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International models to streamline VET qualifications: case studies

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Contents

Overview

A priority of the Australian skills ministers is to streamline the national vocational education and training (VET) system so that it can better respond to the needs of industry. As the Australian Industry Skills Committee (AISC) notes, this involves three elements:

- 'Identification: Improved identification of changing skill needs, and better prioritisation of effort for national qualifications

- Development: Faster development of qualifications in response to industry needs

- Delivery: Increased support for training providers in the delivery of high-quality training and responding to changing skill needs' (Australian Industry Skills Committee 2020a).

This project is focused on the second element — faster development of qualifications. It looks at the vocational qualification development processes in different countries to see how they compare with Australia in terms of timeframe, the stakeholders or bodies involved, and qualification design. For the purposes of this project, the focus has been on the training package development process in Australia and not on accredited courses. This project builds on previous work in which international models for rationalising VET qualifications were explored (Wibrow & Waugh 2020). Each country in this study was chosen for a different reason, such as their similarity to Australia or to identify whether the differences between systems may lead to more streamlined processes, for example, the introduction of broad-based qualifications in Finland.

The information contained in the case studies is based on desktop-based research examining the qualification development process in several countries. The level of publicly available detail on processes varies for each country. The desktop-based research has been supplemented by contacting individuals within relevant agencies overseas but, overall, this approach had limited success.

The key findings from this research are presented below and are followed by a discussion of the similarities and differences between the development process in Australia and the comparison countries. Detailed information on each country is then presented thereafter.

Key findings

The vocational qualification development used in the selected overseas countries are comparable with the current process in Australia, in that they involve similar committee membership (although with greater input from educators), development duration (one to two years) and qualification documentation. Based on this similarity, it is difficult to suggest a specific model as ideal to examine more thoroughly for streamlining purposes.

- The vocational qualification development overseas did not appear to differ by qualification level or industry area.

- The membership of advisory bodies and committees involved in the development of qualifications overseas — bodies with a similar role to Australia's industry reference committees (IRCs) — tends to consist of employers, employees and educators. Membership is generally for a term of three or four years, with a limit of around nine to 12 members. The emphasis on the involvement of educators and training providers during the qualification development stage is to ensure that what is being proposed in training products can be practically delivered by providers.

- Some countries, such as South Africa, have clear guidelines regarding the removal of members with low or no participation. In South Africa attendance and participation at all meetings is recorded and reported to the quality council. If it appears that certain groups are being under-represented due to poor participation, then these members are replaced. Canada has requirements to provide digital access to the apprenticeship standards development process, for example, video meeting attendance, to promote accessibility for all stakeholders.

- In some countries, such as Canada, New Zealand and Scotland, educational institutions have a greater role in developing qualifications than currently in Australia, in some cases driving the review work. In Australia the current industry-led process with the IRC model appears to have resulted in the impression that VET providers have a limited role in the development of qualifications, although they are consulted on draft training products. Improving the visibility of VET providers' contribution to the development of qualifications may help perceptions about educator involvement.

- The overall timeframe for qualification development in most countries seems similar to that desired in Australia (one to two years). However, a breakdown of the time taken for each step in the qualification development process is not publicly available for all the countries examined; therefore, which stages take up more time internationally is unknown. Only New Zealand and South Africa had any information available, with New Zealand indicating a suggested five-month qualification review timeline and South Africa a potential four-month lead time before qualification development can begin (with initial approval and scoping meeting).

- The numerous points for consultation, validation and quality assurance in the Australian training package product-development process can contribute to the length of time for qualification development. This seems to be driven by the need to achieve consensus from multiple jurisdictions, as well as stakeholders. Scotland appears to have a single step in its development process for consultation and another for quality assurance; an examination of how they achieve this may reveal efficiencies.

- When submitting qualifications for approval, it is standard practice across the countries examined for evidence of consultations to be included in the documentation, including the stakeholders involved, the feedback received and how it was addressed. This is also the case in Australia.

- In many of the countries examined, the body or organisation with the final approval of a qualification is also the regulatory body of vocational qualifications in that country, such as the South African Qualifications Authority (SAQA; following approval from the Quality Council of Trades and Occupations [QCTO]), the Scottish Qualifications Authority (SQA) accreditation in Scotland and the New Zealand Qualifications Authority (NZQA) in New Zealand. In Australia, a recommendation to approve is given by an industry-led body, the Australian Industry and Skills Committee, with final endorsement given by the skills ministers. England appears to be the only other country with an industry-led body approving vocational qualifications.

- When assessing the need for a new qualification or changes to an existing qualification, many countries, including Australia, determine whether the new qualification will duplicate an existing qualification or replace a qualification. This usually needs to be addressed in an initial request to update or add a qualification; for example, see New Zealand's and South Africa's processes.

- Once a qualification is approved, the review period varies between countries. New Zealand, South Africa and England approve qualifications for a period of five years, and they are reviewed before this period expires. Ontario reviews its qualifications every year and Finland has ongoing reviews, although the process is unclear. Wales has undertaken a series of sector reviews, and changes to qualifications may occur as a result.

- Commonly, examining enrolment and completion data for qualifications is part of the review process. If a qualification has had no or low enrolments for a period of two years or more (in most countries), then it is recommended that the qualification be deregistered. For example, in Scotland reviews of qualification uptake are undertaken every six months.

- Most countries tend to have vocational qualifications that are tied to occupational standards or occupational codes, which closely link qualifications to particular occupations. Qualifications in Ontario, Singapore and Finland are linked to clusters of occupations that reflect the make-up of groups established expressly to inform the qualification development process. In the United Kingdom, qualifications are based on these separate occupational standards, whereas in South Africa and New Zealand the occupational standards are part of the qualification and inform the curriculum. It is unclear how having occupational standards linked to training standards may have an impact on development timelines in these countries. The Australian experience suggests that industry seeks a level of detail in occupational standards that can be difficult to reconcile with the development of broadly applicable training standards.

- Pathways between school, VET and higher education overseas are facilitated most often through system design, such as mapping the qualification framework to vocational pathways and secondary school certifications, rather than through qualification design, as is the current practice in Australia.

- Ensuring quality and meeting the needs of myriad stakeholders drive processes in Australia and overseas — appropriate goals that any effort to streamline qualification development must consider. If the purpose of streamlining is to improve skilling agility, other training products may better address the need to respond rapidly to changing skills needs while qualification are developed, such as accredited courses or skill sets. The development process of these products in Australia still involves stakeholder consultation but tends to take less time than changes to training packages, allowing them to be delivered more quickly. These training products should still sit alongside training packages.

  - While not closely examined in this project, vocational qualifications in the Netherlands consist of optional modules, jointly developed by companies and education institutions, which can be revised every three months and delivered to students immediately, thus reacting rapidly to changing skill needs (Wibrow & Waugh 2020). Finland also has a modular approach to training.

Observations

A comparison of international vocational qualification development prompts some observations:

- In some countries, educators and educational institutions play a leading role in qualification development. They are more readily involved in the actual development process, for example, on expert groups, and they are included in stakeholder consultations. This begs the question: how could transparent and meaningful consultation with VET providers and trainer expert representatives work in Australian training package development?

- The regulator in Australia, the Australian Skills Quality Authority (ASQA), has a limited role in the approval of training packages, whereas regulators overseas tend to have the final approval of qualifications. Should ASQA, already the approving body for accredited courses, be more involved in the approval of training package qualifications?

- Since this work was undertaken, during the second half of 2020, changes have been announced to the qualification development process in Australia. The findings from these international comparisons provide support for this direction.

Opportunities

Opportunities to improve the efficiency of the Australian VET qualification development process have been revealed through comparison with other systems. However, it must be noted that the federated system in Australia does inform some of the duplicated processes observed. Other countries with a similar federation of state-level jurisdictions, for example, the United States and Canada, have very limited national training systems in place. Even so, the following are areas with potential for streamlining:

- The Australian model has multiple steps for consultation (four) and during the qualification development process, reflecting the need to build stakeholder consensus in a federated system. The publicly available literature did not document the efficiency or effectiveness of each stage within the development process. Further research that examines how the collaborative and conflict resolution practices of the various development and consultation groups may lead to development delays would be informative.

- Many of the countries investigated only have one stage for approval, which is delegated to a particular organisation with authority, such as the regulator or an industry-led body that approves qualifications related to its own sector. In Australia, the case for endorsement is reviewed by state and territory governments and the Commonwealth Government, after which the AISC approves cases for endorsement to progress to skills ministers. Implementation of new or updated qualifications proceeds only after final approval from the skills ministers. In countries where a similar federation of state-level jurisdictions exists, attempts to set national training standard are limited to key trade occupations. However, the value of occupational mobility in Australia makes it important for the system to consider where efficiencies can be made rather than moving away from national accreditation.

- Although not related to the desktop review of the literature, a COVID-19 subcommittee of the AISC was set up April 2020 to 'enable short-term and urgent adjustments to be made rapidly to qualifications' (p.1). If proven efficacious, an investigation of how that rapid process worked effectively could inform efficiency gains in the business-as-usual approval process (Council of Australian Governments Skills Council 2020).

Comparing qualification development

This section provides a comparison of aspects of the VET qualification development of Australia and a selection of other countries. This may help to focus the direction of any future work in this area. Detailed information on the development processes of the different countries examined is presented in the subsequent sections.

For the purposes of this project, the focus is on the training package-development process and not accredited courses, although accredited courses are referenced where relevant. Figure 1 provides a snapshot of the main steps in the training package-development process in Australia.

Figure 1   Training package development-process in Australia

Source: Australian Industry Skills Committee (2019b, p.14).

This is similar to most of the processes examined in the project, whereby standards for training (similar to training packages) are developed first, with curriculum subsequently developed independently by training providers.

The development process

Identifying the need for changes to qualifications

Industry reference committees (IRCs) have a key role to play in identifying the skill and training needs of industry. The main avenue for identifying changes to training packages in Australia is through their IRC skill forecasts and proposed schedules of work. Other activity that might initiate change include regulatory changes, submitting a case for change to the Australian Industry and Skills Committee, an industry proposal to the AISC, or strategic directives from the skills ministers or the AISC (Australian Industry Skills Committee 2019b).

In other countries industry often drives the identification of the need for changes to qualifications; for example, in Finland, Singapore and the United Kingdom, review decisions are based on industry demand or changing skill needs in the labour market, identified through skills-anticipation exercises or sector reviews. In New Zealand, approved developers identify the need for new qualifications through consultations with industry, a specific sector or the community. South Africa uses a different approach — any person or organisation can apply for a new qualification — while in Ontario (a province in Canada) qualification needs can be identified by colleges.

