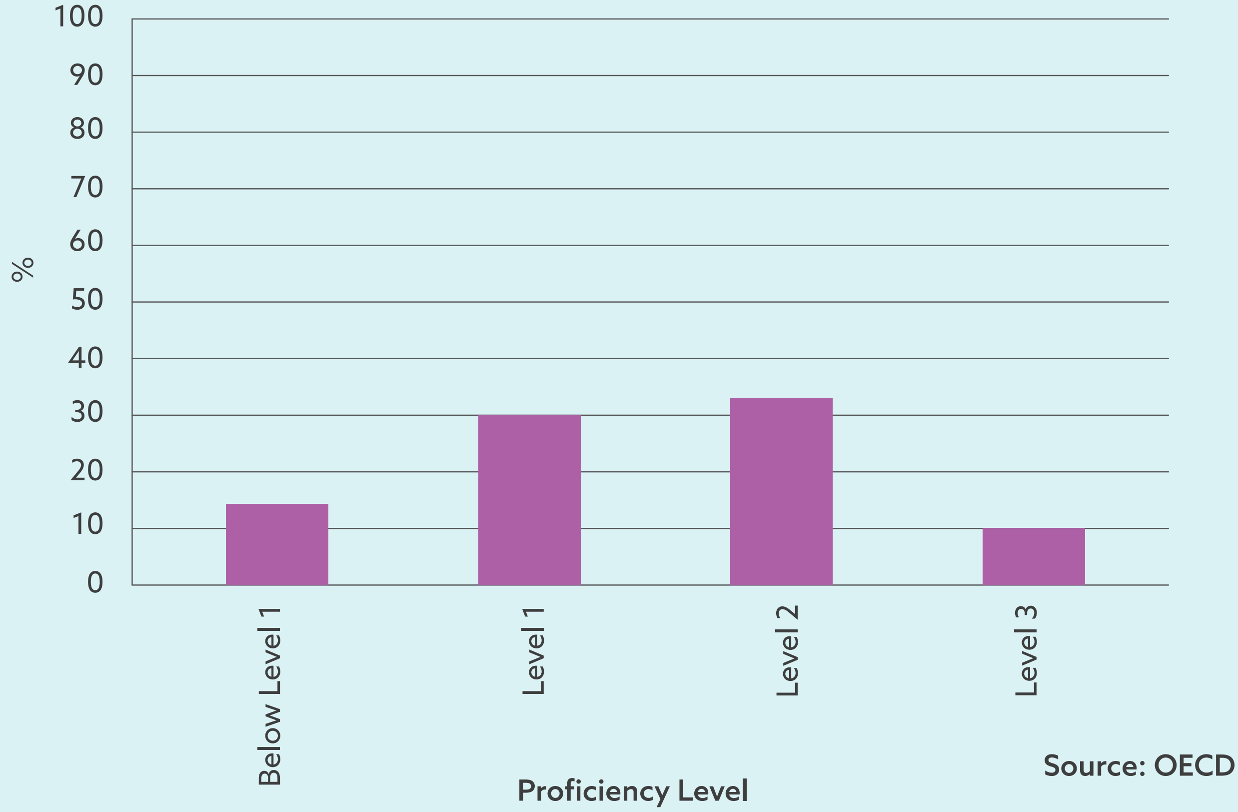
Figure 5.8 Collaborative problem-solving skills in 15-year old's



[6] *OECD. (2013). PISA 2015 collaborative problem-solving framework.*

The next skill for which there is an official statistic is adult problem-solving in a technology rich environment. 14.7 percent of adults in Aotearoa performed below level 1 proficiency in problem-solving, as shown in Figure 3.6. This cohort currently do not have the skills to survive in the new world of work. However, these skills can be learned by most people. Policies and plans by iwi and government need to target programmes for both adults and rangatahi to problem-solve in technology rich environments.

