

PATHWAYS, PRIDE, AND POSSIBILITIES: FOOD AND FIBRE APPRENTICESHIPS IN AOTEAROA.



A DISCUSSION PAPER.

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and the Food & Fibre Centre of Vocational Excellence**

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Executive Summary

This discussion paper explores the evidence base for apprenticeship models in the wake of changes to the New Zealand tertiary system following the Reform of Vocational Education. It investigates potential apprenticeship models for the Food and Fibre sector to ensure apprenticeships within the industry are fit for purpose and meet the needs of employers, learners and the sector. This includes an exploration of the potential content of a 'generic' Food and Fibre Apprenticeship for the sector, as well as innovation and best practices from Aotearoa New Zealand and around the world.

The primary objective of this paper was to take a fresh look at how apprenticeships might be structured and delivered in New Zealand with particular focus on the food and fibre industry. With the creation of Ohu Mahi Workforce Development Councils as new standard setting entities, and changes to the associated roles, responsibilities and resourcing of apprenticeship training, the time is right to review the apprenticeship model. Using lessons learnt and evidence from home and overseas we can now consider how a new apprenticeship model(s) might exist to better serve learners, employers, and industry.

International evidence

Key findings from our international literature review were:

Apprenticeships are received and marketed differently from country to country. In some European countries like Austria, Germany and Denmark apprenticeships have a long-standing history and are embedded as part of their education/work system. Whereas in the UK apprenticeships have 'working class' reputation and are considered in a less favourable light when compared to university education.

Industry is considered across all countries we reviewed to be key in determining the value and success of apprenticeships. While methods may vary in how industry are involved, evidence shows there must be industry buy-in to ensure the success of apprenticeships. We found the same when comparing different methods of assessment and structure. While there may be different approaches between countries, having industry support for assessment is important.

We also found examples of flexibility built into the various apprenticeship systems. Pre-apprenticeships providing learners with tasters of different industries, and apprenticeships for those not employed to continue with their learning are good examples of the flexibility within different countries.

Finally, our research found that apprenticeships internationally cover more than just technical skills. Embedded within different countries systems and apprenticeship models are behavioural or 'soft skills' that ensure apprentices are work-ready and have a holistic set of skills and competencies to support their success in the workplace.

Domestic evidence

Apprenticeships are a well-utilised and longstanding model in Aotearoa New Zealand as part of our overall tertiary education landscape. Currently, apprentices account for one-fifth of all post-school learners. However, they require promotion and marketing to appeal to and attract people as a viable career pathway. Data show that apprenticeships are well embedded with our system, with 8,500 apprentices in the food and fibre sector, representing 10 percent of all apprenticeships. Recent COVID-related direct-to-employer subsidies via "Apprenticeship Boost" have had a significant – albeit time-limited – stimulatory effect over the last two years.

Overall, our research found similar themes in New Zealand as we did overseas. Examples include:

- Labour market requirements in sectors tend to drive the need and demand for apprenticeships, especially in areas of skills shortages.
- Employers choose apprentices, and employers choose to offer apprenticeship training – a recurring theme which speaks to the fundamentally demand-led nature of the model – a labour market ‘space’ must be made to accommodate an apprentice, and it is not simply a matter of learner choice to become an apprentice.
- Apprenticeships in New Zealand have been promoted and bolstered in recent years by government policy, in particular COVID-19 subsidisation policies.
- The buy-in and support of regional skills groups and economic agencies is important in terms of promoting and encouraging people into apprenticeships and ensuring employer buy-in. These groups are best placed to understand the needs of each region and align this to workforce development needs, of which apprenticeships can play a key role.
- Formally recognised qualifications are still considered important. However, ensuring that these qualifications are right-sized and fit for purpose is key. Crucial to this is having employer-led, industry endorsed qualifications to ensure these qualifications truly reflect the needs of employers and industry.
- There are key skills and knowledge that need to be built into apprenticeships to give the learner and employer what they need to be successful.

With the structural and resourcing changes made to the vocational education system during RoVE it will be more difficult for government to easily differentiate between people undertaking apprenticeships and those learning in the workplace under any other work-based learning experience as the funding system doesn’t recognise the difference, and the learner enrolments are administered by providers in each case.

To ensure apprenticeships are distinctively recognised in the post-RoVE context this discussion paper proposes a model whereby WDCs become the custodians of apprenticeships on behalf of their industries.

Without impeding the ability of providers to arrange and offer apprenticeships, WDCs have the legislative ability to set and moderate capstone assessments. These assessments are administered by providers, but industry (via their WDCs) would set an apprenticeship standard that needed to be met for a profession. This standard would then inform and underpin capstone assessments to “bookend” the apprenticeship through taking a summative signoff role for apprentices, akin to the dual systems approach of Switzerland and Germany. We consider this approach would improve the status, pride, and sense of industry membership and peer recognition typically associated with the apprenticeship case, and ensure that apprenticeships are industry-led.

While not at the core of our research scope (as well as potentially outside the scope of WDC remit), this paper also looks at degree-level apprenticeships. It explores the design and impact of the Engineering Education to Employment programme and its applicability to the Food and Fibre sector as a potential model to emulate.

This conversation is necessary as degree apprenticeships have been implemented in many countries, while others extend the concept of professions well beyond traditional trades, demonstrating the applicability of the model to a wide range of occupations and industries at multiple skill levels. While the 1992 industry training reforms extended the reach of industry training (including apprenticeships) to a wider range of sectors, the longer history of apprenticeships in New Zealand is most closely associated with the traditional trades, and the funding incentives and qualifications policies that applied during the ITO era effectively conspired to constrain the apprenticeship model to a strong association with Levels 2 to 4 of the NZCQF. To put it in concrete terms, apprentices don't have to wear hi vis, it is an equally effective learning model for those that work in offices, in labs, and for those that undertake the appropriate "off job" training in a university.

Key definitions

Recent work by the International Labour Organisation, to support discussion of the adoption of new quality standard for apprenticeships, identified over 40 definitions of ‘apprenticeship’ in the European Union alone. The following tables represents our distillation of the definition of the current apprenticeship model in New Zealand, contrasted with other similar work-based or work-integrated learning arrangements. These general definitions and terms have guided our review and our understanding.

	Internship	Traineeship	Apprenticeship
Definition	Real-world exposure and ability to apply knowledge and practical application in a chosen field of study. Work experience.	A learn-as-your-earn programme with knowledge and skills training specific to the industry in which the trainee is employed.	A learn-as-your-earn programme with knowledge and skills training specific to the industry the apprentice is employed.
Type of learning/training	It may be work-based or work-integrated learning. It may be structured or informal without a training plan. May/may not include mentorship.	Work-based training, focusing on gaining skills and knowledge necessary for the role/industry.	Work-based training. Structured training plan, focusing on gaining skills and knowledge necessary for role/industry.
Duration	Generally short-term, 1-6 months.	It can be short-term to medium-term.	Longer term 1-4 years.
Employment situation	May not be employed. It can be part-time or full-time. However, pre-placement offers may be provided to interns.	Employed. It can be part-time or full-time. Once completed, it may lead to ongoing employment.	Employed. Generally full-time. Once completed, often likely to lead to ongoing employment.
Paid/unpaid	It may be paid or unpaid.	Paid. Some employers will also pay trainee fees.	Paid. Some employers will also pay apprenticeship fees.
Credentials	Typically, do not lead to a credential. However, they often are part of a diploma or degree-level programme/qualification.	Training may lead to an industry-recognised credential New Zealand qualification.	It has individualised training plans that lead to an industry-recognised New Zealand qualification. A New Zealand Apprenticeship is currently required to lead to an NZCQF Level 4 qualification. However, there are different, higher-level apprenticeships available in NZ.
Industry availability	Available across multiple specialisms, fields, and industries (professional and technical).	Available across multiple specialisms, fields, and industries (professional and technical).	Availability in New Zealand has tended to focused on vocational, technical skill-oriented fields/industries. Internationally

Key Terms

Term	Definition
Vocational Education and Training (VET)	Formal learning to develop skills and know-how relating to employment opportunities and occupations, delivered via some combination of institution-based or work-based education.
Industry Training	On and off-job learning to develop competence in a role.
Informal Industry Training	Industry outside of formal workplaces and learning providers.
Formal Learning	Learning takes place through a structured program of instruction which is generally recognised by the attainment of a formal qualification or award (for example, a certificate, diploma, or degree).
Informal Learning	Informal learning is learning that happens with no assigned credit value and no certification of achievement. Examples include on-the-job training through buddying with a more experienced worker, guidance via a mentoring system, self-education, 'school of hard knocks' through multiple years of doing the job, etc.
Non-Formal Learning	Non-formal learning includes industry-developed and assured in-house training, badging, and seals, along with industry-recognised and purchased vendor training and compliance training. These credentials are not registered on the NZQF, although some may have an acknowledged equivalence by formal training providers, e.g., towards specified or unspecified credits against a formal qualification.
Work-based Learning (WBL)	Learning occurs in a work environment through participation in work practice and process and is integral to vocational education and training (VET).
Work-integrated Learning (WIL)	Learning comprises a range of programs and activities in which the theory of learning is intentionally integrated with the practice of work through a specifically designed curriculum, pedagogic practices, and student engagement.
Workplace Learning	Learning or training undertaken in the workplace, usually on the job, including on-job training under normal operational conditions, and on-site training, which is conducted away from the work process (e.g., in a training room).

Purpose

The New Zealand vocational education landscape is undergoing the largest and most significant structural change in a generation. This offers important opportunities to review and reimagine education models. In a tight labour market, the Food and Fibre sector is experiencing significant skill shortages, and attraction and retention issues. This has been further exacerbated by the COVID-19 pandemic and immigration restrictions.

Within the Workforce Development Council for Food and Fibre mandate, Muka Tangata has commissioned this research project via the Food and Fibre Centre of Vocational Excellence (FFCoVE) to review the apprenticeship model for the sector. This ensures that it responds appropriately to the sector's demands and challenges and is fit for purpose. As our international and national review demonstrates, apprenticeships offer a tried-and-true model of 'learn as you earn'. They provide multiple benefits to employees and employers and , but also carry costs and pose some risks.

The overall objective of the research is to provide an evidence-based exemplar of an apprenticeship model/s and potential pilot/s that meets the needs of the Food and Fibre sector. This includes a review of the current NZA model and consideration of apprenticeships in general. Whilst higher-level and advanced apprenticeships are outside of scope, they are considered within the research and review in terms of structure, characteristics, funding, and best practice apprenticeship models.

Research Objectives

The objectives of our research were to:

- undertake a literature review of national and international research on apprenticeship training, and test these for applicability in the NZ Food and Fibre Sector
- identify the demand for an apprenticeship training model
- identify an earn-as-you-learn model that reflects employer and trainee requirements
- identify and describe the structure and characteristics needed for a successful apprenticeship training model within the Food and Fibre Sector
- define and discuss the merits of generic food and fibre qualification
- test one or more alternative apprenticeship models against relevant policy settings and good practices to determine if they would be sustainable, deliverable and have industry credibility.
- discuss how a modernised apprenticeship training model can attract more learners for the sector.

This scope necessitates a fresh look – while we can look to the past for lessons in terms of demand and perception of apprenticeships and even desirable learning outcomes, the outputs and outcomes of the former system reflect the operational context of the former ITO/ITP era. Much of what we can stocktake from the New Zealand system – both what has worked well and what has not, reflected the policy settings and incentives in play at the time.

In the spirit of transformation, we wish to take from the past what is useful, but never to assume that that way of doing things is the way things should continue.

For that reason, we have looked globally for inspiration about good practices and future focussed apprenticeships and outline these in our international review. We also think there is a need for Muka Tangata and its colleague WDCs to go back to the very first principles of what we mean by apprenticeships and the advantages they offer beyond their historical cachet in the system.

As one of the Ohu Mahi WDCs, Muka Tangata is tasked with standard-setting

responsibilities, skills leadership on behalf of its industries, and to endorse programmes providers wish to offer, including programmes that will be offered via apprenticeships. This research seeks to provide practical assistance with all these roles. For example, at a day-to-day level, Muka Tangata needs to know what good looks like to endorse a programme.

At a higher level, we conceive of Muka Tangata as the industry custodian of apprenticeships – it exists to promote and maintain quality training on behalf of its industries and to be seen and respected by its industries for providing that.

In the Aotearoa section, we will dive into the intrinsically important concepts and perceptions surrounding the unique form of learning arrangement which industries recognise as “apprenticeships” – including why industries, apprentices, and employers alike can benefit from the WDC’s exercise of that role.

Current Situation

Apprenticeships have a well-established history within the vocational education sector and the labour market in New Zealand. The most current Tertiary Education Commission (TEC) Register of New Zealand Apprenticeships identifies 62 New Zealand Apprenticeships (NZAs) registered for the Food and Fibre sector.