Avoiding duplication of qualifications

Across the countries examined, it is evident that recognising any potential duplication is part of the process for identifying the need for a new qualification. The only country not concerned with avoiding unnecessary duplication is Singapore, where qualifications are approved as long as industry demand is

evidenced. It was noted that past processes in England had led to a proliferation of qualifications, but this is currently being addressed with changes implemented in July 2020.

Leading the development process

Two models for qualification development emerged: a government-led (and funded) approach and a stakeholder-led approach. Each country's process is informed by a range of factors external to the VET system, such as the socio-political context, public appetite for having government steer training standards development, or industry desire for funding development themselves.

Finland and Singapore have government-led approaches, in that they are heavily involved throughout the development process. In Finland, the Finnish National Agency for Education leads the development of qualifications, while in Singapore several government agencies work together through the Future of Economy Council.

Conversely, New Zealand, the United Kingdom and South Africa have a stakeholder-led development process, whereby qualification development leaders are groups not established by government; that is they are training organisations, industry representative bodies or community groups. In these systems, the role of government may be limited to outlining the qualification standards, providing development resources and/or approving the resultant training products. In countries such as Canada and the United States, where no national vocational system exists, qualification development is largely led by individual colleges or state/provincial governments. (See Ontario and California case studies.) In New Zealand developers may apply to a training-development fund, provided by government, but in other countries industry or training organisations funds their own development work.

While it is sometimes perceived to be government-led, the development process in Australia is more closely aligned to the stakeholder-led model, as training package development is led by IRCs with input from government-funded skills service organisations (SSOs) and the AISC Secretariat.

Key process decision points

In the Australian training package-development process, there are four decision and approval points for developers to pass:

- approval of the case for change by the AISC

- sign-off of activity order by the AISC Secretariat

- approval of the case for endorsement by the AISC, based on recommendations from the AISC Secretariat

- final endorsement of training package content by the skills ministers.

South Africa also has four approval points in its process, whereby approvals are needed before development can continue. These steps are: approval of initial application for a new qualification; sign-off of the service-level agreement by the Quality Council of Trades and Occupations (QCTO); evaluation of the final submission of new qualifications by the QCTO; and final approval to register qualification on the National Qualification Framework (NQF) by the South African Quality Authority (SAQA). New Zealand has two distinct development stages: apply to the New Zealand Qualifications Authority (NZQA) for approval to develop a qualification and apply to NZQA for approval to list the qualification on the New Zealand Qualifications Framework (NZQF). Each step concludes with a decision about the suitability of the proposed qualification.

Some countries' processes, such as those in Finland, England and Scotland, had only one final approval step rather than stage gates throughout the development process. For example, although Ontario colleges have many evaluation and decision points in their internal development processes, the interaction with the provincial endorsing body is limited to a single submission and approval from the Credentials Validation Service (CVS). In Australia, there are two final approval stages, one to recommend endorsement from the AISC and then endorsement from the skills ministers. This second approval stage prior to implementation is not found in most other countries and is a reflection of our federated system.

Consultation and quality assurance

A report on the process of development, endorsement and implementation of training packages in Australia noted that consultation with stakeholders and quality assurance could be streamlined (Fyusion 2018). Consultation is undertaken at four different stages, and quality assurance in at least two. (This includes undertaking testing of draft content and companion volumes, as well as checking that the training package meets the Standards for Training Packages.)

South Africa has at least two steps at which stakeholder consultations occur. It is not clear how many steps demand quality, although nominated development-quality partners and assessment-quality partners are involved in multiple steps. New Zealand has three steps in which stakeholder consultation occurs, but no stipulations for an external quality assurance stage. (This is undertaken by NZQA as the regulator.)

Scotland appears to have the most streamlined process, with just one step for consultation with stakeholders and a single step for quality assurance.

Information on the number of steps relating to consultation and quality assurance was unclear for the other countries explored.

Stakeholders involved

Drafting of qualifications

The drafting of training package material in Australia is led by IRCs with input from SSOs and technical advisory groups (TAGs), both comprising industry and training provider representatives. IRCs, with support from SSOs, also consult broader industry and other stakeholders, such as state training authorities (STAs). A 2018 report found that the role of registered training organisations (RTOs) and trainers in the development of training packages and consultations had decreased over the years (Fyusion 2018). However, more recent information provided by SSOs indicates that RTO representatives are part of many IRCs and TAGs. It may be the case that the perception of educators' involvement in qualification development differs from the reality — in that it is higher — and consideration might be given to greater transparency in the qualification development process to highlight their involvement. One challenge for the VET sector in Australia is the volume and diversity of RTOs: some providers may be deeply involved in training package development, while others remain relatively ignorant of the process and/or how their voice can be heard.

Many of the countries examined feature a government-funded service or body to draft or to help to guide the drafting of qualifications and related materials, such as standard-setting organisations in Scotland; qualifications-development facilitators in South Africa; the qualification projects set up by the Finnish National Agency for Education in Finland; and a subcommittee of the Future Economy Council in Singapore.

In Ontario, Canada, where colleges lead some qualification development, a dedicated curriculum consultant is used by many colleges to ensure draft qualifications meet the standards. The Ministry of Colleges and Universities' Credentials Validation Service also provides resources and runs workshops for developers to promote qualification quality.

All of the countries examined consult with employers, industry bodies, professional bodies, unions, government, teachers and VET providers on qualification content. Ontario was unique in including graduates of programs as stakeholders.

Some of the countries have processes in place to deal with a lack of participation by central stakeholders. In New Zealand, evidence of support for the qualification by the relevant stakeholder groups needs to be included with the submissions at both approval stages. If a stakeholder is not supportive, the developer must justify why the work has continued. In Scotland, if participation by stakeholders is considered low, the Standard Setting Organisation must use different consultation methods to improve engagement. In South Africa, attendance at meetings is recorded and any inactive participants are reported to the quality development partner and the QCTO, so that additional stakeholders can be arranged and to ensure that each stakeholder group is represented.

Quality assurance during qualification development

As mentioned earlier, details associated with the quality assurance processes undertaken during qualification development and the people or groups involved are scant for most countries. In Australia, a quality report is prepared by an independent quality assurance panel member.

In Scotland, the Standard Setting Organisation conducts internal quality assurance. The qualification development process in Singapore is supported by a quality assurance framework but no further details were found. In South Africa, the Quality Council for Trades and Occupations appoints a development-quality partner and an assessment-quality partner to verify the materials developed by the qualification development facilitator. In Finland, quality assurance during the development stage was not clear but working life committees (similar to IRCs) and VET providers have overall responsibility for the quality of qualifications. In New Zealand, the regulator evaluates the quality of applications to list qualifications at levels 1—6 (New Zealand Qualifications Authority 2016).

Final approval of qualifications and role of regulators

In most countries examined, regulators have the final approval of the qualifications, for example, the New Zealand Qualifications Authority, South African Quality Authority, Finnish National Agency for Education and Scottish Qualifications Authority (SQA) Accreditation.

These systems contrast with Australia, where the Australian Skills Quality Authority, as well as the two state-based regulators — the Victorian Registration and Qualifications Authority (VRQA) and the Training Accreditation Council (TAC) in Western Australia — have limited involvement in training package-development approvals. Rather, the AISC, an industry-led body, recommends training packages for endorsement by the skills ministers. This process represents a recent policy change: previously, training packages were implemented after endorsement by the AISC and later approved by the skill ministers in batches. England now has a similar process: the approval of higher technical qualifications has recently moved from the regulator to sit with an independent, employer-led, institution.

Speed-to-market

Length of development process

Detailed information regarding the length of the development process could only be found for Australia. A breakdown of each step in the process indicates that the development process can take anywhere from one to four-and-a-half years. In Finland, the overall development process tends to take one to two years and in England the new approval process for higher technical qualifications is scheduled to take place over one year.

From approval to delivery

Information on the length of time between qualification approval and when the qualification is first delivered is not available for most countries. In Australia, the transition period is purportedly 12 months, but this period is reported by stakeholders to be anywhere from one to three years (Fyusion 2018). The only other country where this information has been reported is England, where one year is allowed for providers to organise new materials and start delivering qualifications.

Other ways to address emerging skill needs

The Fyusion (2018) report found that in Australia it can take anywhere between two years and seven-and-a-half years for a qualification to be developed and for delivery to begin. During this time, it is possible that labour market skills needs may have changed. Other training products, such as accredited courses and skill sets, offer an avenue for meeting the needs of industry more quickly.

Accredited courses sit alongside training packages in the Australian training system and must be approved by ASQA, VRQA or TAC before they can be delivered; they are mutually recognisable. While these courses can be developed by anyone, they can only be delivered by RTOs and must meet the Standards for VET Accredited Courses 2012 (ASQA 2020). According to the ASQA website, the development of accredited courses must follow these steps:

- VET course concept:
  - An outline of the course concept, including evidence of industry need and support for the course, as well as identification of appropriate stakeholders for consultation during development, must be submitted for approval to ASQA. Once approved, the developer can move on to developing the course.

- Course development:
  - checking for duplication with training package products
  - reviewing current accreditation requirements
  - conducting industry consultation
  - using ASQA's accredited course document template
  - using training package units in the course
  - reviewing policy documents on developing units of competency
  - lodging a complete application (ASQA 2019).

Once a VET course concept has been approved by ASQA, a developer has 12 months to develop the course and submit it for approval to ASQA. The course may then be accredited within four to six months, depending on the quality of the submission (ASQA 2019). The overall process is shorter than for training packages, meaning an accredited course can be in the field more quickly. This could be due to the development of the courses being internally motivated (that is, RTOs developing a specific course for industry group); the use of existing units of competency; smaller stakeholder groups involved; and the final course being approved by the regulator and not government or industry-led bodies.

Scotland has a process similar to the accredited course process in Australia. If there are no current qualification products that meet their needs, awarding bodies, like VET providers, can develop their own qualifications and have them approved for delivery by SQA Accreditation.

On the other hand, skill sets or micro-credentials are short courses that might be used to meet urgent or emerging skills needs within the nationally accredited training system. Skill sets are short courses comprising accredited units of competency. Training package skill sets are identified by IRCs and nationally recognised, but any accredited units can be combined and delivered by RTOs to meet an industry need. All units of competency have undergone a rigorous development and approval processes as part of qualifications and offer a quality-assured method of addressing specific skills needs quickly. Unpublished NCVER analysis indicates that a large volume of non-nationally recognised skill sets already exists, these most often being used to meet regulatory or licensing needs. In some cases, such ad hoc skill sets may fill emerging skills needs while a qualification is being updated.