Figure 5.9 Adult proficiency problem-solving in technology rich environments



6 Ka pao te tōrea - The Opportunities

Despite the seemingly overwhelming challenges, if we make the right choices, we can emerge stronger than before. This section looks beyond the current crisis to identify the opportunities and pathways for Māori that would lead towards whānau transformation, agency and self-determination. Māori are navigators, innovators, entrepreneurs and collaborative – all of which are cultural strengths that will be increasingly valued in the emerging future of work.

6.1 Entrepreneurship

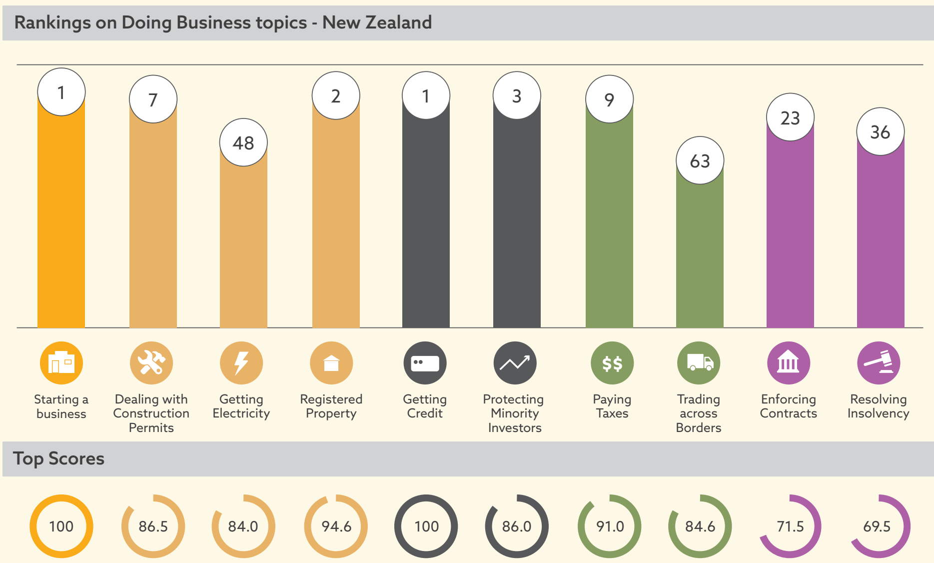
Part of the mind-set that rangatahi will need for the future is the belief that risks are not necessarily something to avoid. Official statistics are hard to come by for this phenomena but we might assume that those people who are self-employed and business owners are those likely to be following their own plans, taking risks, being innovative and creating new or improved goods or services.

This mind-set of taking risk needs to be combined with enterprise skills, such as creativity and problem-solving.

6.1.1 Low barriers to starting a business in Aotearoa

The FYA report (2015) noted statistics on barriers to starting a business in Australia and in the OECD countries in general. According to the World Bank ranking, Aotearoa ranked first out of 190 countries for starting a business.[9] This means the barriers to starting a business in Aotearoa are generally low.