Many of the food and fibre apprenticeships were managed by the former Primary ITO, and forestry-related apprenticeships by the former Competenz ITO. Overall, these apprenticeships cover a range of agriculture and horticulture occupations. This includes sheep, beef, and dairy farming/processing (including shearing), apiculture, pig farming, equine, seafood, horticultural growing/processing (including floristry), sports turf management, and forestry. New apprenticeships include aquaculture and viticulture.

An additional aquaculture apprenticeship, yet to be registered, is under development. Since October 2021, Muka Tangata is the Ohu Mahi - Workforce Development Council (WDC) responsible for reviewing, designing, and maintaining apprenticeships and qualifications for the above named industries, except for floristry (Toi Mai) and meat processing (Hanga Aro Rau).

From October 2022, responsibility for these apprenticeship programmes and existing apprentices have been transferred from these former ITOs to Te Pūkenga Work-based learning subsidiary because of the approved transition plans by these two ITOs under the Reform of Vocational Education. Henceforth, Te Pūkenga and other recognised vocational education providers can arrange and support on-job learning such as apprenticeships and apply for programmes to be endorsed by the Workforce Development Councils.

New Zealand Apprenticeships

The New Zealand Apprenticeship, or NZA, is the existing ‘brand’ for formal apprenticeships in New Zealand. It was established in the wake of a review of the Industry Training system in 2012. NZA expanded the former Modern Apprenticeships programmes to extend its range of support to learners of all ages. It also increased the available training subsidies for programmes that met the NZA definition outlined below. The NZA provides a formal work-based training programme and vocational career pathway for individuals who want to earn while they learn in an industry of their choice. Apprenticeships allow employers to employ people and train skills and knowledge over time.

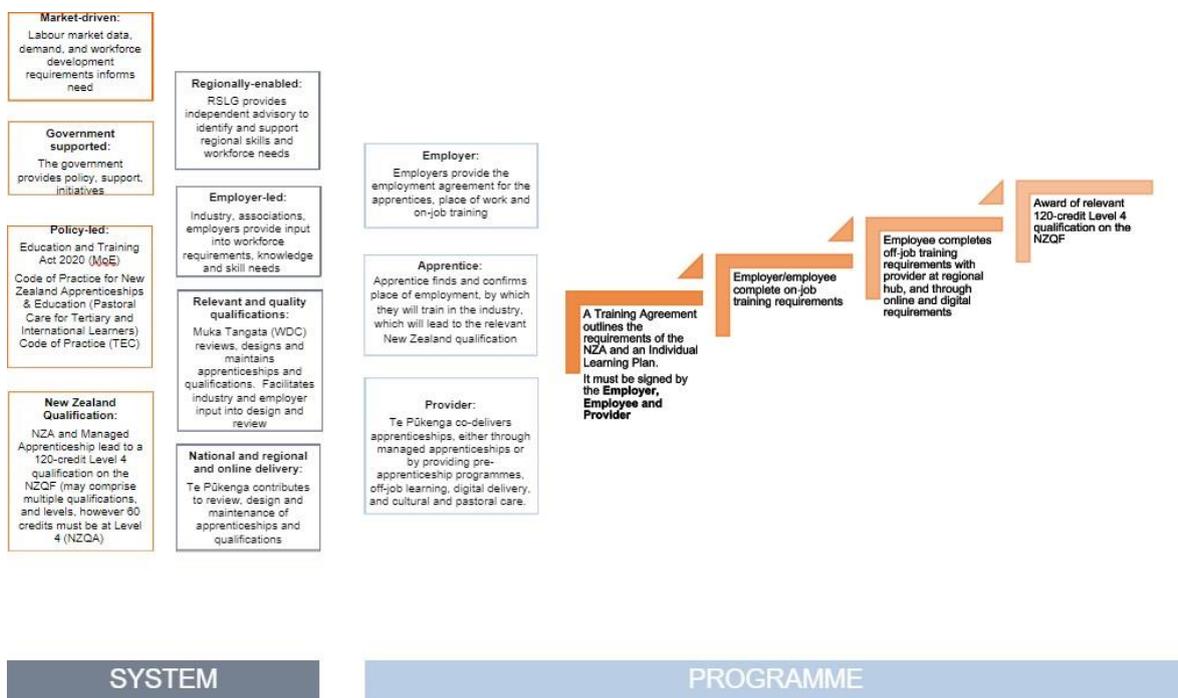
To become an apprentice in the NZA scheme, you must be 16 years or older, employed in the industry you are training for and enrolled in a qualification leading to a level 4 New Zealand Qualification. A mandatory training agreement between the apprentice, employer and the tertiary provider managing the apprenticeship outlines the training and support requirements. The responsibilities of all parties are outlined in the Code of Good Practice

for New Zealand Apprenticeships¹ and include fundamental principles of good practice. This Code is currently under review to provide an updated version for 2023 and beyond. The apprenticeship model may be managed in multiple variations. However, they are all practical balance training and theoretical learning delivered via the workplace and off-job training.

Off-job training may consist of block, evening and day release courses, as well as increasing adoption of digital delivery of both learning and support.

The following figure provides an overview of the apprenticeship system in Aotearoa, following RoVE, and under present definitions.

Overview of the apprenticeship model in 2023



LITERATURE REVIEW

International

Overview

The term apprenticeship is common around the world, with most, if not all, countries featuring some work-based training. Delving into the detail of each apprenticeship's features, methodology, and practice, uncovers some very stark differences in terms of the method, structure, and reputation of apprenticeships.

The countries selected for this review were chosen to showcase the wide variety of existing apprenticeship styles, while also complimenting the New Zealand style. Whilst this research focuses on the food and fibre industry, this review is also looking more widely at apprenticeship systems in general to explore different approaches and different attitudes to training apprentices to identify potential opportunities for the food and fibre industries in New Zealand.

Australia

Key takeaways:

- pre-apprenticeships are in place to provide a taster.
- lack of consistency between states and territories.
- completion issues and declining commencements.
- flexibility in courses.
- concerns over low wages.

Apprenticeships in Australia cover a mixture of areas, and they do not restrict apprenticeships to young people, which has led to high numbers of over 30 year-olds signing up. The Australian government funds both public and private providers of apprentice training. The funding does depend on which state/territory the learner is in as each state/territory can decide which qualifications are considered an apprenticeship in that state and which are considered a traineeship. Some states offer different funding depending on how these are classified.

In Australia, completion rates have been concerning for some time, and commencements also have declined significantly since the cessation of COVID-related wage subsidies in June 2022 - in the 12 months ending March 2022, 85,470 apprentices completed, while 110,925 were cancelled. In the September 2022 quarter, compared with the September 2021 quarter, commencements decreased 41percent, completions increased 33 percent, and cancellations and withdrawals increased by 28 percent²

Australia has pre-apprenticeships designed to prepare learners for an apprenticeship, usually comprising off-job training with a Registered Training Organisation (RTO), and may include some work experience.³ The pre-apprenticeship gives learners the opportunity to discover if the industry would be right for them, and make themselves more attractive to employers for a full apprenticeship (as they will already have some knowledge and skillsets).

There are two types of apprenticeship in Australia: School-based Apprenticeships and

² NCVER: [Apprentices and trainees 2022: September quarter \(ncver.edu.au\)](https://www.ncver.edu.au/apprenticeships-and-traineeships/2022/09/2022-september-quarter)

² Australian School-based Apprenticeships. Retrieved 2022.
<https://www.australianapprenticeships.gov.au/school-based-apprenticeships>

³ Australian Apprenticeship Services and Supports Discussion Paper: Australian Government, Department of Employment and Workplace Relations, 2022.

Apprenticeships. School-based Apprenticeships (ASbA) are one to four four-year programmes providing the learner with hands-on industry experience and the ability to work towards or complete a nationally recognised qualification whilst undertaking their secondary school certificate.⁴ An ASbA combines secondary school subjects, paid work and on or off-job vocational training. The apprentice undertakes training in a traditional trade or other occupation at Certificate or Diploma level. The number of hours an ASbA needs to be employed per week differs between States and Territories.⁵

When discussing Apprenticeships, which typically last three-four years, Traineeships, which last one-two years are usually mentioned in the same sentence. Apprenticeship wages are determined by the industry and by the level that the apprentice is studying, with their wage typically increasing the more qualified they become. Traineeship wages are a set rate across all industries, established by the National Training Wage. Traineeship qualifications start at Certificate I, whereas apprenticeships typically start at Certificate III level.⁶ Each state and territory across Australia has slightly different guidelines, regulations, requirements and recognition for apprenticeships and traineeships.

Apprenticeships are unit-based qualifications and feature a mixture of core and optional units which will need to be completed to achieve. This flexibility allows the apprentice to focus on areas which are most important to them and their employer rather than a more rigid programme. The apprenticeships are generally a mixture of on-job and college-based training.

Currently, there are concerns around the Australian apprenticeships which the Australian government are looking into. Low wages are seen a barrier to people looking to take on, or stay in, an apprenticeship, with 35% of apprentices finding the low level of pay challenging, especially during the first year. With very low unemployment, there are many options for apprentices to leave and take unskilled work, which is currently being paid at higher levels than training levels.⁷

Austria

Key takeaways:

- assessment flexibility dependent on experience
- strong culture of apprenticeships in Austria and success after completion
- flexibility to allow people without a company to still participate in a form of apprenticeship.

In Austria, there are currently about 230 apprenticeship occupations available. Apprenticeships are typically split between 80% at the company and 20% at the Vocational School, during which the learning is focused on general education, occupation-specific theory, and deepening the training received from the company.

The apprenticeship duration is contingent on occupation but generally is between two-four years. Each apprenticeship is completed after achievement of a final apprenticeship exam.⁸ The apprenticeship-leave exam consists of a practical and a theoretical part. However, if the learner has completed their vocational school, the theoretical part is waived.

⁴ Australian School-based Apprenticeships. Retrieved 2022.

<https://www.australianapprenticeships.gov.au/school-based-apprenticeships>

⁵ Australian School-based Apprenticeships. Retrieved 2023. [Australian School-based Apprentices.pdf \(australianapprenticeships.gov.au\)](#)

⁶ Apprenticeships & Traineeships: A Definitive FAQ, Explore Careers, 2021. Retrieved 2022.

[Apprenticeships & Traineeships: A Definitive FAQ | Explore Careers Australia](#)

⁷ Australian Apprenticeship Background Paper, Australian Government: Department of Employment and Workplace Relations. Retrieved 2022.

⁸ Apprentice and apprenticeship profession, Oesterreich Government. Retrieved 2022.

https://www.oesterreich.gv.at/en/themen/bildung_und_neue_medien/lehre/Seite.333100.html

The apprenticeship-leave exam determines whether the learner has become competent in the learning outcomes required within their occupation and can fulfil the activities particular to the occupation in an appropriate manner. The apprenticeship qualifications correspond to Level 4 of the National Qualifications Framework (NQF).⁹

Completion of an apprenticeship in Austria ‘opens the door’ to further qualifications for learners to pursue, including, for instance, a master craftsman’s test in their chosen trade area as well as vocational courses at specialist training colleges. On average, around 35% of young people in Austria pursue an apprenticeship occupation after compulsory schooling. The latest figures from 2021 showed that 28,500 companies trained over 100,700 apprentices.¹⁰

Apprenticeships are very popular and well regarded within Austria, with 54% of apprenticeship graduates being employed within the first three months of completion and 90% within the first year.¹¹ The current dual-apprenticeship framework has been in place since 1969, but a much longer training history has existed in Austria.¹²

In addition to the dual apprenticeship scheme, an alternative apprenticeship is also available. The Supra-company apprenticeship is when a student cannot find a company for the in-company apprenticeship portion. In this instance, apprentices can undertake work-based learning at a training provider¹³. However, if during this they can find a company, they do have the option to switch back to a ‘standard’ apprenticeship.¹⁴

Denmark

Key takeaways:

- robust culture of apprenticeships
- industry-led development
- preparation for VET begins at school to prepare learners
- strong flexibility in apprenticeships due to the number and diversity of involved employers.

Denmark features one of the oldest apprenticeship systems in the world, dating back to the guilds in Medieval times and has always been the dominant form of IVET in Denmark. There are over 100 apprenticeships in Denmark currently.