While not examined during this project, previous work relating to rationalising qualifications highlighted the use of optional modules in the Netherlands to enable a quick response to emerging skill needs or regional needs (Wibrow & Waugh 2020). These modules are developed jointly by companies and educational institutions and can be revised every three months and delivered to students immediately. Finland also has a modular approach to vocational education, with 3200 modules available for their 164 qualifications. Learners are also able to combine different parts of qualifications to suit their individual needs (Wibrow & Waugh 2020).

Australia

Overview

As mentioned earlier, this project focuses on the training package-development process in Australia and not on accredited courses. The organising framework for training packages consists of the following policy documents:

- the Standards for Training Packages 2012

- the Training Package Products Policy

- the Training Package Development and Endorsement Process Policy

- the Training Product Development Program Guidelines (Australian Department of Education, Skills and Employment 2020).

The current training package-development process in Australia is well documented in the Fyusion (2018) report, *Training package development, endorsement and implementation process: current state report*. In it, the development process, with average timeframes for each step, has been mapped with the help of stakeholders. These timelines represent what is reported to occur in practice and do not necessarily align with the recommendations contained in the policy documents. The reason for documenting the process here is to provide a starting point for the international comparisons.

Current vocational qualification development process

Summary of the process/steps

The following table provides an overview of the main steps in the training package-development process, the groups involved and the timeframe.

Table 1   Outline of training package development process

Stage	Key organisations involved	Summary of stage	Reported timeframe
Develop the skills forecast and proposed schedule of work	IRC Industry SSO STAs Dept of Education, Skills & Employment AISC	The IRC and SSO work together to consult with industry and develop draft documents. STAs also review the documentation and consult with industry. Feedback is incorporated into the draft documents. The IRC signs off on the final documentation and the SSO submits it to the AISC Secretariat on behalf of the IRC. The AISC Secretariat analyses the document and may seek more information before submitting it to the AISC for approval. The AISC approves the national schedule.	Up to 11 months
Develop and approve case for change	Dept of Education, Skills & Employment IRC Industry STAs SSO AISC	The AISC Secretariat develops the activity order and negotiates with the SSO. Once the activity order is signed off by the AISC Secretariat and funding provided, the SSO builds the case for change with the IRC consults with industry. Once approved by the IRC Chair, the case for change is submitted by the SSO to the STAs for review. When all feedback is received and incorporated, the SSO submits the case for change to the IRC Chair for sign off. It is then submitted to the AISC Secretariat to analyse and put forth to the AISC for consideration. More information may be required before it is approved by the AISC to proceed to training package development. Note a case for change is not always needed as the AISC may decide to expedite the process to training package development when approving the national schedule.	4.5 to 10 months

Training package products drafted	Dept of Education, Skills & Employment SSO Industry	The AISC Secretariat develops the activity order and negotiates with the SSO. Once the activity order is signed off by the AISC Secretariat and funding provided, the SSO begins to draft the training package products. The SSO manages the process with input from the IRC to define job roles and skill requirements. The SSO also establishes a technical advisory group and applies the test of equivalence to training products. The SSO drafts the training package content and companion volumes.	3 to 18 months
Industry validation of draft training package material	SSO Industry IRC	During this stage, the SSO consults with industry and other stakeholders to test the draft training package content. The draft is also published on their website. The SSO collates and analyses feedback. Once the draft is finalised, it is signed off by the IRC.	1 to 2 months
Quality assurance and gathering evidence of stakeholder support for change	SSO QA panel	The SSO completes the editorial and equity reports and commissions a quality assurance panel member to undertake the quality report. The quality assurance panel member checks that the training package meets the standards and submits the quality assurance report to the SSO. Once the quality assurance report is accepted, the SSO compiles the case for endorsement.	3 weeks to 6 months
Compile and submit case for endorsement for AISC approval	SSO STAs IRC Dept of Education, Skills & Employment AISC	The case for endorsement includes: • draft training package • evidence of consultation • quality assurance report • editorial and equity report • companion volumes • implementation guides. STAs are consulted during this stage to ensure appropriate stakeholder consultation has occurred. The IRC approves the case for endorsement and the SSO submits it to the AISC Secretariat, which develops recommendations for the AISC. The AISC approves the case for endorsement and recommends the Training Package for endorsement to the skills ministers. The SSO and IRC are informed of the outcome.	Up to 2 months
Upload training package content and publish on TGA	Dept of Education, Skills & Employment COAG Industry and Skills Council SSO	The AISC Secretariat coordinates skills ministers' endorsement. The SSO finalises the content in the Training Package Content Management System (TPCMS). The SSO notifies relevant groups that the training package is now available on the National Training Register (training.gov.au or TGA).	1 to 5 months

Note: It is possible in most stages that reworking or additional information will be needed before approval will be provided. This all contributes to the timeframe.

Source: Derived from information provided in Fyusion (2018) and the Training Package Product Development and Endorsement Process Policy 2020.

The timeframes given in the table above emphasise that some processes, such as developing the case for change and drafting training package products, as well as gathering support and undertaking quality assurance, can vary in length. The Fyusion report (2018) highlighted several factors impacting on timeframes, raised by stakeholders, such as:

- the complexity of the industry/sector involved, including:

  o   number of stakeholders

  o   diversity of stakeholder groups

  o   geographic location of stakeholders

  o   profile of stakeholders

For example, an industry largely comprised of small business owners located in remote areas will naturally present challenges for consultation, which may create time delays, compared with an industry comprised of a small number of large enterprises located in major cities.

- whether changes relate to a highly regulated or licensed occupation

- the complexity and degree of change being made: this has particularly significant impacts during the implementation phase when RTOs are required to redesign their offerings, update their systems and transition students to new or updated qualifications

- the degree of controversy or dissension around a change to a training package. SSOs reported that the expectation to align all stakeholders in agreement on changes can create delays in the development of outputs

- the urgency of the change; for example, changes relating to safety or legislative requirements are generally 'fast-tracked' through the process, while those with no clear imperative or driver may lag (Fyusion 2018, pp.29—30).

Additionally, the numerous opportunities for consultation and multiple points for quality assurance during the process can all contribute to a longer timeframe (Fyusion 2018).

Stakeholders involved

The main stakeholders involved in the qualification development process are:

- skills ministers, who endorse training packages for implementation

- the Australian Industry and Skills Committee, which commissions training package development and recommends training packages for endorsement

- industry reference committees, which comprise industry experts who help to define the skills that industry requires in training packages. It is intended that each committee has up to 12 members; the appointment term is three years, with the possibility of re-appointment for one further year (AISC 2019a). There are currently 67 IRCs listed on the AISC website (AISC 2020b)

- skills service organisations, which support IRCs and help them to undertake training package work, such as assisting with consultations, developing training packages and providing technical help

- the Australian Government Department of Education, Skills and Employment, which provides support through the AISC Secretariat and to the AISC and IRCs, as well as funding for SSOs. It also has input into the structure of training packages and engages with stakeholders

- state and territory governments, which, through their training authorities, have a role in identifying jurisdictional issues, providing advice and influencing the development of training packages. They also monitor the implementation of training packages in their jurisdiction

- VET regulators, who regulate the training and assessment practices of registered training organisations (Australian Industry Skills Committee 2019b).

Stakeholder feedback provided in the Fyusion report (2018) points to a decrease in the involvement of RTOs in the development process compared with earlier processes. This can lead to RTOs not understanding the reasons for change, which in turn can impact on their ability to deliver training for the new or revised standards in line with these objectives. However, feedback from SSOs in 2021 suggests that many IRCs feature RTO representatives. This may indicate that RTO involvement has increased since 2018, or that RTO involvement is not transparent to those stakeholders who provided feedback to the Fyusion report.

Speed-to-market

Before RTOs can begin to deliver newly approved training package products, a few steps need to occur, outlined in the table below. This process was reported to take one to three years (Fyusion 2018), although the Standards for RTOs stipulate that delivery of superseded qualifications must cease within 12 months from their release.

Table 2   Outline of process from end of development to delivery of new training package products

Stage	Key organisations involved	Summary of stage	Reported timeframe
Develop plan to transition to new/updated training package	RTO regulators	RTOs map superseded training packages to the new training packages and identify gaps. They also need to determine any teach-out requirements and decide which training products they will deliver. The availability of government funding may influence this. If it is not an equivalent training package, RTOs will also need to apply to the regulator to have the training package added to their scope of registration. The regulator will undertake a risk assessment and either approve or decline an RTO's application.	6 to 12 months
Update scope; redesign, pilot and publicise new offering	RTO	RTOs need to update offerings in line with changes to national training products, including developing materials and ensuring they have adequate resources, staffing and skills, to deliver new requirements. The RTO processes their change of scope application through ASQAnet and, once approved, TGA is updated. Students are notified of requirements and benefits of transitioning to the new or replacement training package product.	6 to 24 months
Begin teaching based on new package content	RTO	Student engagement with the new or updated training package begins.	

Source: Derived from information provided in Fyusion (2018).

Qualification design

The Standards for Training Packages outline the different components of training packages and what they entail, and provides templates (Australian Department of Industry 2012). These components are:

- units of competency, which specify the standards of performance in the workplace needed

- assessment requirements, which outline the evidence and conditions required for assessment

- qualifications, which need to comply with the Australian Qualifications Framework (AQF) specifications

- credit arrangements, which list the arrangements between training package qualifications and also higher education qualifications for credit

- companion volumes, which are implementation guides for stakeholders and must be quality-assured (Australian Department of Industry 2012, pp.5—6).

Specificity of qualifications

Each training package qualification in Australia is assigned to an Australian and New Zealand Standard Classification of Occupations (ANZSCO) code, meaning that an intended occupation can be derived from the qualification (Wibrow 2014). They also need to demonstrate a job outcome.

Canada

Overview

Canada has a devolved federation and each of its 10 provincial and three territorial governments maintains independent vocational education systems. There are large differences in how the systems are organised. The federal government's influence is limited to research funding, student fee assistance and some workforce training. A national body, the Council of Ministers of Education (CMEC) comprises representatives from each province and territory but appears to have limited influence in provincial matters (Arnold et al. 2018, pp.125—43).

Apprenticeships and internships are also part of VET, generally taking four years to complete. The national Red Seal program sets common standards to assess the skills of tradespeople and allows recognition across provinces and territories. Industry is involved in developing those national standards for trades, but they are administered by a voluntary partnership among the provinces and territories via the Canadian Council of Director of Apprenticeships (CCDA).