Figure 6.1: World Bank ranking on ease of doing business



[9] https://www.doingbusiness.org/en/data/exploreeconomies/new-zealand

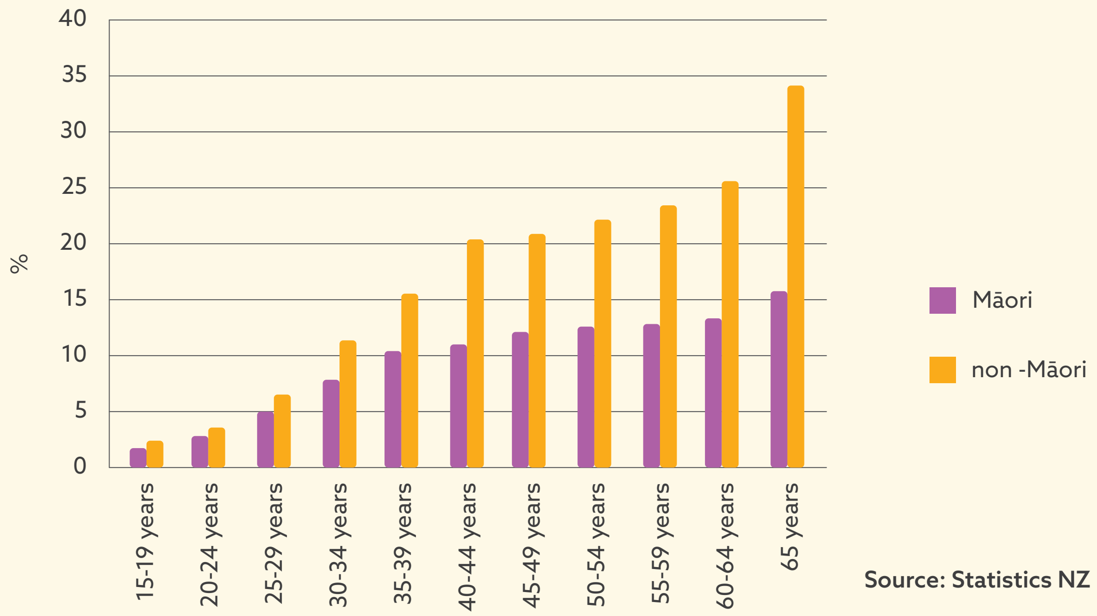
6.1.2 Levels of entrepreneurship

The proportions of self-employed and employers in Māori compared to other ethnicities are strikingly different in the older age groups (Census 2018). Non-Māori tend to be more likely to be self-employed or employers.

For younger Māori, the gap is much smaller and building the right mind-set and skills in rangatahi is a priority. Figure 4.4 chart measures the proportion of Māori that are self-employed or employers as a proportion of total Māori employed. This is displayed with the same calculation for non-Māori.

The share of self-employed and employers to all employed is higher for non-Māori at every age group. In total non-Māori self-employed and employers make up almost 17 percent of all non-Māori workers. While for Māori the self-employed and employers make up 8.6 percent of all workers.

Figure 6.2 Self-employed and employers by age and ethnicity (Census 2018)



Source: Statistics NZ

Levels of entrepreneurship for rangatahi is on par with non-Māori peers, although overall levels of entrepreneurship are low.

6.2 Collaboration

Currently, as part of the response to COVID-19 all workers who can perform their roles remotely are doing so. This has meant a huge shift in skillsets necessary for work with a larger emphasis placed on using collaboration tools.

Rangatahi will need to learn how to navigate these business models and learn how to work in the new world. This new world of mostly remote work implies new business ideas, such as the development of apps and also establishments offering a dock for a laptop, connection, and food and beverages. This is not a new concept, with examples such as BizDojo and ĀPŌPŌ CreativeTech Hub in Wellington already operating this way for years.

Social enterprise is another emerging trend and one that will continue to increase in prominence. While social enterprise is a relatively new term, whānau and hapū trade has existed for hundreds of years within Māori culture. Pakihi whai kaupapa (business that follows purpose) is unique to Aotearoa because it is defined by kaupapa Māori values such as kaitiakitanga, which shape Māori business models.

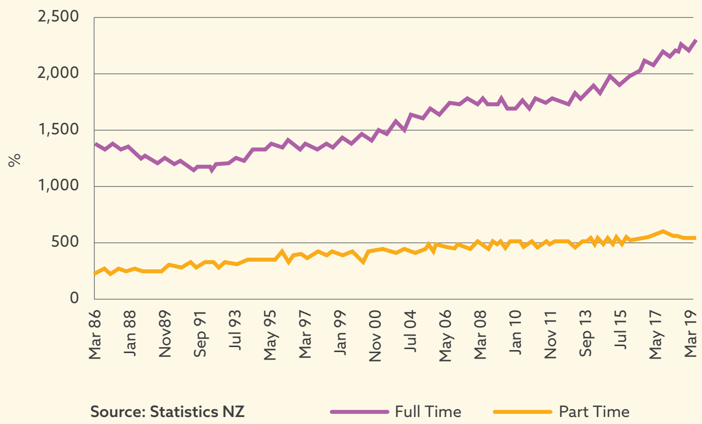
Many Māori businesses aim to benefit iwi and social groupings like hapū, whānau or hapori. Māori businesses that could be considered social enterprises often focus on supporting the wider wellbeing of Māori and can have a focus on mana over other drivers like economic exchange. [10]