The VET Law (paragraph 2) defines VET in Denmark as “alternate-based, consisting of periods in school and placements in enterprises. Details about curriculum, duration, remuneration etc., are decided for each programme by the social partners in the so-called trade committees.”¹⁵

⁹ Apprenticeship system - Dual Vocational Education and Training in Austria – Federal Ministry Republic Of Austria- Labour and Economy- September 2022. Retrieved 2022. [Apprenticeship system \(bmaw.gv.at\)](https://www.bmaw.gv.at)

¹⁰ Apprenticeship system - Dual Vocational Education and Training in Austria – Federal Ministry Republic Of Austria- Labour and Economy- September 2022. Retrieved 2022. [Apprenticeship system \(bmaw.gv.at\)](https://www.bmaw.gv.at)

¹¹ Austria: more apprenticeship beginners and successful career starts, CEDEFOP, 2018. Retrieved 2022. [Austria: more apprenticeship beginners and successful career starts | CEDEFOP \(europa.eu\)](https://www.cedefop.europa.eu)

¹² Austria: more apprenticeship beginners and successful career starts, CEDEFOP, 2018. Retrieved 2022. [Austria: more apprenticeship beginners and successful career starts | CEDEFOP \(europa.eu\)](https://www.cedefop.europa.eu)

¹³ Supra-Company Training, CEDEFOP. Retrieved 2022. [Supra-Company Training | CEDEFOP \(europa.eu\)](https://www.cedefop.europa.eu)

¹⁴ Austria: Reference year 2019, Understanding of Apprenticeships in the National Context, CEDEFOP. Retrieved 2022. [Austria | CEDEFOP \(europa.eu\)](https://www.cedefop.europa.eu)

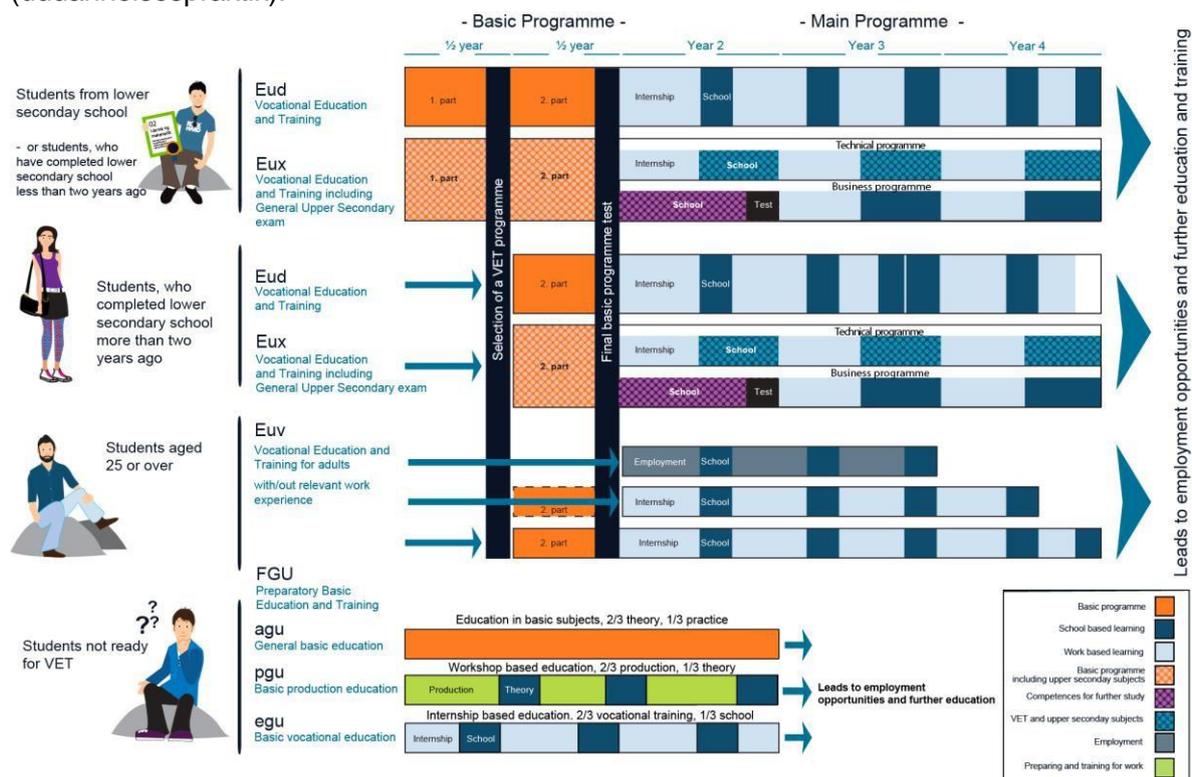
¹⁵ Denmark, Reference year 2019, Understanding of Apprenticeships in the National Context, CEDEFOP. Retrieved 2022. [Denmark | CEDEFOP \(europa.eu\)](https://www.cedefop.europa.eu)

Apprenticeships begin in Denmark with 40 weeks at a VET school to complete a 'basic course'. This is paid for by the Danish government and is called the 'college access route'¹⁶ as a type of pre-apprenticeship/preparation. Following the completion of this, if the learner can get an 'apprenticeship agreement' with an employer then they begin work at the employer- the 'work experience route', the companies pay the apprentices during this time. If the learner is unable to get an employer, then they can complete some of their apprenticeship work experience at a work experience centre at a technical college.

There are two additional options. One is for a learner to be split between multiple employers- a 'combination agreement' in which each employer enters into a partial agreement with the learner, and the contract states the duration for each. The other option is a 'short-term apprenticeship agreement'.¹⁷ This covers at least one workplace with more of a mixture of workplace and college; after they have completed this period they are entitled to admission to college work experience.

The below figure showcases the VET overview from the Danish government. It's interesting to note the importance of the 'basic programme' and its influence over the multiple different methods of further education, setting a standard, in addition to the multiple pathways and access routes available to learners.¹⁸

There have been issues in Denmark relating to finding enough companies to meet the demand of the number of potential apprentices,¹⁹ which is one reason there is school-based practical training as well (skolepraktik), in addition to the company-based apprenticeships (uddannelsespraktik).



¹⁶ The apprenticeship agreement, EVU. Retrieved 2022. <https://evu.dk/the-apprenticeship-agreement/>

¹⁷ The apprenticeship agreement, EVU. Retrieved 2022. <https://evu.dk/the-apprenticeship-agreement/>

¹⁸ Vocational education and training in Denmark, Ministry of Children and Education. Retrieved 2022. [Vocational education and training in Denmark | Ministry of Children and Education \(uvm.dk\)](https://www.uvm.dk/vocational-education-and-training-in-denmark)

¹⁹ Denmark 3.5 Traineeships and apprenticeships, European Commission Youth Wiki, 2022. Retrieved 2022. <https://national-policies.eacea.ec.europa.eu/youthwiki/chapters/denmark/35-traineeships-and-apprenticeships>

England

Key takeaways:

- apprenticeships are tailored to particular job roles
- industry-led development of every apprenticeship
- apprenticeship levy in place.

In 2014, England launched a pilot of a new apprenticeship model. Under this model they now have over 1,000 apprenticeships. Each apprenticeship is formed via an industry group of employers voluntarily coming together (a mixture of small, medium, and large employers) and designing and approving a standard for a specific occupation comprising the skills, knowledge, and behaviours required to be competent role. In addition to creating the standard, they also create an assessment plan detailing what assessment methods must be included to comprise the end-point assessment, the grading available, and the split of the content in the standard with the assessments that they have detailed.

An apprenticeship must last at least 12 months, and the learner must undertake to learn of six hours per week. This doesn't have to be every week but can be cumulatively done as block courses etc. An apprenticeship must be tied to a particular occupation. There is no assessment during the apprenticeship; at the end of the apprenticeship a learner undertakes their end-point assessment (EPA). This is done by an organisation separate from both their employer and the training provider to ensure independence. The makeup of the EPA is different depending on the apprenticeship. The rationale for the EPA is for the apprentice to showcase their competence in their role. Common assessment methods for the EPA include observation in their workplace, interviews, and multiple-choice assessments.

England also introduced an apprenticeship levy tax to help companies offer more apprenticeships. The money is pooled in a fund which can be employers can access for apprenticeship training costs. The levy applies to companies with a payroll of more than £3 million and are charged 0.5% of the total payroll collected monthly.

In the food industry, employers have an organisation, the National Skills Academy for Food and Drink (NSAFD). They partner with employers to ensure that training providers are doing what they should support learners. Whilst any training provider can offer apprenticeships, any that the NSAFD doesn't approve will not receive support from employers. NSAFD have been very prominent in the development and maintenance of the Apprenticeship Standards. CEO of NSAFD- Louise Cairns, explained that the EPA method of apprenticeship is their preferred option, and has allowed employers to change and articulate what they want in an unambiguous format. She states NSAFD are one of the most engaged sectors in this process.

NSAFD highlighted the importance of off-job learning and their approval of the new system in which they have developed 14 apprenticeships to date. These apprenticeships range from Level 2 to Level 6 and include, for instance Food and Drink Process Operator L2, Food Technologist L3, and Food Industry Technical Professional Degree L6. NSAFD also commented that having the apprenticeship levy in place has helped engage employers as their money is being used to create these standards.

With the degree apprenticeships, the apprentice can only achieve the degree by first achieving the end-point assessment. Taking the Food Industry Technical Professional Degree L6 as an example, it incorporates on-programme academic and workplace learning and assessment with an independent end-point assessment to test the standard's knowledge, skills, and behaviours. It will typically take four years to complete, with the EPA

taken in the last six months. The integrated degree apprenticeship is worth 360 credits. Apprentices must successfully pass 320 on-programme credits before taking the EPA, which is worth 40 credits. Performance in the EPA will count towards the overall degree classification. Apprentices can only successfully complete the degree and therefore, the apprenticeship by successfully passing the EPA.²⁰

France

Key takeaways:

- two types of apprenticeship exist to cater to the broader population
- government incentives to employers for hiring apprentices
- an apprenticeship levy has been in place for almost a hundred years.

There are two types of the apprenticeship system in France, the apprenticeship (Contrat d'apprentissage) for initial education and training for people aged 16-29 who haven't yet left the education system initially. They receive formal qualifications at upper-secondary VET or tertiary education level. They usually last between six months and three years (some up to 4 years).²¹ Off-job training is at least 25%, and their wage is between 27%-100% of the minimum wage. This method has been in practice since 1919, with a modification in 2018.²² Companies can organise apprenticeships wholly or partly, i.e., jointly shared with training centres for apprentices (centres de formation d'apprentis, CFAs).²³ In an apprenticeship, roughly two-thirds of the time is spent on-job, with the other third being spent studying off-job.²⁴

For those who have already left the education sector, there is 'Continuous training' (Contrat de professionnalisation), which covers youth aged 16-25 who want to re-enter/complete initial education, job seekers aged 26 and over, and vulnerable populations of all ages.²⁵ By undertaking it, they receive sectoral professional certificates and formal qualifications. It's the same duration as the initial apprenticeships, and off-job training is usually 15-25%. Their wage is 55-100% of the minimum wage.

Different incentives for employers to hire apprentices exist in France. There are permanent public subsidies, generally taking the form of various exemptions from employer and employee social security contributions. Since 2005, employers hiring apprentices also benefit from a tax credit, which amounts to 1,600 to 2,200 Euros per apprentice (on a full-year equivalent basis). The higher amount is received when the employer hires a young disabled person or a disadvantaged youth.²⁶ The Regional Councils also pay a fixed

²⁰ Food Industry Technical Professional Integrated Degree Apprenticeship Standard, Level 6: End-point Assessment Plan, June 2017. Retrieved 2022. [food_industry_technical_professional.pdf \(instituteforapprenticeships.org\)](https://www.instituteforapprenticeships.org)

²¹ Anticiper la durée du contrat en alternance, Portail de l'Alternance, 2021. Retrieved 2023. [Anticiper la durée du contrat en alternance | Le Portail de l'Alternance \(emploi.gouv.fr\)](https://emploi.gouv.fr/anticiper-la-duree-du-contrat-en-alternance)

²² France, Reference year 2019, Understanding of Apprenticeships in the National Context, CEDEFOP. Retrieved 2022. [France | CEDEFOP \(europa.eu\)](https://europa.eu/france/cedefop)

²³ France, Reference year 2019, Understanding of Apprenticeships in the National Context, CEDEFOP. Retrieved 2022. [France | CEDEFOP \(europa.eu\)](https://europa.eu/france/cedefop)

²⁴ Apprenticeship in France, EuroGuidance. Retrieved 2022. [Apprenticeship in France - Euroguidance \(euroguidance-france.org\)](https://euroguidance-france.org)

²⁵ Contrat de professionnalisation, Service-Public.Fr, 2023. Retrieved 2023. [Contrat de professionnalisation | Service-public.fr](https://service-public.fr/contrat-de-professionnalisation)

²⁶ OECD Note on "Quality Apprenticeships" for the G20 Task Force on Employment, 26 September 2012, p4-5. Retrieved 2022. [OECD Apprenticeship Note 26 Sept.pdf](https://www.oecd.org/fr/employment/quality-apprenticeships)

compensatory allowance for hiring an apprentice, whose level and conditions vary across regions.²⁷

French companies paid a training levy and were the first country to do so, establishing the levy in 1925. In 2019 it was reformed. The rate of the single contribution for vocational training and apprenticeship training (CUFPA) varies according to the size of the company: Rate for companies with less than 11 employees: 1.23% of gross payroll (0.55% for the contribution to vocational training and 0.68% for the apprenticeship tax). The rate for companies with 11 or more employees: is 1.68% of gross payroll (1% for the contribution to vocational training and 0.68% for the apprenticeship tax). In addition, this levy rate for vocational training contributions is increased to 1.3% for temporary employment companies.²⁸

Germany

Key takeaways:

- engagement with industry and social partners to ensure apprenticeship is suitable
- pre-apprenticeship support and training available
- funding of apprenticeships depends on the sector and location.