Due to the devolved nature of Canada's VET system, the following section will focus on Ontario, which has a qualification framework system similar to Australia's.

Current vocational qualification development process

The Province of Ontario uses the Ontario Qualifications Framework (OQF) to outline 13 qualification levels, ranging from certificate I to doctoral degree. Under this framework, non-trade vocational qualifications, known as Ontario College Credentials, must comply with the framework. Most of these programs are informed by provincial program standards, which are developed by colleges and the Program Standards Unit of the Ministry of Colleges and Universities and validated by the Ontario College Quality Assurance Service (OCQAS), through its Credentials Validation Service (CVS). OCQAS is owned, operated and funded by Ontario's colleges.

There are over 700 program standards available in Ontario. Each college has its own development process, although all must have established program advisory committees (PACs), which inform development. An example of the development process from Conestoga College is included below.

Summary of the process/steps

Ontario colleges have responsibility for program standard development for non-system-wide programs. Each college has its own processes for development, but these are informed by quality standards, laid out by legislation and enforced by the OCQAS.

The Program Standards Unit of the Ministry of Colleges and Universities has responsibility for the development, review and approval of system-wide standards. The ministry develops these programs in consultation with educators and industry, and reviews existing program standards annually.

Table 3   Example program development process for Conestoga College

Stage	Responsibility	Summary of stage
Need identified	Dean (a head of faculty, e.g. Dean of Engineering)	The dean identifies a need for a new or revised program and establishes a project lead or subject matter expert (e.g. chair, coordinator or faculty).
Consultation within school	Project lead	The project lead consults within the school to avoid duplication and submits a college request for approval to proceed.

Development commences	Project lead with curriculum consultant CVS	The project lead follows the new program development process map to ensure consistency with existing programs and quality, and works with the ministry, college administration and the CVS to meet design standards.
Stakeholder consultation	Project lead	The project lead advises all relevant stakeholders and regulatory bodies of the work.
Apply to proceed	Project lead Dean	The project lead sends the proposed program to the college PAC for approval and then applies for approval from the program planning and review committee. After it is approved, the dean sends the proposed program to the academic forum. If approved, it goes to a sub-committee of the college's board of governors for final approval.
Draft development and submission to CVS	Curriculum consultant	The consultant prepares the draft for submission to the CVS, along with all relevant documentation. The CVS considers draft and works with the consultant to refine program. The CVS validates that the program is consistent with the Credential Framework.

Source: Conestoga College (2019).

After the CVS has validated a program, colleges have a series of processes to work through to add the program to their student information systems, develop course/s against the new program standard, and advertise them to students. Colleges keep a record of the development process, for example, Conestoga College keeps records for seven years (Conestoga College 2019). It is not clear from the available information how long this process takes.

The process to review an existing program is slightly different, but still demands several layers of approvals and an application to the CVS. Reviews are conducted annually by colleges, according to their own internal policies, ensuring that standards are regularly reviewed for currency and relevance as occupational needs change. An example is provided in the table below, which begins between May and June each year.

Table 4   College program review process for Conestoga College

Stage	Responsibility	Summary of stage	Timeframe
Annual program reflection	Chair & program team	An annual program reflection list is published in May. The chair and team must review the program according to requirements and compete a suspension or program design change form, as required, by end of June.	May-June each year
Approval of change request	Executive dean/dean	The dean reviews the program design change form and approves it and then notifies the curriculum planning and operations department.	August
Action plan developed	Chair	The chair records the program changes in an action plan.	
Annual program performance scorecard	Institutional research & planning	Institutional research & planning completes a scorecard on the program's currency, relevance and fitness for purpose and provides it to the academic forum for review and approval to continue with the plan to make changes to the program.	
Major program review	Team assigned by chair	The program is reviewed by the team with stakeholder input. The team prepares a strategic program assessment and submits it to the dean for approval. A program review consultant is informed and work on program update/renewal (PUR) commences. During PUR, further consultation is undertaken. At its conclusion, all documents are submitted to dean for approval.	
Changes to the number of electives	Chair	If the program review requires changes to the number of electives, the chair consults with the chair of liberal studies and the ministry on elective rules and communicates elective changes to the PAC.	
Accreditation application	Chair	If there are substantial changes to the program, The chair seeks approval of the final product from the CVS.	

| Approval | CVS | CVS works with the program developer to review and validate the proposed program. | |

Source: Conestoga College (2019).

The decision for a new qualification

In colleges, the PACs, through the deans, identify the need for new programs. It is their responsibility to consult with subject matter experts in all schools to reduce duplication and promote collaboration. The results of this consultation are recorded and submitted along with a request for approval to proceed within the college. The college develops a program in accordance with the guidelines provided by the CVS. These guidelines contain items designed to deter duplication.

The process of reviewing existing programs is slightly different from the new program-development process, as an annual review system is used to prompt colleges and the ministry to review all current programs (Ontario Ministry of Colleges and Universities 2017).

Stakeholders involved

A program standard is developed through a broad-based consultation process, involving a range of stakeholders with a direct interest in the program area, including employers, professional associations and program graduates working in the field, along with college students, faculty and administrators. Program standards are updated according to changing requirements of the sector. This ensures that standards continue to be appropriate and relevant to the needs of both students and employers (Ontario Ministry of Colleges and Universities 2017).

The Program Standards Unit of the Ministry of Colleges and Universities has responsibility for the development, review and approval of system-wide standards. Assessment of programs is conducted via consultations and in collaboration between the Ministry of Colleges and Universities, industry, individual colleges and OCQAS.

Program advisory committees develop these standards at each college. The minister's binding policy directive for programs of instruction requires a program advisory committee for each college program, or related program cluster. PAC members are leaders in their sectors with program-related experience and expertise. PACs identify current and future industry trends and shifts in the skills and knowledge that graduates require to meet employer requirements. They advise on the need for new programs and participate in their development and quality assurance (equivalent to Australia's IRCs, except that PACs are unique to each college).

Each college sets its own PAC terms of reference. For example, at Seneca College, PAC appointments are by invitation, for a four-year term, with a second term permissible. PACs meet once or twice annually and comprise six to 12 members, and its college employees are ineligible. Seneca College has 99 PACs listed on its website, for programs ranging from child and youth care to underwater skills. The Seneca College PAC terms of reference includes a requirement to review programs and 'advise, recommend and assist in identifying the need for program development and/or discontinuation' (Seneca College 2020).

The length of PAC terms varies between colleges. At Centennial College, PAC terms are three academic years, with a second term permissible if the member is an active participant. Retirement from the relevant industry requires retirement from the PAC. PACs at this college comprise eight to 10 members, with only one member from any single organisation. College staff and students may attend as non-voting members. Each PAC appoints a chair, vice-chair and secretary; chairs have a two-year term. Meetings must be held at least twice annually. A quorum is at least one-half of voting membership (Centennial College 2018).

Each college determines its own criteria for decision-making and removal of members. For example, at Seneca College, PAC decisions are made by vote. A quorum is 50% plus one. If a member misses two consecutive meetings, the PAC chair may terminate their membership.

Speed-to-market

It is unclear how long it takes for programs to be developed or for approved programs to reach the training market; unofficial sources suggest a September—June review period. Colleges typically have one academic year to implement a modified program standard.

Qualification design

Specificity of qualifications

Provincial (system-wide) program standards identify the minimum requirements for credentials to be awarded, the scope of the outcomes and the breadth and depth of knowledge required (according to qualification level). Programs for Ontario College certificate, diplomas and advanced diplomas must include:

- vocational standards: the vocationally specific learning outcomes that apply to the programs in question

- essential employability skills: skills that are critical for success in the workplace, in day-to-day living, and for lifelong learning. The essential areas where graduates must demonstrate skills and knowledge are: communication, numeracy, critical thinking and problem solving, information management, interpersonal, and personal

- general education requirement: the requirements for general education courses that contribute to the development of citizens who are conscious of the diversity, complexity and richness of the human experience and the society in which they live and work. Specific themes for general education courses to cover are: arts in society, civic life, social and cultural understanding, personal understanding, and science and technology.

Ontario system-wide program standards are quite lengthy and detailed, outlining the essential skills and knowledge a graduate must demonstrate. As an example, the 'Recreation and leisure services program standard' encompasses 30 pages, although there is a seven-page introduction with an explanatory template text and a further seven pages of appendices, which define the technical industry terms found in the standard (similar to the range statement in Australian units of competency). Nine vocational learning outcomes are specified; the first vocational outcome has 17 elements of performance, including such standards as 'Apply the concepts of inclusion and accessibility to program and service philosophy, policy and practice' (Ontario Ministry of Training 2014). The essential employability skills and general education requirements are outlined by reference to a standard matrix in terms that are not specific to the program content (Ontario Ministry of Training 2014).

Canada maintains the National Occupational Classification (NOS), with nine broad occupational categories, which functions as a framework to collect data on and analyse national career, labour market and work behaviour (Government of Canada 2020). Ontario's vocational program standards appear not to be linked to the NOS.

Information about how quickly standards may be updated is not readily available. OCQAS audits each college's quality assurance processes on an eight-year cycle.

Facilitation of pathways between school and higher education

The provincial program standards appear not to interact with the secondary schooling system or curriculum in Ontario. The Ontario Council on Articulation and Transfer (ONCAT) was set up to facilitate academic pathways for students looking to transfer between colleges and universities. 'Transfer credit' is the term used to refer to the crediting of courses taken at one institution towards a degree or diploma at another institution.

The decision to award transfer credit lies with each institution and the completion of bridging courses may be required. ONCAT has published principles for credit transfer, which educational institutions are encouraged to follow, and hosts a user-friendly online directory of credit transfer pathways for students (Ontario Council on Articulation and Transfer 2020). Data published in 2020 revealed that over 60 000 students transfer each year; the top five transfer programs are: business, health, social science, engineering and general arts, although not all of those transfers would be between vocational and degree qualifications (Ontario Colleges 2020).

Review of qualification development process

There is no evidence online of a review of the provincial program standard-development process.

Other Canadian systems of interest

Skilled Trades and Apprenticeship program (Red Seal Program)

Canada's only national vocational training program, the Red Seal Program, is intended to improve the transferability of essential trades workers across the provinces and territories by harmonising training requirements. Employment and Social Development Canada (ESDC) is responsible for managing this program and works directly with industry to develop the apprentice and trade standards and exams. The 'red seal' is the award that tradespeople receive upon successful completion of their studies.