[10] *https://www.akina.org.nz/social-enterprises*

Our current labour market appears to favour full-time workers over part-time workers (Figure 6.3). This could be because the fixed costs of each employee have grown over recent history, making it more cost-effective to hire full-time workers. It is important to note that those who have a part-time job increasingly also have a full-time job or more than one part-time job. [11]

Part of considering a new order of work is a critical look at what makes work suitable for each individual instead of assuming a single full-time job suits all.

Figure 6.3 Part-time and full-time employment, all ethnicities



6.3 Globalisation

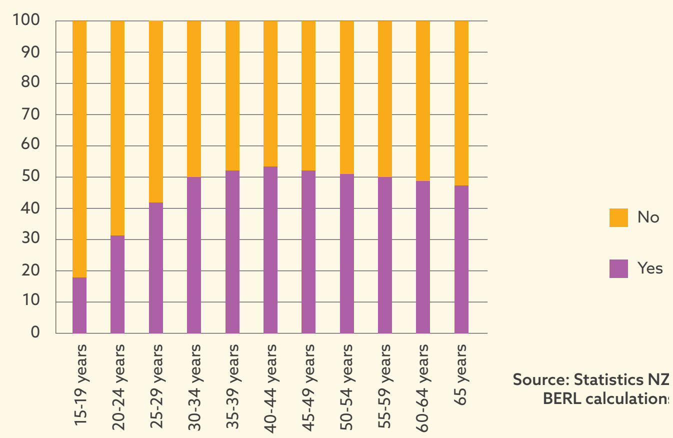
New methods of production have already shifted occupations around for citizens of Aotearoa. In this section we look at the current configuration.

6.3.1 Possible service imports

First, we look at employment in occupations which could be provided remotely from abroad. We found that younger people in general work in occupations that are not easily resourced from abroad. These are often lower skilled occupations, such as labourers and retailing, which cannot be performed remotely.

In general younger people work in groups, about half of all occupations could be provided remotely from abroad. We base this on what technology is required to perform the role and whether or not the person has to physically be in Aotearoa to perform it.

Figure 6.4 Proportion of occupations that could be provided from abroad, all ethnicities

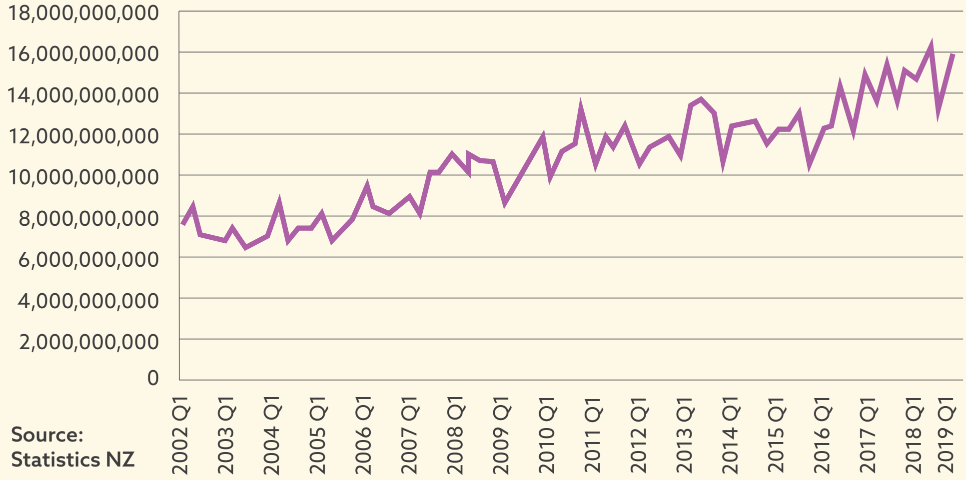


[11] *(https://www.berl.co.nz/economic-insights/employment-and-skills-trade-and-industry/increase-people-holding-multiple-jobs*

6.3.2 Manufacturing

The manufacturing sector in Aotearoa continues to grow in terms of exports. With the new work order will come new products and new methods of manufacturing. This means there will be new business investment opportunities for iwi and employment for rangatahi in designing and running production systems.