The Vocational Training Act (Berufsbildungsgesetz) was adopted in 1969 and provided a common framework for the dual VET system; the apprenticeship system in Germany, however, began in the medieval guilds, changing over the years to incorporate more trades and adaptations of the training with the current system since the Act came in to effect in 1969. The Vocational Training Act regulates the company-based part of the apprenticeship. The focus of the Act is the aim of the training, the standards for training curricula, requirements for the approval of training enterprises (including qualification requirements for training staff), guidelines for training contracts and the working conditions, remuneration and social security of apprentices, and the responsibilities of the institutions involved.

Apprentices have a contract with their employer and receive training according to an occupational profile, defined by an official training curriculum for in-company training and complemented by a corresponding school syllabus for theoretical instruction. Apprenticeships last 2 to 3 ½ years. After passing the final examination, learners are awarded a recognised vocational qualification at the level of skilled workers.

The social partners are closely engaged in developing and updating training plans for each qualification that can be obtained through apprenticeships and/or vocational training. These training plans regulate the duration of the internship, describe the profession's profile, and set out final exam requirements and are formally issued by the Ministry of Economic Affairs and Technology. In addition, apprenticeship salaries are determined through collective wage negotiations.

The Economic Chambers is responsible for providing advisory services to participating companies and supervising company-based training. They also register apprenticeship contracts, assess the suitability of training firms, and monitor their training, assess the aptitude of VET trainers, provide advice to training firms and apprentices, and organise and carry out the final exams. The responsibility for funding vocational schools lies with the Länder (mainly teacher salaries) and local authorities (equipment, infrastructure), while

²⁷ Building Stronger Pathways to Work: The Role of Quality Apprenticeships, 2nd G20-OECD Conference on Promoting Quality Apprenticeships, 2015. Retrieved 2022. [G20-OECD Apprenticeship Conference Issues Paper Final.pdf](#)

²⁸ Global Review of Training Funds, France, Contribution to Vocational Training and Apprenticeship, UNESCO (2022). Retrieved 2022. [UNESCO Funding-of-Training France.pdf](#)

companies bear workplace training costs. In some sectors, there is a general fund to which all companies pay contributions and through which the costs for the apprenticeship institution are covered, while in other sectors, each company bears its costs.

There is also a system in place in Germany called the Berufseinstiegsbegleitung (BerEb), which is career entry support in the form of a companion who helps a learner. This support can help with graduating from their secondary school education, finding an apprenticeship and applying for it, and supporting them during the first six months of their training.²⁹ The support is free. The only restrictions depend on whether the school the learner is at has the programme embedded; if so, then, with the parent/guardian's consent, there is an application process.

Scotland

Key takeaways:

- three methods of apprenticeship to allow progress and flexibility
- industry-led approval process for apprenticeships
- flexible methods of assessment.

Scotland has three types of apprenticeships: Foundation, Modern, and Graduate. Foundation Apprenticeships are taken by Scottish school learners between 15-18 years old. Alongside their regular schoolwork, they spend time outside school completing the apprenticeship³⁰. Foundation apprentices are not paid. They are not considered employees. Most Foundation apprenticeships are at SCQF Level 6, with some Level 4 and 5. They last in duration between one to two years. Foundation Apprenticeships are recognised as entry qualifications by all Scottish colleges and universities and will also support their application if they wish to take a modern or graduate apprenticeship.³¹

Modern Apprenticeships have no upper limits; in most cases, an apprentice will need to be at least 16 years old, sometimes 18 years, due to health and safety. In the 2021/2022 year, over 25,000 starts with over 100 different apprenticeships available.³² Graduate Apprenticeships are degree-level apprenticeships and are available at SCQF L8 (equivalent to a higher national diploma and SVQ 4), SCQF L10 (comparable to an undergraduate degree), and SCQF L11 (equivalent to a master's degree).³³ Most of this apprenticeship is completed at the workplace, with the rest of their time spent at a university. The government fully funds fees.³⁴ Graduate apprenticeships have flexible entry points, and if the learner already has some experience/ qualification, the university will ensure that they do not repeat any learning.

Since April 2020, all Scottish apprenticeships have been approved by the Apprenticeship Approvals Group, an employer-led group to ensure each apprenticeship meets the needs of industry and employers. Similarly, the Scottish Apprenticeship Advisory Board, another

²⁹ Career entry support: help with graduation and training place search, Bundesagentur für Arbeit. Retrieved 2023. [Career entry support | Federal Employment Agency \(arbeitsagentur.de\)](https://www.arbeitsagentur.de)

³⁰ Foundation Apprenticeships, UCAS. Retrieved 2022. [Foundation Apprenticeships | Scotland Apprenticeships | UCAS](https://www.ucas.com/Scotland/Apprenticeships)

³¹ Foundation Apprenticeships, UCAS. Retrieved 2022. [Foundation Apprenticeships | Scotland Apprenticeships | UCAS](https://www.ucas.com/Scotland/Apprenticeships)

³² Modern Apprenticeships, UCAS. Retrieved 2022. [Modern Apprenticeships | Scotland Apprenticeships \(ucas.com\)](https://www.ucas.com/Scotland/Apprenticeships)

³³ Graduate Apprenticeships, UCAS. Retrieved 2022. [Graduate Apprenticeships | Degree Apprenticeships Scotland | UCAS](https://www.ucas.com/Scotland/Apprenticeships)

³⁴ Graduate Apprenticeships, UCAS. Retrieved 2022. [Graduate Apprenticeships | Degree Apprenticeships Scotland | UCAS](https://www.ucas.com/Scotland/Apprenticeships)

employer-led group with industry representatives included, oversees development of apprenticeship standards and frameworks.³⁵

Assessment methods differ depending on the apprenticeship. There is embedded flexibility, in Agriculture SCQF L5 (Modern Apprenticeship) for instance, and the underpinning knowledge can be assessed through methods such as set tasks and scenarios, structured oral and written questioning, and questioning during observation.³⁶

South Africa

Key takeaways:

- currently changing their system to make it more modular
- potential of work-readiness programmes.

The South African apprenticeship model is in a period of change. The White Paper for Post-School Education and Training, which has led to a new apprenticeship strategy reported that the South African apprenticeship system “has been allowed to deteriorate since the mid 1980’s”.³⁷

In June 2022 the Department for Higher Education and Training published their first ever National Apprenticeship and Artisan Development Strategy for 2030,³⁸ with the goal of producing 30,000 artisans per year by 2030. This will happen partly via the establishment and implementation of a uniform artisan apprenticeship system. In South Africa, they use the term Artisan rather than Apprentices but describe the training as an apprenticeship.

Dubbed A21 (Apprentice of the 21st Century), the intention is to try to make the process as beneficial and straightforward to the learner as possible.³⁹ The method to achieve this is by having the trade/vocational theory for the entire apprenticeship broken down into credit modules with outcomes linked to the core competencies. These modules will be divided into knowledge, practical, and workplace components.

The leading partner in the food industry for apprenticeships in South Africa is the Food & Beverages Manufacturing Sector Education and Training Authority (FoodBev SETA). They have reported in their most recent report- The 2021/2022 Sector Skills Plan, that the programme’s registrations generally surpass the completion rate because of the three years it takes to complete an apprenticeship.⁴⁰ FoodBev SETA is also considering work readiness programmes for new entrants into the industry.⁴¹

³⁵ Modern Apprenticeship Frameworks, Skills Development Scotland. Retrieved 2022. [Modern Apprenticeship Framework | Skills Development Scotland](#)

³⁶ A Modern Apprenticeship in Agriculture SCQF Level 5 Framework Document for Scotland, Lantra, April 2020, page 17. Retrieved 2022. [A FRAMEWORK FOR A \(skillsdevelopmentscotland.co.uk\)](#)

³⁷ White Paper for Post-School Education and Training: Building on Expanded, Effective and Integrated Post-School Education, 2014. Retrieved 2022. [White Paper for Post-School Education and Training: Building on Expanded, Effective and Integrated Post-School Education \(www.gov.za\)](#)

³⁸ Apprenticeship and Artisan Development Strategy 2030 in Place, Sabinet, 2022. Retrieved 2022. [SabinetLaw - Facilitating Access to Information](#)

³⁹ Apprenticeships of the 21st Century, Western Cape Government. Retrieved 2023. [Apprenticeships of the 21st Century | Apprenticeship for Employers \(westerncape.gov.za\)](#)

⁴⁰ FoodBev SETA, 2021/2022 Sector Skills Plan, 2020, p44. Retrieved 2023. [Sector Trend Reports | FoodBev SETA](#)

⁴¹ FoodBev SETA, 2021/2022 Sector Skills Plan, 2020, p45. Retrieved 2023. [Sector Trend Reports |](#)

A multi-pronged strategy has been recommended to alleviate the scarcity of all skills in the Food and Beverages Manufacturing Sector and to increase the completions. This strategy currently includes forming partnerships with industry and TVET colleges, wherein the industry provides the required work experience, and colleges provide academic support.⁴²

Wales

Key takeaways:

- split-system of apprenticeship allowing various levels of achievement.
- making the assessment appropriate to the learner is essential.
- a new type of apprenticeship has been developed, allowing multiple entry points.

The Welsh apprenticeship is an interesting model as there are four separate elements: the essential skills section (literacy and numeracy, which learners must achieve for the level below the level of apprenticeship that they are studying at); work-based learning (practical); technical certificate (theoretical); and a diploma (mix of practical and theoretical). To achieve a full apprenticeship, the learner must achieve all four of these components. If they don't, and only achieve some, the learner will still achieve and receive recognition for the components that they have passed.

At a Welsh college, Coleg Cambria, it was very striking to hear staff feedback on both the positives and negatives of the Welsh apprenticeship model. Positive mentions include how the portfolio method of assessment works very well for learners who have potentially chosen vocational education to avoid the more examination-based method of assessment. The e-portfolio is collected throughout the apprenticeship, and the observation is face-to-face. They mentioned how, for instance in an agriculture apprenticeship, the assessor could walk with the learner and ask them casually, for instance, 'What's that tree called? What's that one?' and the learner would be able to answer easily, as it's a conversation, which the assessor can mark as a pass in that respect. If the learner was asked the same question in a test format, there was a much stronger chance that they would fail, so they very much like the methods of assessment utilised to assess the learner's capability best. The main negative discussed was around the essential skills requirement. For many learners, the requirement for literacy and numeracy is a significant barrier and puts many learners off attempting the apprenticeship. In 2019, Coleg Cambria believe they could have had twice the number of apprenticeships were it not for the essential skills requirement.

Unique amongst all apprenticeships reviewed and relevant to the Food and Fibre sector is an alternative apprenticeship, (Welsh regulator Qualifications Wales), launched in 2021 specifically for Construction and Building Services Engineering. The Construction and BSE apprenticeship was designed to allow multiple entry routes at multiple levels with multiple qualifications to allow learners best the right opportunities for them. The initial qualification, 'Foundation,' is at Level 2, for one-year. It is entirely college based, for learners who haven't found an apprenticeship or, are in the last years of college. The foundation is split into two sections: a 'core' comprising six mandatory units, holistically covering health and safety, employment and employability skills and an introduction to the construction sector. The second part is the 'trade' section; the learners choose two trades: wood occupations and plumbing. The learner will learn the basics of both trades and be assessed on those trades via a substantial practical assessment (one per trade) which is externally set and internally marked (with moderation). The other assessments are a multiple-choice test and a guided discussion to fully assess the six core modules and the knowledge components of the trades.

⁴² FoodBev SETA, 2021/2022 Sector Skills Plan, 2020, p58. Retrieved 2023. [Sector Trend Reports |](#)

There is then a further Level 2 qualification, 'Progression'. This is again a fully college-based year exclusively for those learners who haven't yet been able to find an apprenticeship; this year is designed to give them more skills and understanding of their chosen trade to make them more attractive to potential employers; they must have achieved the Foundation qualification before Progression. The qualification follows the same methods of assessment as Foundation, with the exception that there is only one trade. The 'core' looks at general construction practices and further employment and employability skills.