The process of developing harmonised standards requires industry to:

- conduct research and analyse the harmonisation priorities
- consult with stakeholders
- achieve a consensus based on stakeholders' feedback and through national webinars
- implement the plans and apply changes to the apprenticeship systems.

The Red Seal Occupational Standards (RSOS), introduced in 2015, set the standard for a Red Seal trades, with provincial and territorial apprenticeship training programs and exams based on them. The Red Seal harmonisation plan intended that 30 trades would be ready to deliver by 2020. The trades selected for Red Seal were the highest volume and highest demand and had strong similarity in training content with other trades, for example, welder and metal fabricator (fitter) (Canadian Council of Directors of Apprenticeship 2020).

Stakeholders involved

Industry participates in RSOS development, review and validation, supported by training providers. The need to update a standard is considered four years after its publication, in consultation with the jurisdiction and industry. Where a small review is required, an industry review will be allowed, as this is considered an efficient and low-cost option. Where more extensive changes are required, a workshop must be held. Full reviews follow the following procedure:

- Use web-based platform for updating the occupational standard.

- Select one employer and one employee to be involved.

- Analyst works with the employer and employee to update the standard.

- Use an online instrument to validate the update standard with a group of selected stakeholders.

- Use the result of the validation to finalise the updating process (Red Seal 2020).

Qualification specifications

The RSOS outlines requirements for training in a cascaded format, with each major work activity described having 15—25 task descriptors, followed by 80—120 sub-tasks. RSOSs comprise the following information for training program developers:

- trade activities (15—25 tasks and 20—120 sub-tasks)

- performance criteria (evidence of attainment)

- learning outcomes (learning objectives)

- summary of essential skills.

The standards are complemented by supporting information on:

- industry expected performance

- language requirements

- trends affecting the trade

- relative weighting of work activities and tasks

- safety information

- trade name, number of levels, total training hours and sequencing of training

- acronyms, tools and equipment and glossary.

Additionally, RSOSs are supported by assessment and exam-development products such as validation/weight worksheets and the interprovincial standards Red Seal examination. Apprenticeship training products are also produced for training providers, including items such as log books, on-the-job training guides and posters (Canada Industry Training Authority 2016).

Québec

The Québec Government has complete jurisdiction over its education system. Vocational and technical training (VTT) in Québec is a competency-based system, delivered through programs. VTT qualifications can be offered by a public or private secondary school, private colleges and some government schools. Either a Diploma of Vocational Studies (DVS), Attestation of Vocational Specialization (AVS) or Skills Training Certificate (STC) is awarded. STCs are designed to meet periodic training needs (micro-credentials). The Ministère de l'Éducation, du Loisir et du Sport (MELS) is responsible for program development, as well as issuing diplomas and funding VTT. The development of programs is managed by the following cycle of activity:

- planning: sector surveys; monitoring; priority-setting between sectors

- program development: job analysis; design of draft plan; validation of proposed plan; program development

- impact analysis: organisational guide; funding rules; distribution of program offerings

- approval: institutional endorsements

- implementation of training

- evaluation of the system: programs; performance; job entry; employer satisfaction to inform step 1: planning.

MELS partners with schools, other government ministries and industry, the labour analysis organisation, and sector committees. Approximately 30 sector committees are established by Emploi-Québec, the workforce analysis organisation, to inform occupational competencies and run the apprenticeship program. For example, the Commission de la construction du Québec (CCQ) is vital in developing VTT programs (Gouvernement du Québec 2019).

Businesses inform surveys and studies in the planning stage. Specialists from sectors are requested to identify the skills required in the job market. Program-development teams comprise industry and education partners and work through the steps described above (Gouvernement du Québec Ministère de l'Education 2003). There is also an overarching committee, comprising representatives from business, unions, school boards, private educational institutions, technical colleges, and Emploi-Québec, which advises the MELS on all VTT issues.

Programs are competency-based, with sub-units of a program expressed as objectives. Programs are grouped by type, to be managed by a sector. Skills, knowledge and 'attitudes' are included in programs and expressed in such a way as to enable measurement through performance in the workplace. Competencies in programs are described by an element, achievement context and performance criteria to ensure equivalence across training providers and facilitate recognition of prior learning.

VTT program development and delivery is funded by a training levy for businesses with payrolls exceeding CAD$1 million. This fund is used to reimburse organisations that spend on employee skills development, qualification or competencies recognition (Foucher & Hassi 2013).

Finland

Overview

The Finnish vocational education system has undergone reforms over the past few years to reduce the number of qualifications available and to tie education more closely to emerging skill needs. This has resulted in the use of more broad-based qualifications. The qualification development process is also largely managed by government, in consultation with a range of stakeholders. This case study will explore how these qualifications are developed, who is involved and the length of the process.

Current vocational qualification development process

Unless stated otherwise, information in this section has been adapted from Cedefop and Finnish National Agency for Education (2019).

Summary of the process to update qualifications

This section will focus on the process used to update existing qualifications, as specific information on the development of new qualifications could not be determined at this time. It is possible that the steps are very similar, with the same organisations involved. Additionally, the process seems to be the same for all vocational qualification types and industry sectors. The entire process tends to take one to two years.

A decision to update a qualification arises from changes to the skills needs in the labour market, which can lead to changes in qualification requirements or changes to the qualification structure (that is, whether it is an initial, further or specialist qualification). Both require qualification requirements to be renewed — a process that can take one to two years.

The qualification requirements determine:

- the units included in the qualification
- any possible specialisations made up of different units
- the selection of optional units in addition to compulsory ones
- the vocational skills required for each qualification unit
- the guidelines for assessment (targets and criteria of assessment)
- ways of demonstrating vocational skills.

The Finnish National Agency for Education leads the development of these requirements in cooperation with employers, employees and the education sector. Depending on the sector, self-employed people are also included, that is, if self-employment is prevalent in that sector.

Stakeholders involved

Development

The Finnish National Agency for Education (EDUFI) is the main body involved in overseeing the development and updating of qualifications. The agency sets up a qualification project and invites experts, such as employees, employers and teachers in the industry area, to take part in the project. This expert group drafts the new qualification requirements in consultation with other experts in the area. The draft of the requirements is also sent to representatives from unions, organisations, the world of work — such as employers — and VET providers for feedback.

Approval

Once consultation is completed on the draft qualification requirements developed by the expert group, the Finnish National Agency for Education adopts the qualification requirements as a nationally binding regulation. The qualification requirements are also published on the agency's website.

Quality assurance

While many bodies are involved in the quality of VET in Finland, the quality assurance of qualifications falls mainly to VET providers and 'working life' committees.

The responsibility of VET providers for the quality of the qualifications and programs offered and for continuous improvement is enshrined in VET legislation. All VET providers must have a functioning quality assurance system in place. VET providers must also implement a quality-management system and participate in regular self-evaluations and external evaluations of their operations. These evaluations include those made by working life committees and the Finnish Education Evaluation Centre.

As well as their involvement in the qualification requirements, the working life committees also have a role in ensuring the quality of competence demonstrations and assessment, which is tied to their overall aim of ensuring the quality and working life orientation of VET. Working life committees consist of a maximum of nine representatives from employers, employees, teachers and self-employed professionals, if self-employment is common in the sector. Membership of the committee is for a term of three years. There are currently 39 working life committees, and each is responsible for at least one qualification. The Finnish National Agency for Education decides under which working life committee a qualification falls. They are also able to establish new working life committees for new qualifications.

Qualification design

Finland has three main types of vocational qualifications: initial vocational qualifications, further vocational qualifications and specialist vocational qualifications. Each qualification is made up of units of learning outcomes, which can be either vocational units, tied to occupational areas, or common units, such as communication, mathematics and social competency (for initial vocational qualifications only) (Finnish National Agency for Education 2019). This is quite a modular way of structuring qualifications, with learners able to combine different parts of qualifications to suit their needs (Finland Ministry of Education and Culture 2019).

Qualification documents in Finland contain three main sections:

▪ composition of the qualification, which provides information regarding competence points required and compulsory units

▪ modules, which outline the competence requirements, assessment criteria and methods of demonstrating competence for each of the different units

▪ assessment scale, which relates to the criteria under the modules (Finnish National Agency for Education 2017).

Information regarding regulations applicable to the qualification (such as legislation surrounding serving alcohol) and competence areas (demonstrating the main occupational tasks in which completers should be competent) are also included for further vocational qualifications (Finnish National Agency for Education 2018).

Specificity of qualifications

Finland reformed its vocational qualifications during 2017—18 to be more broad-based, with every qualification grouped in the following areas: education; humanities and arts; social sciences; business, administration and law; natural sciences; information and communication technologies (ICT); technology; agriculture and forestry; health and welfare; and service industries (Finnish National Agency for Education 2019). This grouping system has been identified as a form of occupational clustering (Wibrow & Waugh 2020).

One reason for having more broad-based qualifications is that, according to CEDEFOP and Finnish National Agency for Education (2019), the labour market in Finland is very flexible and few professions require a specific type of education, such as higher education, and only a few regulated professions require a vocational qualification, for example, nurses, prison and security guards, construction divers and chimney sweeps. This seems to be quite different from other countries, where vocational qualifications are tightly aligned with occupations.

Previously, the qualifications were updated every five to 10 years, but with the introduction of more broad-based qualifications this has moved to an ongoing, or an as needed process. The updates are tied to changing needs in the workforce or industry (Cedefop 2019).

Facilitation of pathways between school and higher education

Finland has streamed educational pathways from around 16 years of age. At this point students either continue with their matriculation examination or move to vocational institutions. However, there is flexibility for the students to change pathways. There are also clear pathways from vocational qualifications to further education, such as bachelor's degrees, master's degrees and doctoral degrees (Finland Ministry of Education and Culture 2019).

Review of qualification development process

There is no evidence online of a review of the vocational qualification development process.

New Zealand

Overview

Like Australia, the qualification development process is industry-led and separate from curriculum development. New Zealand has a comprehensive qualifications framework — the New Zealand Qualifications Framework (NZQF) — which outlines all senior secondary school and tertiary education qualifications. The NZQF details the knowledge and experience that holders of qualifications at each level will have and the further education and/or employment opportunities a qualification may lead to.

Current vocational qualification development process

Summary of the process/steps

Qualification types on the NZQF are periodically reviewed to ensure fitness for purpose. Proposed changes are reviewed by the New Zealand Qualifications Authority (NZQA), in consultation with Universities New Zealand and the wider sector (New Zealand Qualifications Authority 2016). Vocational qualifications are levels 1—6 (certificates and diplomas) on the NZQF and have a set of guidelines for approval, which is distinct from levels 7 and over.