Figure 6.5 Manufacturing exports



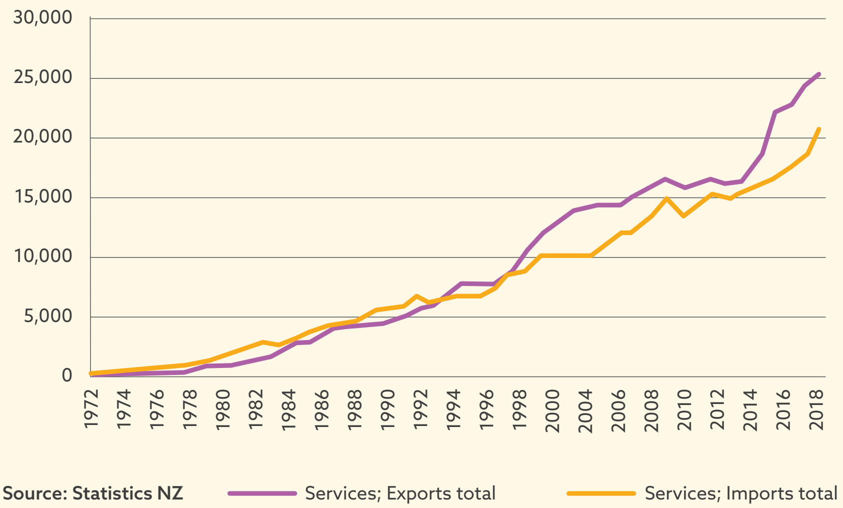
Source: Statistics NZ

6.3.3 Services

The ability to import and export services is growing rapidly. This is driven by the increased connectivity of the world. In the past service exports and imports might have been limited to large-scale consulting engagements. Now, services such as data entry and small-scale consulting in copywriting, editing, and other artistic pursuits, are easily traded.

Aotearoa continues to import as well as export more services year after year. The opportunity exists for rangatahi to develop skills that can be exported as a service in the future.

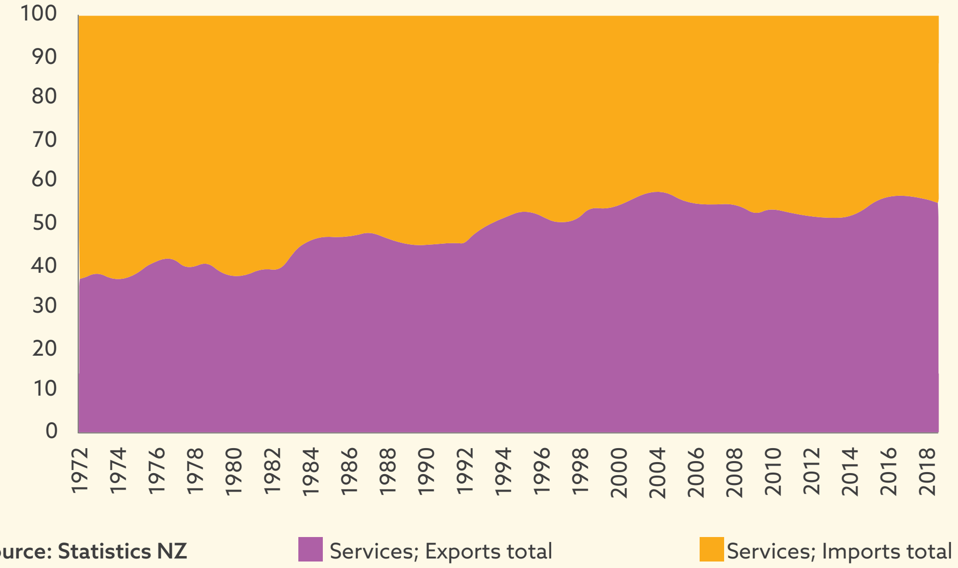
Figure 6.6 Service imports and exports



Source: Statistics NZ

Finally, we note that in recent history the value of the export of services from Aotearoa is greater than services imported. Service exports account for just over half of the balance in 2018. In the early 1990s and before, the balance was more skewed to service imports. This shows a gradual changing of the Aotearoa production structure.