The Level 3 qualification is the apprenticeship, and each trade is separate. Therefore, a learner can go straight into the L3 apprenticeship if they have an employer instead of doing the Foundation or Progression. However, suppose they do go straight into the apprenticeship as part of their off-job training. In that case, they will still have to achieve the multiple-choice test required at both Foundation and Progression qualifications, in addition to a third multiple choice test, practical project, and professional discussion. The L3 apprenticeships differ in duration depending on the trade and are between two-four years.⁴³

Nestlé – an employer and industry viewpoint

Key takeaways:

- apprenticeships are an essential element of the culture of the company
- the value of apprenticeships
- giving apprentices more than just technical skills.

As part of this study, the view of employers and industry has been central to understanding the benefits and negatives of various apprenticeship models. The intention of highlighting Nestlé is to explore the employer's view more vividly. Focusing on Nestlé over other companies was two-fold; firstly, as a global food company, their insights and understanding of apprenticeships provide much more weight in the global conversation. Secondly, by interviewing the Swiss branch, it gives Switzerland, a unique review and employer context. SCG is very grateful to Julie Bareyt of the Nestlé Switzerland Youth Initiative for talking to us. Quotes in this section come from SCG's interview with Ms Bareyt.

Nestlé Switzerland defines an apprenticeship as a contract between a young person and a company, but it is also much embedded in the culture of the company. Nestlé aims for a high volume of apprentices each year as a central part of their company, not as a side activity. Currently Nestlé have about 260 apprentices in Switzerland alone, with half being technical apprentices and the balance office-related jobs. According to Nestlé, Switzerland more broadly "have two thirds of the young people going through an apprenticeship...about 65%...it's cultural." Nestlé further this by saying that offering apprenticeships is a type of wider national engagement that all companies take part in to prepare the workforce of, and for, tomorrow and by beginning this training young, it gives much more opportunity for success.

With their apprentices Nestlé provide them more than just technical training, understanding the holistic approach to work and that these are in most cases, the apprentices' first job. Nestlé also train them in their understanding of the company and the types of behaviours for the workplace. A lot of this is done in their first three months, "about how to manage their work schedule, their work life balance, what they do with their pay". Due to the young age that apprentices begin in Switzerland (15-16 years old), Nestlé don't believe a pre-apprenticeship programme would be suitable as the learners would be too young, and for their apprentices anyway they do provide the additional trainings, but for other companies that isn't necessarily the case, and isn't a requirement.

⁴³ Qualifications, Skills for Wales, City & Guilds and EAL. Retrieved 2022. [Qualifications | Skills for Wales](#)

As seen in Austria, Denmark, and Germany above, the positive culture around apprenticeships and that positivity being evident within the companies are also prominent within Switzerland. The understanding of the benefits of apprenticeships, not just the mandatory training but the additional employment and employability work that they include at the beginning of an apprenticeship, shows how apprenticeships could be embedded worldwide.

Summary Analysis of International Practice

Key takeaways:

- the reputation, and therefore the promotion and marketing of apprenticeships is essential.
- the critical importance of industry involvement.
- the quality of employers offering apprenticeships.
- defining apprenticeships according to professions.
- making the assessment appropriate for the learners.
- the flexibility needed in an apprenticeship model.
- an apprenticeship delivers more than just technical training.

Each country in this literature review defines and utilises apprenticeships in different ways. One of the most telling differences and most valuable indicators of success is in the reputation and marketing of apprenticeships. Austria, Germany, and Denmark all feature programmes that have existed for a very long time and have kept relatively consistent and have achieved good results for their countries. To contrast, in England and Wales, for instance, the reputation of apprenticeships is much less. Apprenticeships have been (and often still are) regarded as 'lower class' and not a method of social mobility, with parents pushing their children to engage in university education instead.

One uniting factor is the importance of industry involvement. There is no one size fits all model across all of the countries that we have studied here; the industry in each country wants things in different ways, with different requirements, but having an involved industry, an engaged industry can be shown to be essential to success; no matter the model. There are different methods to engage industry, with England and Germany having industry help design the apprenticeships themselves. France and England have an apprenticeship tax on industry and incentives to engage the sector further.

Notably in this context, both "English-model" and European models define the apprenticeship according to occupation: in other words, a syllabus or prescription or curriculum covering a profession. We see important strengths in this, as it bolsters the notion of apprenticeship graduating for a profession, thereby becoming a member of that profession or craft or trade, recognised by peers as such. While other systems, including ours, are outcomes based, these are codified in qualifications documents – used in the main by programme developers and the education system, as opposed to being blueprints of the professions themselves – white collar and blue collar, hi-vis vests and labcoats alike.

It has been particularly interesting noting the very different methods of assessment and structure and how they cater to very different learner types. In Switzerland, the apprenticeship is at the heart of the system, and many do their apprenticeship and then go back to school and study further before pursuing their career. It is also often a straight-from-school option – fully 70 percent of Swiss school leavers take up apprenticeships, fifty percent in Germany, compared with seven percent here in Aotearoa. The English model is striking for its flexibility and multi-level structure, going from Level 2 to degree-level apprenticeships. The downside to this is, with the English model in particular, the learner usually has just one chance to pass their assessments without having to pay additional

money to re-sit, with their complete apprenticeship coming down to three one-off assessments. The Welsh model is portfolio-based and done over a much more extended period, reducing the stress on the learner and increasing the amount of work that teachers and supervisors have to do. Whilst each country is unique in model, delivery and learners, the importance is that industry leads regarding of assessment that should be utilised for their learners.

The flexibility of apprenticeships, and different types or 'families' of apprenticeships offered in other countries, should also be considered. There are the pre-apprenticeships, such as in Scotland, Wales, Denmark, and Australia, which give learners a taste of what it will be like to ensure they are doing the right thing for them. There is also the flexibility in the Welsh 'Progression' qualification and the Austrian 'supra-company apprenticeship' regarding creating a method for learners who have not been able to find an employer to give them the training needed so that they are not left behind.

The final essential element that has come out of this research is that apprenticeships are more than just technical training. In some countries, such as Switzerland, this is on a country-by-country basis; in others, such as England, behaviours are an embedded element of each apprenticeship standard and are assessed as much as technical skills are. Viewing an apprenticeship as a holistic introduction to working life and industry and ensuring that it is covered robustly for future success. Whether this is embedded to the same degree as the English EPA's or if it is more requirements for company training etc., having well-rounded apprentices will not only make them better workers. Still, they will keep them more engaged in the workplace and industry.

Aotearoa literature review

Government support for apprenticeships and industry training

Several recent government initiatives have been introduced to increase the uptake of apprenticeships in New Zealand. The Apprenticeship Support Programme⁴⁴ is a \$519.8 million package released by the Ministry of Education (MoE) in 2020, partly to support employers and industry training during and following the COVID-19 pandemic. Programme coverage includes:

- The Group Training Scheme (GTS) Fund⁴⁵ was delivered by TEC and supported seven existing Group Training Schemes (primarily operating in licenced construction trades) to continue to employ apprentices and trainees and provide related support services to host employers. \$19.36 million of funding was made available until 30 June 2021
- Apprenticeship Boost⁴⁶ is delivered by MSD and provides financial support directly to employers to help them take on and keep new apprentices entering a New Zealand Apprenticeship or Managed Apprenticeship. Applications closed by December 2022, and the initiative finishes in December 2023. As of 26 October 2022, a total of \$32,288,000 in Apprenticeship Boost funding had been directed towards Food and Fibre Apprenticeships.
- Mana in Mahi⁴⁷ is delivered by MSD and provides financial support to learn as you earn and gain a New Zealand qualification. It is available to all that meet the criteria, though it is aimed at engaging those on long-term benefits.
- Regional Apprenticeship Initiative⁴⁸ is delivered by MBIE's Provincial Development Unit and provides financial and pastoral support for new apprentices or those in similar industry training qualifications at Level 4. It provides \$40,000 per apprentice/trainee and includes wage subsidies and business support for employers to offer pastoral care. It is available to all that meet the criteria, focusing on engaging and supporting Māori/Pacific and displaced workers.
- Up until December 2022, the Targeted Training and Apprenticeship Fund (TTAF)⁴⁹ also known as "free trades training", is for apprentices and sub-degree level 3-7 industry training for targeted areas (including primary industries). It is paid directly to TEOs (Tertiary Education Organisations).

Policy and funding are critical enablers for buy-in to the apprenticeship model, employers, potential apprentices, and key influencers. With several stimulus initiatives coming to an end, advocacy for government buy-in must remain a top priority for the model to endure – particularly the focus on the quality of employers (as trainers), and articulating the benefits of apprenticeships to employers. With a 49% increase in Apprentices since 2019, these direct employer incentives have undoubtedly led to this increase. It is equally certain that, following Australia's lead, the removal of these direct incentives will reduce commencements and increase terminations, especially if this occurs in parallel with easier access to a migrant workforce following the loosening of border restrictions.

⁴⁴ Apprenticeship Support Programme. Retrieved 2022. <https://www.education.govt.nz/our-work/information-releases/issue-specific-releases/apprenticeship-support-programme/>

⁴⁵ Group Training Scheme Fund. Retrieved 2022. <https://www.tec.govt.nz/funding/funding-and-performance/funding/fund-finder/group-training-schemes-fund/>

⁴⁶ Apprenticeship Boost. <https://www.workandincome.govt.nz/employers/subsidies-training-and-other-help/apprenticeship-boost/index.html>

⁴⁷ Mana in Mahi. <https://www.workandincome.govt.nz/products/a-z-benefits/mana-in-mahi.html>

⁴⁸ Regional Apprenticeships Initiative. <https://www.growregions.govt.nz/established-funds/what-we-have-funded/regional-apprenticeships-initiative/>

⁴⁹ Targeted Training and Apprenticeship Fund. <https://www.tec.govt.nz/funding/funding-and->

Advanced/degree-level apprenticeships

Currently, there are no primary industry-related advanced/degree-level apprenticeships in New Zealand.

In 2018, Engineering Education to Employment (E2E) worked with WelTec, Otago Polytechnic⁵⁰ and the Institute of Public Works Engineers Australasia to pilot an engineering apprenticeship degree, the Bachelor of Engineering Technology (Level 7).⁵¹ This was in response to a critical shortage in infrastructure asset managers in New Zealand and globally. It also seeks to address the under-representation of women, Māori, and Pacifica in engineering occupations. The pilot has been created and adopted for New Zealand using lessons learned and critical inclusions from the model operating successfully in the United Kingdom through the Manchester Metropolitan University (MMU).

A vital feature of the curriculum design was ensuring that it was employer-led, a three-way relationship between employers, policymakers, and tertiary providers, and meeting international accreditation requirements provided by Engineering New Zealand. Now delivered solely by Otago Polytechnic, the degree apprenticeship provides an infrastructure asset management pathway in Civil, Electrical and Mechanical Engineering majors of the Bachelor of Engineering Technology.

The pilot has an industry reference group involved in the curriculum design, including assessment design and ongoing evaluation. The programme combines theoretical delivery (online, taught, self-directed, day release, and tutorial) and a robust work-integrated learning component. Courses (such as mathematics) are stand-alone blended courses with traditional assessments. In addition, there are courses with partial theory and workplace projects and courses which are fully integrated into the workplace.

Overall, the programme is organised into three study blocks (as opposed to three years) to create flexibility. There are two 'gateway' assessments throughout the programme to ensure that the outcomes of the first two blocks are met. A final summative capstone assessment involves presenting detailed project work, a portfolio, and a rigorous production with an interview panel comprised of internal and external academics and industry. In addition, industry micro-credentials are integrated into the degree.

Initially, the pilot intended to rotate apprentices through employment hubs to expose them to different employers and industry experience. However, this was adjusted throughout the pilot to incorporate various industry stakeholders within the programme delivery. Pastoral and cultural care is primarily provided via two programme managers (North Island, South Island), who know the apprentices well and coordinate the flexible course delivery arrangements to the individual. The pastoral needs are not significant; instead, the programme's flexibility appears to be a key feature in support. Apprentices are reported to be engaged and are progressing well through the programme. It is noted that school leavers have a pathway through a diploma (with aligned courses) that lead to the degree. As such, the apprentices on the degree programme are self-selected, self-motivated and have a mature approach to their study.