Developers must be recognised by NZQA in order to develop qualifications for the NZQA. Several entities are automatically recognised as developers, including:

- transitional industry training organisations

- New Zealand Institute of Skills and Technology subsidiaries

- private training establishments

- wānanga[1]

- government training enterprises

- universities

- current course owners

- new workforce development committees.

There is a two-step process for approving a new qualification: approval to develop and approval to list. The approval to develop stage is designed to answer the question: *How well does the qualification's strategic purpose and outcome statement match the identified needs of employers, industry and/or communities (i.e. relevant stakeholders)?* The approval to list stage answers the question: *How well does the qualification meet the overall requirements for listing on the NZQF?*

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1 Wānanga are tertiary institutions that provide education based on Maori traditions and customs (New Zealand Qualifications Authority 2020).

Table 5   Development process for new qualifications

Stage	Responsibility	Summary of stage
Approval to develop process:		
Establish need for qualification	Developer	Develop evidence of the need for a new qualification through consultation with the industry, sector or community. The report should consider workforce trends, future skill needs, characteristics of the learners (including equity groups), current qualifications available, rationale for need. Evidence may be in the form of sector-specific reports, NZ Government reports, qualification-usage data, industry/community organisation workforce data, information included in investment plans, and national and international benchmarking.
Establish stakeholder profile and consult to inform qualification	Developer	Mandatory stakeholders: transitional industry training organisations (ITOs), standard-setting bodies (SSBs), regulatory bodies and education providers. Others may include employers, registration bodies, tertiary education organisations (TEOs), peak bodies, local government etc.
Develop qualification using template	Developer	A qualification template and guidelines inform the development work.
Stakeholder attestation	Stakeholders	Stakeholder attestations are required from all involved directly in the qualification development. They are intended to provide evidence of the support for the qualifications and extent of collaboration. If a stakeholder withholds support, the developer must explain why the development is continuing without them.
Submit qualification application forms	Developer	Developers must submit three forms: qualification template for each proposed qualification; application for approval to develop a qualification form; and involvement in pre-development stage stakeholder attestation form. A needs analysis and evidence of how development decisions were made must also be submitted, called 'the story'.
Make approval decision and write report	NZQA	NZQA reviews the application to develop a qualification and make an approval decision. NZQA writes a report outlining the reason for its decision and provides it to the developer.
Approval to list:		
Submit application forms to NZQA	Developer	Two forms must be submitted: application for approval of qualification at level 1–6; and involvement in qualification development stakeholder attestation forms.

Source: derived from 'Guidelines for approval of New Zealand qualifications at levels 1–6 listing on the NZQF' on the NZQA website.

The process to review an existing qualification is slightly different. The process is triggered by a schedule maintained by the NZQA. Developers do not need to seek permission to review but work with stakeholders to undertake the review and then submit an application to list on the NZQF.

Table 6   Review process for existing qualifications

Stage	Responsibility	Summary of stage	Timeframe
Review is instigated according to NZQA's schedule	NZQA	NZQA contacts qualification developer to deliver support pack that includes data on qualification usage, graduate information and other data to inform analysis of the qualification. All education organisations that deliver the relevant program are notified about the review.	Review schedule is developed and maintained by NZQA, max. 5 years between reviews
Prepare to review	Developer	Gathers additional data about the qualification's performance and establishes a stakeholder profile.	
Plan the review	Developer	Make a plan specifying the agreed review approach, timelines and roles and responsibilities of participants to the review. Cost should be considered, and the resources required and risks. Seek feedback from education organisations and industry, community or other users. Publish the plan for the review.	As agreed in plan, suggested timeline is 5 months
Conduct the review	Developer	Work with stakeholders to map relationships between current qualification and current workforce roles/skills to identify skills gaps. Stakeholders to inform any changes. Four possible outcomes to a reviewed qualification:	

		No change to the qualification – the NZQF ID and version number remain the same. Minor changes to the qualification – the NZQF ID remains the same but a new version is created. Significant changes to the qualification – a new qualification with a new NZQF ID replaces the existing qualification. Qualification removed – the qualification expires without replacement.	
Report on the review	Developer	The qualification developer writes a change report, which includes the recommendations from the reviewed qualification/s. This is submitted to the NZQA, along with stakeholder attestations.	
Submit application to list reviewed qualification	Developer	Submits a new qualification to the NZQA, along with an application to list a new qualification.	Approvals take a minimum of 45 working days

Source: derived from 'Guidelines for review of New Zealand qualifications at levels 1–6 on the NZQF' on the NZQA website.

The decision for a new qualification

New Zealand takes an 'evaluative approach' to qualification approval. This means that transparent and robust decisions to approve a qualification are made based on an assessment of its quality, value and importance.

In the application to develop a new qualification, an assessment for duplication must be undertaken. Additionally, it must include a summary and rationale of the evidence to establish the need for each qualification and a stakeholder profile, and their attestation to their involvement in identifying needs and the suitability of the proposed qualification.

Stakeholders involved

Stakeholders to the qualification must be involved at both stages of approval. Stakeholders must complete individual 'attestation' forms, a record of the consultation that took place and a summary of how stakeholder feedback was used to inform qualification development.

There are mandatory stakeholders: transitional industry training organisations or other standard-setting bodies, regulatory bodies, and the education providers who may deliver, or are currently delivering, a program linked to the qualification. Other stakeholders may include:

- employers
- registration bodies
- industry and professional associations
- tertiary education organisations
- national peak bodies
- local government
- community and cultural groups
- rūnanga[2] and iwi[3] organisations
- non-government organisations, not-for-profit organisations and the voluntary sector
- international qualification developers

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2 Rūnanga is a Māori council, tribal council, assembly, board or boardroom.
3 Iwi are the largest social units in Aotearoa (New Zealand) Māori society.

- technical experts.

The NZQA is the approving body for qualifications. It is their role to maintain a qualification-review schedule, in consultation with developers. It also maintains guidelines for review and development and gathers data on qualification usage. It conducts reviews of qualifications not owned by other developers, for example, Maori, Pasifika, and generic skills.

Stakeholders should be appropriately credible and represent the relevant industry or community. They must also be recognised by the relevant industry or community as being suitable to speak on their behalf. It is up to qualification developers to ensure that the credentials of stakeholders are suitable. Terms of reference can be used for this purpose.

A mandatory stakeholder may withdraw support for the new qualification but must provide a justified explanation. Similarly, the qualification developer must provide a justification for why the development is continuing without that stakeholder's support. When requested, or when the development timeline is exceeded, the NZQA may work with stakeholders during development to facilitate the process. Exemptions to the need for stakeholder endorsement of new qualifications can be made in special circumstances (New Zealand Qualifications Authority 2016).

The cost of developing a qualification is borne by the developer, but a qualification development fund (QDF) is available, administered by the Tertiary Education Commission. Treasury records show that, in 2020, $389 000 was allocated for the QDF (Tertiary Education Commission 2020b).

Qualification design

Specificity of qualifications

The NZQF contains 10 levels, which describe the skills and knowledge a graduate has at each qualification level. The following sections feature in each qualification:

- qualification title, type and level
  - level is determined by comparison to the 10 NZQF level descriptors
  - training schemes and programs must link to an NZQF qualification
  - training schemes are shorter than programs
- strategic purpose statement: this identifies the target group of learners, industry and/or community that will benefit from the qualification and the standard at which the graduate will operate, for example, for the Certificate in Hairdressing the standard is:

  The purpose of this qualification is to provide the hairdressing industry with individuals who have obtained sufficient knowledge, practical skills and attitudes to perform salon and client services that contribute to the effective operation of the salon. This qualification is suitable for learners with prior knowledge of salon support and client support services in a hairdressing salon, who wish to develop skills and knowledge towards becoming a hairstylist. Graduates will be capable of operating at an intermediate level under broad guidance

- outcome statements:
  - graduate profile: what the graduate will be able to do
  - education pathways: the pathways into and out of the qualification
  - employment pathways: what jobs the graduate will be equipped to perform

- credit value of the qualification: one credit = 10 notional hours of learning

  – notional hours include direct contact time with trainers, time spent studying and undertaking assignments, and time spent in assessment

- subject area of the qualification

- status of the qualification (current, expiring or discontinued)

- qualification review date:

  – must be reviewed with five years of listing or previous review

  – review period length influenced by factors such as rate of industry change and size of qualification

- award of the qualification (New Zealand Qualifications Authority).

Qualifications are made up of unit standards. Units are coherent sets of learning outcomes and performance criteria. Technical and management information, supporting delivery and assessment, accompanies them. Units take levels and are assigned a credit value like qualifications.

All qualifications on the NZQA are linked to the New Zealand Standard Classification of Education (NZSCED); this categorises qualifications into subject areas. Qualification-type descriptors are succinct, specifying up to seven graduate outcomes.

Facilitation of pathways between school and higher education

The New Zealand Government introduced a youth guarantee program in 2010, which is designed to support youth transition from school to vocational education. In the VET sector, this is supported by vocational pathways that map levels 1—3 of the National Certificate of Educational Achievement (NCEA) (New Zealand's secondary school certificate) to six industry sectors. The vocational competencies acquired by students undertaking vocational pathways in upper secondary education contribute towards a qualification and deliver skills that employers are seeking from workforce entrants (New Zealand Ministry of Education 2020).

Review of qualification development process

The Review of Vocational Education (RoVE) process commenced in 2019 and will implement seven key changes to VET in New Zealand by June 2023 (Korero Matauranga 2019). Although this was not a specific review of the qualification development process, one of the actions will impact on development. Six workforce development councils (WDCs) will be established by the end of 2020, a fast-tracked target date to respond to the COVID-19 recovery.

WDCs will set standards, develop qualifications and inform curriculum development (New Zealand Tertiary Education Commission 2020a). This represents a change from the current arrangements, whereby TEOs and other approved organisations develop qualifications.

Singapore

Overview

Workforce skills qualifications (WSQs) may be presented as a full qualification, or as a set of shorter training modules, which can be awarded with a statement of attainment and build to a full qualification. Qualifications stipulate workforce skills standards: foundational and cross-industry skills; and industry-specific and occupation-specific competencies (SkillsFuture Singapore 2020). WSQs adopt the standards laid out in the Skills Framework, a component of industry transformation maps (ITMs), created by employers, industry associations, education institutions, unions and government. The Singapore qualification development system has links to government economic policy and is closely informed by industry (World Bank 2015).

Little information is publicly available on the details of qualification development in Singapore.