Figure 6.7 Relative share of services imported v exported



Source: Statistics NZ

6.4 Technology

Technology and automation do not affect all occupations equally.

6.4.1 Digital divide

According to the OECD, time on the internet has overtaken time spent on traditional media channels in many countries. This is largely driven by growth in the use of mobile devices, with mobile searches outstripping desktop searches in the last few years. Traditional avenues for reaching consumers (especially younger consumers) are becoming less relevant and are being replaced by online channels. Kiwis are now spending around half of their media consumption time online.[12]

Data from the World Internet Project in 2017 reveals that 5.6 percent of people in Aotearoa have never used the internet. This was based on a nationwide survey, and since 2017 the Department of Internal Affairs has been researching digital inclusion statistics and strategies.

There are multiple dimensions to digital inclusion:

- Access to a device and connection
- Skills to use it
- Trust in the technology
- Motivation to use the technology

Making sure everyone in New Zealand is digitally included is going to require a team effort, with iwi, hapū, community organisations, businesses, libraries, philanthropic organisations, charities, local government and others all making important contributions. Central government also has a leadership and support role to play in order to make sure everyone in New Zealand is digitally included.[13]

Digital inclusion, especially during COVID-19, has been shown to be a game changer.

[12] *Mosh Social Media. (2017). The New Zealand Facebook Report 2017.*

[13] *https://www.digital.govt.nz/dmsdocument/113-digital-inclusion-blueprint-te-mahere-mo-te-whakaurunga-matihiko/html#what-needs-to-happen-next-to-achieve-digital-inclusion?*

7 Skills for the future

The FYA report *The New Basics* released in 2016 contains an analysis of job vacancy ads from 6000 sources. The findings of this report overwhelmingly suggest that the most valuable skills a person can have are creativity and digital literacy.

Creativity as a skill allows people to find new ways to add value and is particularly relevant to knowledge work where one's task is to constantly create new content and insights. It is a difficult skill to teach someone else, and to a great extent the current school system is unsuited to teaching it. Creativity needs to be unpacked with the same level of attention as digital literacy. Often creativity is framed as "the arts" and Māori are overwhelmingly already channelled into music, dance etc in the education system. What is not given attention is creative thinking/problem-solving.

Digital literacy deserves some unpacking. The FYA report notes that digital literacy comes in four levels: muggle, citizen, worker, and maker. The muggle level is where digital technology is not used; te citizen level is about using technology to communicate; the worker level is about configuring the digital systems; and, the maker level is about creating new digital systems.

Another feature of the modern world of work is the emergence of gig work platforms. These platforms allow workers to bid on one-off tasks. These are particularly valuable for those people selling services like remote office assistance and creative work. To use these platforms requires enough digital literacy to navigate the internet and set up payment systems confidently.

Finally, we note that almost every business can benefit from adopting automated task management, timesheet, or inventory management tools. A common feature of these tools is that individual workers use them periodically in order to remove some of the admin functions of middle management. These tools require at least a citizen level of digital literacy.

We predict that the adoption of these tools will accelerate and in future, almost all occupations will require at least citizen levels of digital literacy. Rangatahi will need more than a basic understanding of technology to use these systems properly.

[14] *The report can be downloaded from https://www.fya.org.au/wp-content/uploads/2016/04/The-New-Basics_Update_Web.pdf*

WWW.MAORIFUTURES.CO.NZ

TOKONA TE RAKI

Māori Futures Collective