⁵⁰ Bachelor of Engineering Technology Apprenticeship Degree. Retrieved 2022. <https://online.op.ac.nz/industry-and-research/research/research-by-theme/education-and-employability/engaging-with-engineers/>

⁵¹ Engineering Degree Apprenticeship. Retrieved 2022. <https://www.tec.govt.nz/news-and-consultations/archived-news/pilot-of-degree-apprenticeship-model-underway-in-new-zealand/>

Whilst COVID-19 impacted the beginning of the pilot, the programme has experienced solid growth with minimal marketing, primarily through word of mouth. Ongoing evaluation and continuous improvement throughout the pilot have captured several successes and learnings, with a formal review due at the end of 2022. One focus of the evaluation is to see whether the intended industry-led curriculum design matches the actuality of what was delivered. A key contributing factor to the growth is the programme's flexibility, which enables the attraction and retention of apprentices. COVID-19 sped up the development of the online delivery component, and block courses were adjusted to weekly delivery, including taught, self-directed learning and tutorials (both group and one-on-one). The flexibility of this delivery has been well received, with apprentices able to opt into what suits their work and life commitments. Indications are that the funding model supports flexible delivery.

Much of this pilot model could be directly applicable to the Food and Fibre sector. Whilst outside this project's scope, advanced/degree-level apprenticeships are considered a crucial part of redefining apprenticeships in Aotearoa, not just limited to the NZA model. For the Food and Fibre sector, this apprenticeship could provide a valid pathway, or entry point, mainly when considering the scholarship opportunities in multiple fields. Alternatively, the number of internships available should also be considered related to advanced apprenticeships and whether they may actually meet the demand for advanced training in the sector.

Internships, Graduate Programmes and Scholarships

The primary industries sector has many scholarship opportunities across the sector. Growing NZ researched the sector and identified 243 scholarships available.⁵² There are also several opportunities for engaging underserved, disadvantaged and gender-gap learners, graduates, and career changers. Most programmes provide financial support and learning to support exposure to opportunities in the food and fibre sector and support the development of career pathways. Consider these and how they potentially interface with the apprenticeship model. Understanding awareness of these opportunities may increase the perception of careers in primary industries and increase attraction and retention. These support mechanisms provide opportunities for school leavers, apprentices, and potentially higher-level apprenticeships. A snapshot of these examples includes: Ministry of Primary Industries (MPI) offers scholarships, internships, and a graduate development programme.⁵³

- the TupuToa programme creates pathways for Māori and Pasifika into careers in the corporate and professional sectors and offers three-month internships at MPI
- the Tupu Tai Pasifika Public Sector Summer Internship Programme is an interagency government initiative to expose career options in the government sector.
- MPI has partnered with GirlBoss New Zealand, a social impact organisation, to increase female engagement in science, technology, engineering, mathematics, leadership, and entrepreneurship. Together they have created GirlBoss Edge: Primary industries online programme, a set of career modules and a networking platform to promote pathways and opportunities in the food and fibre sector. MPI also sponsors an Activator Award to recognise entrepreneurial young women who are creating change in the sector

⁵² Scholarship opportunities. Retrieved 2022. <https://www.growingnz.org.nz/find-your-fit/scholarships?Search=&Region=&TeritaryInstitution=&Sort=Closing%20Date>

⁵³ Ministry of Primary Industries. Retrieved 2022. <https://www.mpi.govt.nz/about-mpi/careers/working-mpi/career-opportunities-at-mpi-for-graduates-interns-and-young-people/#careerboost>

- MPI also offers both forestry scholarships and internships for Māori and female students, and a fisheries/marine biology scholarship available to both undergraduate and master's students.
- MPI's Graduate Programme⁵⁴ offers a place as a permanent team member for recent tertiary graduates. The programme provides three 6-month rotations in different parts of MPI and other regions and aims to expose and align the graduate to a career pathway.

DairyNZ⁵⁵ offers several options for postgraduate scholarship and internship opportunities. These include:

- postgraduate scholarships and Masters Scholarships, the Colin Holmes Dairy Scholarships. These scholarships are focused on research and development, providing the sector with more capability in these areas. They provide financial support and access to industry experts and mentors
- paid Science internships with the company, including support by scientists, and Academic Committee, with the view to completing a Masters degree.
- Māori internships and Masters programme, with a focus on science, environmental studies, social science and mātauranga Māori
- the DairyNZ Internship Pilot was piloted for the summer of 2021/2022, placing trainees with host farmers for work experience in the business operations of dairy farming. This aims to attract talented people, including career changers, and expose them to the reality of day-to-day business on a dairy farm via a small internship.

Beef+LambNZ⁵⁶ offers support to their industry in several ways:

- support to assist the development of new cadet farms
- financial support to the Growing Future Farmers (GFF) Essential Farm Skills Programme, as well as financial support to enrolled learners
- B+LNZ Generation Next Programme has three workshops over six months to support current and future farmers. It focuses on leadership and management, including decision-making, financial skills, technology, and genetics
- support existing leadership and scholarship programmes such as AgriWomen's Development Trust, International Beef Alliance, Lambex Youth Ambassadors, Kellogg's, and Nuffield programmes.

Rural Leaders New Zealand⁵⁷ delivers three leadership programmes:

- Nuffield New Zealand Farming Scholarships provide five scholarships per year, which involve a 12-month programme, including 14 weeks of travel. The programme includes national and global focus programmes, a conference with other international scholars and culminates in a research project designed to provide innovations and insights that can be presented and implemented in New Zealand
- Kellogg's Rural Leadership Programme takes three intakes of 24 scholars for an 18-day programme over six months in a residential format, as well as self-directed course work. Scholars build their leadership skills, including in a political, economic, and environmental context, then apply them in an individual research project
- Value Chain Innovation Programmes develop entrepreneurial leadership knowledge, skills, and networks to enable influence at an enterprise level. Participants are

⁵⁴ Ministry of Primary Industries. Retrieved 2022. <https://www.mpi.govt.nz/about-mpi/careers/working-mpi/career-opportunities-at-mpi-for-graduates-interns-and-young-people/#careerboost>

⁵⁵ Careers and progression. Retrieved 2022. <https://www.dairynz.co.nz/people/careers-and-progression/>

⁵⁶ People and Training. Retrieved 2022. <https://beeflambnz.com/people-and-training>

⁵⁷ Rural Leaders leadership programmes. Retrieved 2022. <https://ruraladers.co.nz/>

exposed to 5 different value chains through a full week facilitated immersion experience (study tour).

HortNZ⁵⁸ provides both undergraduate and postgraduate scholarships.

This snapshot highlights that there is plenty of available opportunities in the Food and Fibre sector. However, marketing, education, access to these opportunities, and how they may be utilised within apprenticeships are a consideration. In addition, the promotion of successful participants and utilising graduates of these programmes as mentors to apprentices may be a consideration to showcase career opportunities further and elevate perceptions of careers in Primary Industries.

⁵⁸ People, jobs, labour, and scholarships. Retrieved 2022. <https://www.hortnz.co.nz/people-jobs-and-labour/scholarships/>

Principles and practices of good apprenticeships

Combining our international and Aotearoa-based scans, several common themes emerge, that can be summarised as principles of what a good apprenticeship should look like, and where practices and efforts need continued focus.

There is a wealth of literature available on the apprenticeship model in Aotearoa. The apprenticeship model is a well-known and valued part of the vocational education and training landscape. However, an overall domestic and global theme is that apprenticeships (and the wider vocational education sector), still require promotion and elevation to realise the full potential they can offer, not just for school leavers but career changers and the mature workforce. Return on investment for employers could be further articulated, to increase engagement. The concept and perception of an apprenticeship in New Zealand could be described as 'general' and limited to within the context of the policy and guidelines of what has been historically and currently offered. Predominantly perceptions still generally describe a sub-degree vocational programme for school leavers to learn a traditional trade, whilst they earn.

Overall, fundamental principles of what a good apprenticeship could look like in New Zealand correlates to global research and principles. In New Zealand, reassuringly, there is ongoing research, review, and initiatives in play to increase the effectiveness of apprenticeships. However, there is still much work to do to ensure that they are authentically responding to industry, employer and learner needs and that they are appropriately supported regionally and centrally.

In February 2023, a Global Apprenticeship Network-led Future of Apprenticeship Conference and Study Tour between Switzerland, Australia and New Zealand strongly coalesced on the need for work to ensure that the interactions between employers and apprentices are high quality, and delivering high quality training, learning support, and pastoral care.⁵⁹

Taken together, we find the themes and general principles of apprenticeships, as applicable to Aotearoa New Zealand are:

- Apprenticeships are market-led through labour data, demand, and workforce requirements in terms of sector demand. More work on the student supply end is required to meet these needs, especially in areas of skills shortages.
- The government supports apprenticeships, through policy, and initiatives. Several post-Covid-19 support measures are finishing and further advocacy and support will be required to ensure employers and potential apprentices can engage in the system
- Apprenticeships that are regionally enabled and supported by economic agencies is a worthwhile aspiration, and where there is buy-in and support, leads to better outcomes. Regional Skills Leadership Groups have identified apprenticeships in their regional workforce plans. How these will be implemented is unclear but does present evidence of both demand and opportunity.
- The quality of employers is critical. Around the world are myriad permutations of system structure, policy settings, and resourcing systems, but 'the buck stops' at the interaction between the apprentice and their trainer. Unless that key interaction is

⁵⁹ Future of Apprenticeships: Striving for Excellence. Perspectives from Switzerland, Australia and New Zealand. [The Future of Apprenticeships 2023 – GAN Australia \(gan-australia.org\)](https://gan-australia.org)

quality, you do not have a quality system – this parallels best evidence synthesis work over many years in the compulsory schooling sector – it is the interaction between teacher and learner that has the greatest effect size on outcomes.

- Nationally recognised qualifications (and credentialing where appropriate) are required and important. Many have been reviewed recently, and there are new apprenticeships being developed. However, size (value) and levels of qualifications require review to ensure they are truly fit for purpose. Whilst credentialing is important, the design and delivery of the programme leading to the credential is critical in terms of industry fit, engagement, retention, and success.
- Qualification development and review processes support employer-led qualification design and development. Indications are that interpretation of employer needs is critical, and qualification guidelines can sometimes produce a qualification that supports the education providers more than the employers. More work is required to ensure that the credential is truly employer-led.
- On-job learning provides the real, and authentic skills training component
- Off-job learning provides necessary theoretical knowledge component, cohort-based learning experiences, and lower-stakes repeatability of technical tasks and skills.
- Digital provision and opportunities to digitally upskill are necessary in the design, development, and delivery of apprenticeships.
- Soft skill development, transferable skills, and portability of skills are important; more work is required to address these explicitly and provide guidance on what should (or should not be) assessed.
- Gender imbalances in the trades are improving; however, increasing strategies for inclusion work must be part of the design of apprenticeship programmes.
- Embedding Māori values within design, development, and delivery increases success for Māori.
- Pastoral care is undervalued and is a core component of delivery. It requires further investment and needs to be explicitly delivered.
- Embedding literacy and numeracy is crucial.
- Regionally located learning hubs in the apprentice's locale are a vital source of learning, social learning, and cultural and pastoral care – conceptually, both Te Pūkenga would offer this via its regional campuses and Ako networks, however the expansion of group employment models and schemes to a wider range of industries and occupations also offers considerable potential.

“A unique learning relationship”.

Apprenticeships can be traced back to the Macedonians and Ancient Egyptians – as a species we have understood and employed the concept for 5,000 years. It is the process by which an industry replaces itself. A novice becomes a non-novice, through the training efforts of the more skilled and experienced practitioners around them.

More than that however, it is also how a novice attains membership of a craft or profession. The graduated apprentice joins a club – an industry – of skilled industry practitioners, and its recognised by peers as being such, because collectively they represent the members of the industry, or craft, or trade.

We set this out here because it is for the modern-day food and fibre sector in New Zealand to consider if, culturally, this model resonates – across the board, or perhaps in particular sectors or occupations.

As we noted above, an international scan in 2023 reveals a wide range of definitions of apprenticeships used by formal systems. At the time of preparing this report, twenty percent of all tertiary education learners in New Zealand are apprentices, a proportion that has been

increasing in recent years. That suggests the model is both well embedded and strongly supported. With 7,500 of those apprentices employed in the Food and Fibre industry, it certainly does not appear that it is a completely novel concept, nor suggest a need to start all over again.

Long before apprenticeships were formalised in terms of the New Zealand education system, employers and industries themselves defined what an apprenticeship was: namely, it was the process of turning a novice into a skilled or expert practitioner. And that takes time – therefore time became the main proxy: 8,000 hours, 10,000 hours, and 12,000 hours in the industry was the measure, irrespective of what any individual learner did with those hours. However, ultimately, apprentices were “signed off” by their employers.

Since the introduction of the NZQA competency-based system in the early 1990s, the time has not been the measure, but rather the achievement of a list of agreed competencies and capabilities to an industry-agreed standard. Fundamentally though, it is still now about what a novice needs to be taught to be recognised by the industry as no longer a novice – now an accredited member of the industry, a journeyman, a tradesperson, a craftsperson, a skilled practitioner – in the eyes of the industry.