Current vocational qualification development process

Summary of the process/steps

Three fundamental principles guide the design of WSQ qualifications: relevance, flexibility and consistency. Feedback on the relevance and suitability of qualifications is gathered from employers twice a year, and every five years the quality assurance framework itself is reviewed (Renold et al. 2016).

The process to have a new qualification approved is supported by a quality assurance framework, including one that accredits training providers delivering WSQ training programs.

The decision for a new qualification

Training partners propose new WSQs, based on industry demand; the process is the same for developing new and updating existing qualifications. The focus is on ensuring that the proposed qualifications meet a workforce skilling need. There is no attempt to prevent duplication: if a qualification meets demand for a particular industry, then it is approved (email communication).

Stakeholders involved

Several government agencies and representative of stakeholders work together to develop qualification standards through the mechanism of Future Economy Council (FEC) subcommittees. The subcommittees can engage the stakeholders they believe are relevant and insightful for the industry; this may include employers, government, unions, teachers and professional bodies.

The subcommittees of the FEC write the ITMs, which include the Skills Framework. The subcommittees are also responsible for providing information on career pathways, occupations/job roles, and existing and emerging skills, and maintains a list of related training programs in six industry clusters: manufacturing; built environment; trade and connectivity; essential domestic services; modern services; lifestyle.

The subcommittees are co-chaired by an officeholder and private sector member, for example, the essential domestic services subcommittee is led by the Ministry of Health and co-chaired by a senior government minister and a union president (Singapore Ministry of Trade and Industry 2020).

Details about the way these subcommittees are appointed or run appears not to be publicly available. SkillsFuture Singapore is not involved in the subcommittee work before approval stage. Proposals to add new qualifications or make revisions to existing qualifications are approved by the Quality Management Division of SkillsFuture Singapore, while draft qualification content is approved by the Skills Development Division.

Speed-to-market

No information discovered.

Qualification design

Specificity of qualifications

Skills maps for job roles developed under the Skills Framework contain the following components (examples drawn from the Sales Associate/Brand Associate skills map [SkillsFuture Singapore 2020]):

- sector designation, for example, 'Retail'

- track designation, for example, 'Retail operations'

- occupation/s, for example, 'Associate'

- job role/s, for example, 'Sales Associate/Brand Associate

- job role description, for example, 'The Sales Associate/Brand Associate is responsible for achieving sales, delivering service and operations excellence …'

- critical work functions, for example, 'Deliver service excellence'

- key tasks/performance expectations, for example, 'Project a positive and professional image'

- technical skills and competencies and their levels, for example, 'Customer Loyalty Level 2'

- generic skills and competencies and their levels, for example, 'Interpersonal skills: basic'

- program listing: where you can find related training programs.

Qualifications are linked to both an industry and occupation. Since the industry groups are already identified by the clustering of the ITMs, the skills maps reflect those groupings rather than being linked to an occupational classification framework.

The technical and generic skills and competencies are drawn from a list of pre-articulated standards. The levels range from 1 to 6 and are described in terms of the responsibility, autonomy, complexity and knowledge and abilities required; for example, Level 2 demands that retail graduates can 'Work with some supervision' and 'Are accountable for a broader set of tasks assigned' etc. (SkillsFuture Singapore 2020).

Stipulations about delivery or assessment are not included; the Skills Map is just three pages long, with guidance on how to interpret the levels and competencies included in the supporting documents issued by SkillsFuture Singapore. The Skills Framework is not only intended to be used for the development of training programs; the SkillsFuture Singapore website hosts templates that allow users to insert the skills map competencies into an interview checklist, job advertisement, on-the-job training blueprint and performance appraisal (SkillsFuture Singapore 2020).

Qualifications are written based upon the Skills Maps and on the skills and competencies validated by employers, unions and professional bodies. Qualifications at all six levels must include a statement of overall learning outcomes, which describes how the learner must be able to function in the related job role. Additionally, capabilities must be written against each of five key requirements:

- knowledge and analysis

- application and adaptation

- innovation and value creation

- social intelligence and ethics

- learning to learn (SkillsFuture Singapore 2020).

Facilitation of pathways between school and higher education

The TVET system in Singapore enables lower and upper secondary students to choose a technical school track, which can connect back to an academic pathway in upper secondary and post-secondary education. Students undertake four years of study at a normal technical school and then proceed on to complete two to three years of study at an institute of technical education (ITE) or polytechnic.

There are no formal pathways for transfer or recognition of credit, as each educational institution makes its own policies around assessment and recognition of qualifications.

Review of qualification development process

There is no evidence of a review of the development process; however, mandatory core and elective modules rules have recently been relaxed. The new 'free bundling' approach is intended to allow qualifications to have more flexibility in how they address the jobs and skills information in the Skills Framework (SkillsFuture Singapore 2020).

South Africa

Overview

The National Qualifications Framework (NQF) in South Africa consists of 10 levels, ranging from a general certificate of education, through to a doctoral degree. Within the framework are three sub-frameworks dealing with:

- higher education

- general and further education and training

- occupational qualifications.

Each of these sub-frameworks is managed by a different quality council; quality councils are responsible for the development of qualifications. These councils are:

- Council on Higher Education (CHE)

- Umalusi (Council for Quality Assurance in General and Further Education and Training)

- Quality Council for Trades and Occupations (QCTO).

Two quality councils are related to vocational education and training: Umalusi and the Quality Council for Trades and Occupations (Bolton & Pillay 2019). However, the vocational certificates managed by Umalusi tend to be broad in nature, such as the National Technical Certificate N3 and the National Certificate (Vocational) (NCV), whereas the occupational qualifications managed by QCTO are more similar to the qualifications in the Australian VET system. Thus, this section will focus on the development process for occupational qualifications.

There are currently 339 full and part occupational qualifications registered in South Africa (Quality Council for Trades and Occupations 2019a). A part qualification is 'an assessed unit of learning with a clearly defined purpose that is, or will be, registered as part of a qualification on the NQF' (PolicySA 2020).

Current vocational qualification development process

Summary of the process/steps

In South Africa there is only one type of occupational qualification — the occupational certificate — and the process for development is the same across industry sectors. The certificates cover levels 1 to 8 on the qualification framework.

The following table outlines the development process for occupational qualifications and, where possible, provides an indication of the timeframe for each stage.

Table 7   Outline of occupational qualification process

Stage	Responsibility	Summary of stage	Timeframe
Receive and process application	QCTO staff	Any person or organisation can submit an application for a new occupational qualification to QCTO. The QCTO reviews the application to minimise overlap with other qualifications/applications, assesses the need and impact of the qualification through engagement with applicant and identifies relevant stakeholders to be involved in the development process.	The application form states that it can take 90 days from submission to hear the outcome as the review

		This is a pre-scoping exercise, which is undertaken with the applicant and informs the scoping meeting in the next stage.	committee sits once per quarter (QCTO 2019b)
Oversee scoping meeting with constituency and appoint DQP	QCTO staff	The scoping meeting is held with invited stakeholders and the purpose is to assure QCTO staff that the qualification is supported. The scoping meeting covers information such as: • detailed rationale for the qualification with information on the needs in the sector it will meet, benefits for society and the economy, and the learning pathway of the qualification • name of body recommended as development quality partner (DQP) • stakeholder organisation to be involved in verification process • details of any qualifications on the NQF that have be considered alongside the new qualification during development process (i.e. those that may be replaced) • list of possible bodies for the role of assessment quality partner (AQP) • agreed timeframes and start date of profiling • list of nominated working group members • agreement on verification process. After this meeting there is some preparatory work that must be completed by the DQF before moving onto the next stage. This includes appointing a qualifications development facilitator (QDF) for every occupation agreed to, completing details in service level agreement (SLA) and submitting SLA to QCTO for signing.	It can take more than 30 working days before everything is signed off and ready to move to next stage.
Develop occupational profile	QDF with expert practitioners (including assessors)	There are several steps to developing the occupational profile, which includes the following: • Define provisional occupational purpose. • Identify the stages in the production cycle of steps in the business process. • Identify the unique products or services for the occupation or specialisation and check against the organising framework for occupations (OFO) tasks. • Identify the occupational responsibilities and practical skills for each product or service. • Identify the occupational contexts and work experiences for each product or service. • Identify part qualifications and points for external assessment. • Finalise the occupational purpose and task statements. • Identify proposed external assessment model. The information developed must be considered alongside that provided by the DQP, such as comparing the profile with qualifications to be considered for replacement and international comparisons. The result of this stage is an occupational profile that can be provided to the DQF and circulated to stakeholders for feedback.	
Manage verification of occupational profile and proposed AQP	DQF with expert practitioners and proposed AQP	The DQP distributes the occupational profiles and proposed AQP to stakeholders and collates feedback received. This feedback is provided to the QDF. The DQP also arranges a working group meeting to consider the inputs. It is important to note that, if a suitable AQP is not identified, then this verification process will be delayed or the development process terminated. A progress report is also prepared as part of this stage, which highlights the rationale statement, the input received and how comments were dealt with. Non- or poor participation of required working group	

		members is also reported. The progress report is submitted to the QCTO.	
Appoint AQP	QCTO staff	The QCTO appoints the AQP, based on the feedback and recommendation of the DQP.	
Develop module specifications	QDF with expert practitioners, AQP and educationalists	During the development of module specifications, the following steps are undertaken: • defining the work experience module specifications • defining the practical skill module specifications • defining the knowledge module specifications. The DQF also coordinates and holds working group meetings during this stage. The QDF is also expected to provide additional information to the DQF such as an outline on international comparability, qualifications to be replaced, articulation and assigned NQF level.	
Develop the integrated external assessment specifications	QDF with AQP and expert practitioners (including assessors)	The development of the external assessment specifications documents involves the following steps: • Formulate the purpose of the qualification and part qualifications. • Identify integrated assessment focus areas and determine the weight. • Define associated assessment criteria for each integrated assessment focus area. • Reflect assignments to be evaluated externally. • Describe the external integrated assessment model. • Reflect the eligibility requirements to qualify for the external integrated summative assessment for phase tests and/or part qualifications (including foundational learning). • Determine the criteria for the registration of assessors. During this stage, the DQP coordinates working group meetings. These meetings must also include the AQP.	
Manage verifications process (curriculum and assessment specifications)	DQP with constituency group	During this stage the curriculum and the assessment specifications document are submitted to the DQP for verification with stakeholders. The DQP collects and collates the feedback and arranges a working group meeting to consider comments. Sector education and training authorities (SETAs) must also be consulted about the qualifications and learning programs to be replaced. While the DQP manages this process, input is provided by the QDF.	
Submit curriculum, assessment specifications, qualification and process report	DQP	The curriculum, assessment specification and qualification information are captured using the electronic qualification capturing tool. All content is checked against construction rules. The process report is also finalised.	
QCTO evaluates	QCTO staff	The QCTO evaluates the submissions. If there are only small changes and they are corrected by the QDF within 2 weeks, then the DQP is not notified.	
SAQA approves registration	SAQA	It is policy that SAQA evaluates, registers and publishes all qualifications and part qualifications on the NQF. Occupational qualifications registered on the NQF are for a period of 5 years only (SAQA 2020).	