However, quite irrespective of 30+ years of a unit standards-based assessment and qualification system, one can still easily find a backyard barbecue in Aotearoa in 2023 and hear about sons and daughters and nephews and nieces that are doing, nearly done, or done “their time”.

It’s not just a hangover from the old time-based system. It’s a recognition that whatever the education system does or provides in terms of educational learning and assessment processes, the industry itself carries a notion that membership of the industry is achieved – or most desirably achieved - through a process whereby skilled and experienced industry practitioners create the next generation of themselves – albeit with new and improved methods and tools and techniques.

Policy implications

Following RoVE’s structural and resourcing policy changes, the tertiary funding system makes little distinction between an ‘apprentice’ and any other learner undertaking some or all their learning programme through the workplace. Government agencies will not be able to easily distinguish an “apprentice” using funding rates alone.

Via the RoVE’s structural and responsibility changes, Te Pūkenga and other VET Providers now arrange and support learners in providers and workplaces, and various permutations of those modes of learning. Government agencies cannot use the enrolling provider to reliably recognise an apprentice as distinct from another workplace (or blended) learner.

Things were already not good though: our research clearly indicates that the NZA definition developed is an artificial and mechanistic line in the sand, which has unnecessarily constrained the content of apprenticeship programmes, as well as potentially bending them out of alignment with actual industry need and in the context of increasing technological sophistication through funding-driven behaviour. Around the world, apprenticeship arrangements can and do deliver the full spectrum of foundation-level capabilities through to degree-level sophistication.

The unfortunate result of the tight association between apprenticeships and levels 3 and 4 of the NZQF has held industries and New Zealand back, as well as failing to account for the exponentially increasing technological sophistication in industries over that period. The growth of degree apprenticeships in the UK - but not here or yet in Australia - are a clear signal of this.

So, if the regulatory framework does not offer government a clear-cut definition of apprenticeship, it becomes an issue for policy, not to mention statisticians, since quality and resourcing considerations require the government as a prudent investor and system steward to ensure it knows an apprentice when it sees one and can employ any necessary guard rails.

The Opportunity for Ohu Mahi WDCs

Given this environment, we see a key opportunity for WDCs, to play a role that is as critically important as it is obvious. We believe that WDCs should adopt the mantle of the custodian of apprenticeships, on behalf of the industries within their respective coverage. To some this may seem obvious given the legislated roles of the WDCs and statements made at the outset of the Reforms about their role in the new VET system structure. WDC's are mandated to lead on workforce skills and development issues and represent and reflect industry wishes in the development of industry skill standards and credentials. They also need to be seen to do so. WDCs also have a legislated ability to set and moderate capstone assessments.

Recall that in the dual systems of Germany and Switzerland, the *industry* assesses and signs off apprentices, not education providers. It is how one becomes a member of a profession. After the colleges and companies have combined to train an Apprentice, it is agents of industry that set final and summative assessments that graduate the apprentices.

Given the intrinsic need for apprenticeships to represent entry to and membership of professions and industries, we believe this is a compelling case where the capstone ability could and should be employed, in a similar fashion to Austria's apprentice-leaving examinations. In short, for occupations within WDC coverage where the industry desires it, a capstone should be set and moderated by the WDC.

While WDCs are not themselves set up to directly assess capstones, the capstones should be administered independently of the enrolling provider – but an industry credible actor performing this role on behalf of the industry.

This would allow the industry itself to be the arbiter of where the apprenticeship standard is set and how it needs to be met. It would be the role of the WDC to clearly stipulate and articulate to providers what this is. It would allow flexibility both in terms of levels and durations, including the possibility of partnering with higher education for graduate-level apprenticeships.

Critically, it also positions the WDCs as genuine agents of the industries, as the custodians of formal apprenticeships. A learner might achieve the same learning outcomes via another pathway, but the marker and associated cachet of the apprenticeship pathway comes via WDCs, essentially an industry-led verification and endorsement. A WDC-led qualmark, separate from, but tightly aligned to any NZQA credentials and qualifications achieved.

We believe this custodianship of the apprenticeship case would provide a critical way for WDCs to manage national consistency and quality while simultaneously exercising industry skills leadership.

Data analysis

The data below provides information about apprentices in the Food and Fibre sector. We have used data provided by TEC ranging from 2017 to 2021, although for readability, only 2021 is displayed in Table 1. The data uses NZSCED Detailed Field based on the TEC Food and Fibre priority areas.

Table 1: Te Pūkenga Work Based Learning Limited - number of Food and Fibre apprentices in 2021.

TEO subsidiary	Number of apprentices in 2021
Primary ITO	7,250
Competenz	1,245
Connexis	25
Eastern Institute of Technology	95
Skills4Work Limited ⁶⁰	580
Total	8,515

Table 1 shows that in 2021 there were a total of 8,515 apprentices enrolled within the food and fibre field. Most of these were enrolled with the Primary ITO in topics ranging from seafood processing to beekeeping. Competenz ITO also had many apprentices, mainly enrolled in forestry qualifications.

Table 2: Proportion of Food and Fibre Apprentices by Age Group 2017 to 2021

Age Group	2017	2018	2019	2020	2021	Percentage Change 2017 to 2021
Under 25	35%	33%	35%	39%	38%	4%
25 - 39	50%	51%	50%	47%	47%	-3%
40 and over	16%	16%	15%	14%	15%	-1%
Total	100%	100%	100%	100%	100%	0%

Table 2 shows that most apprentices are aged between 25 – 39 years. This number has remained largely stable over time, dropping in 2020 and 2021, which may reflect the impact of COVID-19. In contrast, the under-25 age group has increased by 4% over time. This may be due to COVID-19 funding incentives⁶¹ introduced by the government aimed at attracting young people and employers to apprenticeships.

Table 3: Proportion of Food and Fibre Apprentices by Gender 2017 to 2021

Gender	2017	2018	2019	2020	2021	Percentage Change 2017 to 2021
Female	16%	16%	18%	21%	23%	7%
Male	84%	84%	82%	79%	77%	-7%
Unknown	<1%	<1%	<1%	<1%	<1%	0%

⁶⁰ Skills4Work Limited had provision for Butchery apprentices transferred from Competenz in August 2021. Learners transferred as of August 2021 have been counted against both TEOs.

⁶¹ COVID-19 funding initiatives include the Targeted Training and Apprenticeship Fund, and the Apprentice Boost.

Total	100%	100%	100%	100%	100%	0%
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There has been an increase in female apprentices over time, with an increase of 7% since 2017. In contrast there has been a 7% decrease in male apprentices over that same period.

Table 4: Proportion of Food and Fibre Apprentices by Ethnicity 2017 to 2021

Ethnicity	2017	2018	2019	2020	2021	Percentage Change 2017 to 2021
European	62%	58%	53%	56%	56%	-6%
Māori	17%	17%	16%	20%	22%	5%
Pasifika	3%	3%	3%	3%	5%	2%
Asian	13%	16%	20%	14%	11%	-2%
Middle Eastern/Latin American/African	2%	2%	3%	3%	2%	0%
Other Ethnicity	2%	2%	3%	2%	2%	0%
Unknown	2%	2%	2%	3%	3%	1%
Total	100%	100%	100%	100%	100%	0%

The data shows a 6% decrease in European apprentices over time, while Māori and Pasifika apprentices have increased by 5% and 2, % respectively. There was an increase for all European, Māori and Pasifika learners in 2020 and 2021. This could result from COVID-19 funding policies attracting more learners to apprenticeships. There was, however, a notable decrease in the percentage of Asian learners from 20% in 2019 to 11% in 2021.

Table 5: Food and Fibre Apprentices Educational Performance Indicators 2017 to 2021 (Industry training only)

Reporting Year	Credit Completion Rate	First-Year Retention Rate	Programme Completion Rate
2017	65%	67%	23%
2018	65%	63%	25%
2019	68%	66%	45%
2020	59%	65%	44%
2021	56%	61%	42%

Credit completion rates dropped over the period from 65% in 2017 to 56% in 2021. This may result from COVID-19 and/or the RoVE reforms impacting apprentices' ability to complete their credits. First-year retention rates have remained relatively steady, with numbers dropping slightly in 2021. However, programme completion rates have significantly increased since 2017, from 23% to 42% in 2021.

Table 6: Number of Employers with Food and Fibre Apprentices from 2017 to 2021 (Industry Training only)⁶²

Reporting Year	Number of Employers (Distinct)*
2017	2,815
2018	2,865
2019	3,380
2020	3,865

⁶² Values are based on the count of distinct Employer names reported to TEC. An employer may be counted more than once if different spelling has been reported within the same year. No analysis or merging of employer names to remove possible duplicates has been undertaken for this request.

2021	4,435
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Overall, the data shows a steady increase in the number of employers taking on apprentices, with a more significant jump in numbers between 2019 to 2021. This increase is again likely due to COVID-19 funding initiatives making employing apprentices more attractive to employers.

In 2021, 78,480 out of 397,785 post-school learners were apprentices. In other words, almost one in five learners in our tertiary system is an apprentice.

The potential of a generic food and fibre apprenticeship.

The Food and Fibre sector currently offers 62 apprenticeship programmes. However, many of the associated qualifications are already written with strands that capture or enable specialisations. This suggests that it is possible to distil 'core' content in respect of a core generic apprenticeship qualification, with the ability to further specialise in a desired capability, once completed.

A generic apprenticeship qualification could provide the following potential benefits:

- a clear and straightforward pathway to core generic knowledge and skills required by industry at an equivalent Level 4, which may increase attraction and recruitment
- a clear entry point into the food and fibre sector without commitment to one industry. It allows apprentices to 'try before they buy' a career
- increased mobility between jobs and industries, which may support seasonal work (for employees and employers)
- increase transferable knowledge and skills relevant across more between employers/industries
- reduced academic administration, delivery, and quality assurance costs.
- greater consistency of delivery of core components, including cultural and pastoral care.

A further necessary consideration is the appropriate size and duration of a 'core' qualification. We observe high levels of transition and attrition in the Food and Fibre sector. This suggests that a traditional four-year apprenticeship is unlikely the optimal duration given these labour market dynamics if completion and industry benefit long term is to be realised. This relates to wider trends towards more modular and stackable approaches, for example the use of micro credentials. It is also worth noting that repeated research efforts have suggested that a strong and authentic investment in skills, such as through effective apprenticeships, have a positive impact on employee retention.

A residential component is also worth consideration, particularly for the initial phase of a core generic apprenticeship qualification. This would allow for pastoral care screening needs, individual learning plans, and providing workplace readiness, employment, and digital skills training to set apprentices up for success. It is worth paying more attention to current global models which already utilise this, including the Welsh Construction & BSE apprenticeship journey of up to three entry points.

Considering the administration of a generic qualification that allows for possible multiple entry and exit points and increased mobility is essential. Group employment schemes may provide a potential solution here, to keep an apprenticeship intact, while the turnover in the industry strongly outpaces and reduces the likelihood of completing a 4-year apprenticeship with any one employer.

We believe the 'core' apprenticeship programme should be pitched at no more than one year's nominal duration (some may take longer or less time), and also be stackable to the extent it can be bundled and delivered simultaneously with, or later augmented by industry specific standards, credentials, or micro credentials.

Content and Core Competencies

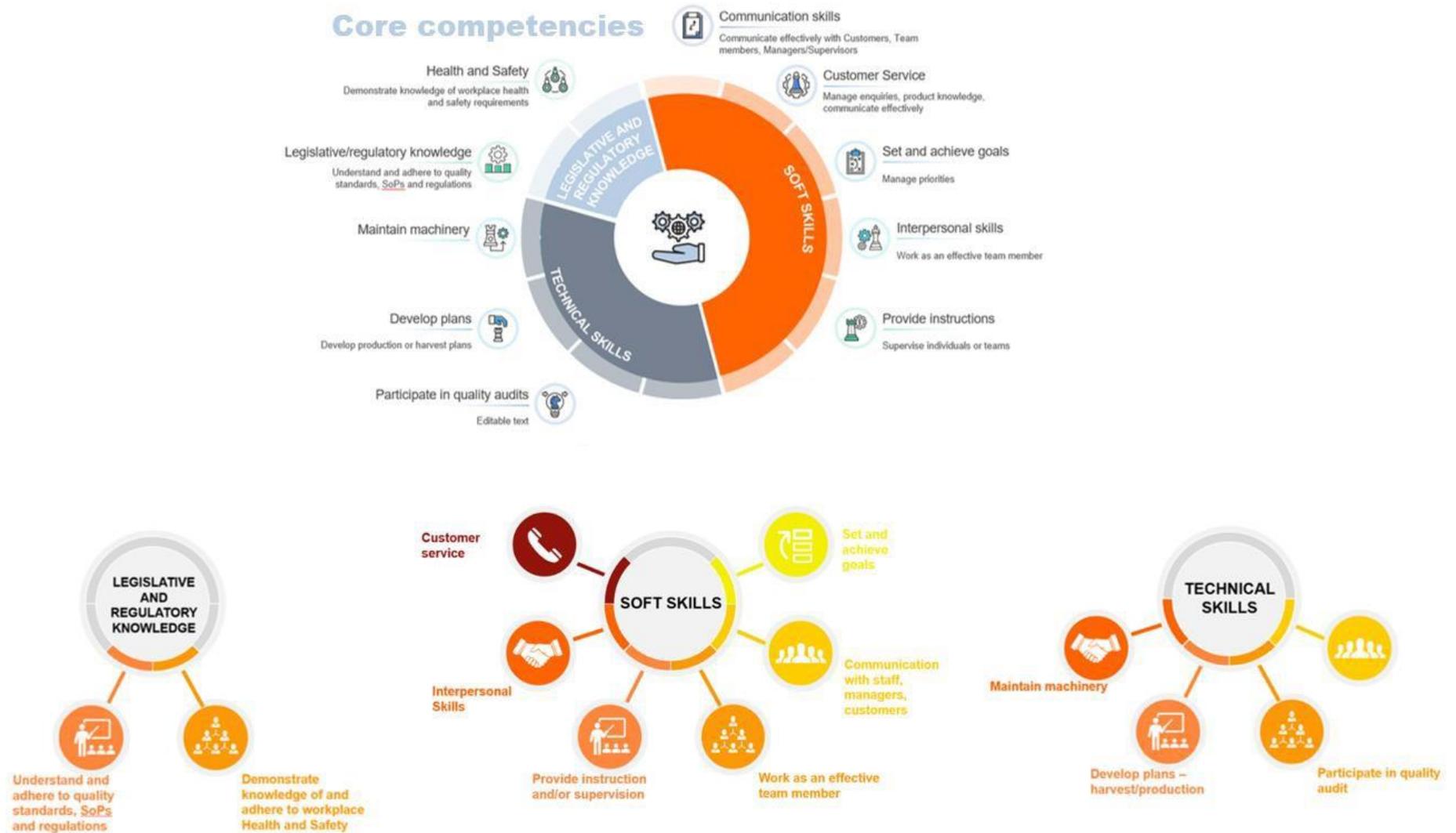
The Tertiary Education Commission (TEC) is required to keep an official register of all approved New Zealand Apprenticeships. Based on this, we have reviewed the learning and graduate outcomes of the 62 current Food and Fibre New Zealand Apprenticeships and identified the common competencies. We have unpacked the common skillsets and learning outcomes to form a view of the common core – the things to be covered in an apprenticeship programme that could be offered and contextualised across the food and fibre sector.

These common elements have been categorised under three broad headings: Soft Skills, Legislative and Regulatory Knowledge, and Technical Skills.

The core competencies are:⁶³

- demonstrating and applying knowledge of workplace health and safety
- understand and adhere to quality standards, standard operating procedures, and regulations.
- maintain machinery
- develop plans for production and harvest
- participate in quality audits/processes
- provide instructions
- supervise individuals or teams
- interpersonal skills – work as an influential team member
- set and achieve goals – manage priorities
- customer service – manage enquiries, product knowledge and communicate effectively
- communication skills – communicate effectively with customers, team members, and manager/supervisor.

Figure 1 - Competencies

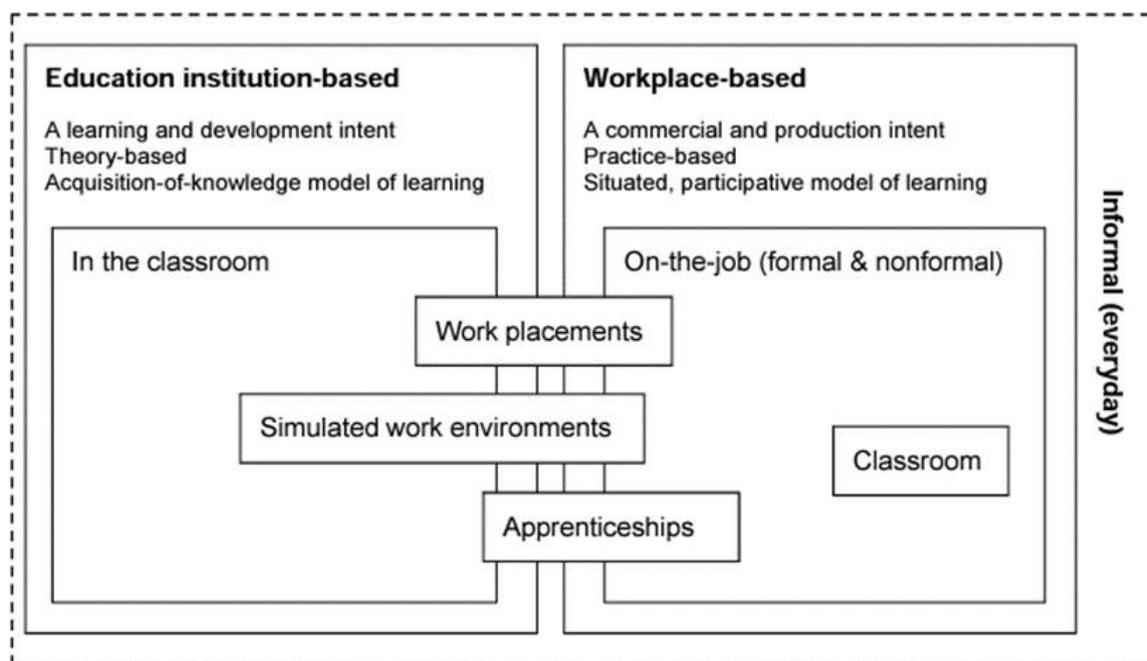


An integrated training model

Apprenticeship models usually consist of core practical skills training and work-readiness provided on-job and off-job with provision essentially consisting of theoretical learning via either block, evening, or day release courses. Digital provision of learning and support is also far more prevalent in the delivery of both on-job and off-job training, which may be through digital training content, tutorials, digital assessment, and social community.

The New Zealand Council for Educational Research (NZCER)⁶⁴ provided a working paper discussing the integration of work and learning in New Zealand. The report identifies three learning spaces – education, workplace, and home life, that not only provide physical places of learning, but there is a shared meaning, understanding and language of what that learning means and how learning occurs.

Figure 2: Learning spaces for integration.



The advantages of each learning space are fundamentally simple to understand. Educational institutions are well-positioned to offer theoretical learning and instruction. A simulated work environment can provide a safe place for experiential learning and can be helpful in building practical foundation skills. Institutions may also provide a hub for pre-employment training, cultural and pastoral care, and digital upskilling support. Institutions can provide a programme’s ‘start, part, or completion’. Institutions also offer a physical presence, which can give a sense of belonging and community for apprentices, which may be regionally dispersed.

⁶⁴ The Integration of Work and Learning in New Zealand: A working paper. Retrieved 2022. <https://www.nzcer.org.nz/system/files/Integration%20of%20Work%20and%20Learning%20in%20NZ.pdf>

The authentic commercial environment of the workplace provides what a simulated environment cannot – actual work readiness and a direct understanding of the consequences of actions. In addition, relevant and necessary knowledge and skills are taught. Cultural and pastoral care is also provided but is likely to differ from that which institutions provide.

Perhaps then, the conversation is not of an either/or, but rather the optimal integration of on-job and off-job learning and increased shared understanding of what each learning space offers. Closing the gap between institution and industry experience of knowledge and skills development required is critical to ensure that learning is relevant and aligned.

Agriculture and horticulture being land-based, can mean regional isolation and dislocation. To ensure accessibility, travel, family care arrangements/support, and digital connectivity are all campus and digital-based learning considerations. Te Pūkenga providing a national delivery network offers an opportunity for apprentices to connect to off-job training at a regional hub close to the apprentice's locale.

The percentage of on-job and off-job provisions also needs to consider workday demands, appropriate flexibility for seasonality, and provide the most practicable arrangement to ensure it is accessible and effective for employees and employers.

Appendix 1

Discussion Proposals

- 1. Workforce Development Councils (WDCs) should become the custodians of apprenticeships on behalf of their industries.**
- 2. WDCs, according to industry wishes, should establish apprenticeship standards for certain occupations or professions within their coverage, that certify the achievement of an apprentice in terms of technical skills and learning arrangements.**
- 3. For these occupations or professions, WDCs should set and moderate capstone assessments that form a summative signoff to recognise graduated apprentices.**
- 4. This industry recognition for graduates of apprenticeships will be offered separately but aligned with their NZCQF qualifications.**
- 5. That Muka Tangata should explore the development of a ‘core’ apprenticeship programme that develops and recognises cross-cutting and transferable skills, and forms a baseline skillset that can be augmented by and/or delivered alongside industry or occupation specific credentials and micro credentials.**

Questions for Stakeholders

The principles and best practices outlined in this paper have been underpinned by research efforts undertaken in New Zealand and abroad, as well as our own stakeholder engagement and steering processes.

However, we believe the principles and proposals outlined and above can support a wider discussion with critical stakeholders to further inform the future for food and fibre apprenticeships in Aotearoa, for the benefit of the industry and most importantly for the future generations of the industry.

We hope that a great many of them will get their start via effective, well supported, and mana enhancing apprenticeships.

Te Ao Māori

We are keen to engage with Māori business owners and stakeholders about apprenticeships within the Food and Fibre sector and invite any feedback on the following questions and any further insights you wish to offer.

What demand is there for an apprenticeship model to support Māori, whānau, iwi aspirations, and Māori business?

What provisions and processes need to be implemented to enable equitable access for ākonga Māori?

What essential engagement methods with ākonga, mana whenua and community must be used to design and develop an apprenticeship model?

What are the key approaches for incorporating tīkanga Māori, mātauranga Māori in apprenticeship design and delivery to enhance engagement and successful outcomes?

What Māori wellness approaches, whānau support, cultural and pastoral care would be most desirable in an apprenticeship model?

How important is kanohi ki te kanohi (face-to-face) provision of training (including cultural and pastoral care)?

What other specific Kaupapa Māori services and spaces would be ideal?

Learners

We are interested in understanding from a learner's point of view what they think of apprenticeships and invite their feedback on the following questions:

- What is your understanding of an apprenticeship?
- Would you be interested in becoming an apprentice in the food and fibre industry?
- What benefits do you see in doing an apprenticeship?
- Any internships you know of? Do you know of any scholarship opportunities available to you?
- Would higher level/advanced apprenticeships be of interest to you, what benefit do you see in them?
- What would affect your desire and ability to apply to become an apprentice?
 - Seasonal work

- Pay rates
- Support (whānau, employer, careers advisors, teachers),
- availability of training,
- need to travel,
- need to leave leaving home area
- anything else?

Employers

We encourage employers to think about what apprenticeships mean to them, their employees (current and future) and their business and invite feedback on the following questions:

- Is there demand for apprenticeships in primary industries?
What about internships or cadetships?
- Do you support the idea of a core food and fibre apprenticeship for the whole sector and what must it include?
- Is there demand for higher level/advanced apprenticeships?
- What is the value to you as an employer taking on an apprentice?
- What support would you require or look for as the employer?
- What would you look for in a prospective apprentice?
- How would you access additional cultural and pastoral care if required?
- What about digital upskilling?

Appendix 2

References

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Appendix 3

Vocational Excellence Framework Rubric Impact

Project Output	Rubric	Expectation
<p>Research into the structure and characteristics of existing food and fibre sector apprenticeships</p>	<p>Framework: People</p> <p>Rubric: Educators Attribute: Systems Educators develop training plans to ensure skills development is effective and consistent with industry standards.</p> <p>Rubric: Employers and Industry Bodies Attribute: Systems Employers use good processes and systems to define and deliver workforce training.</p>	<p>With the completion of the research, the expectation is that there will be movement from acceptable to good and excellent over time.</p>
	<p>Framework: Provision</p> <p>Rubric: Face-to-face learning Attribute: Systems Systems are in place to ensure that Face-to-face learning delivers workplace competency grounded in actual-world practice.</p> <p>Rubric: Work-based learning Attribute: Skills and competencies Work-based learning develops technical competency, wider employability, career progression, and industry permeability.</p> <p>Rubric: Pastoral care (Methods) Attribute: Systems Systems are in place to ensure pastoral care meets learners' needs and is monitored to ensure outcomes are achieved.</p>	<p>With the completion of the research, the expectation is that there will be movement from acceptable to good and excellent over time.</p>

Rubric: Assessment

Attribute: Systems

Assessment methods are reviewed to ensure equity of outcomes for all learners.