Source: Derived from Quality Council for Trades and Occupations (2014).

Stakeholders involved

The following are the key stakeholders involved in the qualification development process:

▪ The South African Quality Authority has the overall responsibility for the National Qualifications Framework and, as mentioned in table 7, has the final approval of qualifications to be registered on the NQF.

▪ Quality councils are responsible for ensuring any new qualifications refer to SAQA for registration on the NQF, meeting the 'Policy and criteria for the registration of qualifications and part-qualifications on the National Qualifications Framework (as amended, 2020)' (South African Quality Authority 2020). They also play a key role in deciding who should be involved in the qualification development process. This can include:

  – employers

  – employee associations

  – professional bodies for that occupation

  – industry bodies for that occupation

  – the education and training providers who would deliver some of the components (Quality Council for Trades and Occupations 2014)

▪ A development quality partner (DQP) is a body delegated by the QCTO to manage the process of developing specific occupational qualifications, curricula and assessment specifications. Their responsibilities in the qualification development process are outlined in table 7 (Quality Council for Trades and Occupations 2011).

▪ A qualifications development facilitator (QDF) is a person registered by the QCTO to facilitate the development of occupational qualifications (Quality Council for Trades and Occupations 2011).

▪ An assessment quality partner (AQP) may be a body such as moderating bodies, examining bodies, professional bodies, occupational associations or legislated boards (Quality Council for Trades and Occupations 2014). They develop the 'assessment instruments and manage the external summative assessment of specific occupational qualifications' (Quality Council for Trades and Occupations 2011, p.ii).

The qualification development process involves a number of stakeholders, as mentioned above, who have a role to play in representing the interests of their groups, such as employers or education and training providers, when providing feedback throughout the various stages of the qualification development process. A record of attendance at all meetings is kept and the participation of these stakeholders is monitored by the QDF. If there are inactive or problematic participants, the QDF communicates this to the DQP and additional stakeholders are arranged to ensure all sectors remain covered. Poor participation is also reported in the progress report to the QCTO (Quality Council for Trades and Occupations 2014).

Speed-to-market

Information regarding the average length of the qualification development process and speed-to-market from approval to delivery could not be found online.

Qualification design

A qualification consists of:

- a qualification document, which outlines the rationale and purpose for the qualification; compulsory knowledge, practical skill and work experience modules and associated credits; entry requirements; exit-level outcomes and associated assessment criteria; international comparability; integrated assessment; recognition of prior learning; articulation to other qualifications; and part qualifications (QCTO 2019c).

- a curriculum document, which covers the curriculum summary and entry requirements; occupational profile (tasks, responsibilities and context); knowledge module specifications (purpose, guideline, topics to be covered, internal assessment criteria and weighting, provider program accreditation criteria, and exemptions); practical skill module specifications (purpose, guideline, scope of practical skill, applied knowledge, internal assessment criteria, provider program accreditation criteria, and exemptions); and, work experience module specifications (purpose, guideline, scope, supporting evidence, contextualised workplace knowledge, criteria for workplace approval, and additional assignments to be assessed externally) (Quality Council for Trades and Occupations 2019c).

- an assessment specifications document, which summarises the assessment strategy (model, qualification purpose and assessment standards for qualifications and part qualifications); assignments to be evaluated externally; critical aspects of internal assessments to be assessed externally; criteria for the registration of assessors; foundational learning; and eligibility requirements for external assessment (Quality Council for Trades and Occupations 2019c).

Specificity of qualifications

Occupational qualifications are tied to a 6-digit occupational code from the Organising Framework for Occupations (OFO). This code must be provided when submitting a request to develop an occupational qualification and is cited through qualification documentation. It is clear that the occupational qualifications are tied to specific occupations; the supporting documentation associated with what should be covered in a qualification and how it should be taught and assessed is quite detailed (QCTO 2019b).

The first step in the development of a new occupational qualification is the development of the occupational profile, which includes the occupational code the qualification is linked to, the occupational purpose, and the tasks that are performed by people in that occupation. The profile is used to form the module specifications for the qualification. Both the occupational profile and module specifications inform the curriculum for the occupational qualification (Quality Council for Trades and Occupations 2014).

Facilitation of pathways between school and higher education

A goal of the National Qualification Framework and the three associated sub-frameworks is to strengthen articulation between qualifications within and between the sub-frameworks (that is, between general education, higher education and occupational qualifications) (South African Quality Authority 2020).

Rationalisation of qualifications

As South Africa was not included in the first stage of this project, which looked at models to rationalise VET qualifications, some relevant information is provided here explaining how they avoid duplication and remove qualifications with low or no enrolments.

As outlined in the 'Policy and criteria for the registration of qualifications and part-qualifications on the National Qualifications Framework', part of the role of the quality councils is to discourage proliferation and duplication of qualifications and part qualifications in the sub-frameworks (South African Quality Authority 2020). The QCTO attempts to prevent the proliferation of qualifications by steering towards part qualifications rather than separate qualifications and 'preventing the development of job, company or product specific qualifications' (Quality Council for Trades and Occupations 2014, p.5).

Occupational qualifications are reviewed every five years (the other types of qualifications are reviewed every three years) by the QCTO and they can make recommendations to SAQA on whether a qualification or part qualification should be re-registered or deregistered (SAQA 2020). The 'Policy and criteria for the registration of qualifications and part-qualifications on the National Qualifications Framework' states that SAQA will deregister a qualification or part-qualification if they:

- are replaced by new qualifications or part-qualifications;

- do not comply with the criteria for registration as outlined in this *P&C for qualifications and part-qualifications*;

- were not offered by accredited providers within the registration period of the qualification and/ or part-qualification; and

- had no learner enrolments within the registration period (South African Quality Authority 2020, p. 14).

Review of qualification development process

There is no evidence online of a review of the occupational qualification development process.

United Kingdom

Overview

The United Kingdom maintains the National Occupational Standards (NOS), which form the basis for qualification development in the individual nations: England, Scotland, Northern Ireland and Wales. While originally funded and managed by the UK Government, since 2016 the NOS database has been funded and governed by the Devolved Administrations of Northern Ireland, Wales and Scotland and managed by Skills Development Scotland (Skills Development Scotland Co. Ltd 2020). The NOS 'are statements of the standards of performance individuals must achieve when carrying out functions in the workplace, together with specifications of the underpinning knowledge and understanding' (Skills Development Scotland Co. Ltd 2020). They are tied to standard occupational codes (SOC), which allocate an occupational group to each NOS. They were developed by the standard-setting organisations (SSOs), who consulted with employers and other stakeholders across each of the nations. There are almost 23 000 NOSs and they are used as the basis for developing qualifications in these nations by their awarding bodies, although it is no longer mandatory in England (Skills Development Scotland Co. Ltd 2020). England has developed its own employer-led occupational standards and occupational maps, which are managed by the Institute for Apprenticeships and Technical Education (2020a).

It is interesting to compare the processes of these different nations, given the shared history of using NOS but the large difference in the number of vocational qualifications available in each: England has over 3000 level 4 and 5 technical qualifications but is currently reviewing processes (Post-18 Education and Funding Review Panel 2019), while Scotland has over 500 vocational qualifications (Scottish Qualifications Authority 2018a). Specific numbers for Northern Ireland and Wales were not found, but each shares many qualifications with England.

England

Vocational education in England has undergone significant reviews over the last few years, beginning with the Sainsbury review of technical education in 2016, which led to the introduction of T-level routes[4] for post-16 education and a review of post-18 education and funding in 2019 (UK Independent Panel on Technical Education 2016; UK Post-18 Education and Funding Review Panel 2019). In 2020, this resulted in changes to the development and approval of level 4 and 5 qualifications, referred to as higher technical qualifications (UK Department of Education 2020). These qualifications can follow on from the T-level routes discussed in the previous stage of this work (Wibrow & Waugh 2020). In the following section the new process for higher technical education qualifications will be examined. This process represents a change to an employer-led approval process for higher technical qualifications through the Institute for Apprenticeships and Technical Education and is a staged approach focusing on qualifications within the digital route first. Other routes will follow in due course.

Summary of qualification development process

This is slightly different from the other countries examined, as it is a new approval process, rather than a qualification development process. The first stage requires awarding bodies to align their existing

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4 T Levels' are two-year, technical study programs, available alongside 'A Levels' (academic pathway), and apprenticeships for students who have completed the General Certificate of Secondary Education (GSCE) (Institute for Apprenticeships and Technical Education 2020g).

qualification offerings to occupational standards and have them approved by the Institute for Apprenticeships and Technical Education. Information on how new qualifications will be developed and processed could not be found at the time of writing.

Table 8   Key steps in new higher technical qualification-approval process

Stage	Key bodies involved	Summary	Timeframe
Information gathering	Awarding bodies	Awarding bodies identify qualifications for submission and attend introductory event.	July to September 2020
Prepare to submit	Awarding bodies	Opportunity for awarding bodies to discuss questions and qualifications with the Institute for Apprenticeships and Technical Education. Awarding bodies can also attend more events and receive guidance.	September 2020
Application	Awarding bodies	The application form asks for the following information: • agreement with terms and conditions and data security • awarding body information • qualification information, such as title and level • alignment to route and occupational standards, including purpose and content of qualification and evidence of employer engagement in development • knowledge, skills and behaviours coverage within qualification • additional occupationally relevant content • outline of assessment methods and why they are valid • evidence of employer engagement and support for qualification.	September to December 2020
Institute review	Institute for Apprenticeships and Technical Education Ofqual	Institute for Apprenticeships and Technical Education holds public consultation and review submissions. Ofqual holds meetings with awarding bodies and provides advice.	December 2020 to February 2021
Decision and feedback	Route panels Approvals and Funding Committee	Route panel meets and makes recommendations. Approvals and Funding Committee makes final decisions.	February to March 2021
Refinement	Institute for Apprenticeships and Technical Education Awarding bodies	Institute for Apprenticeships and Technical Education provides feedback on approval. Some qualifications will require further refinement by awarding bodies. Refinements are due for submission in May 2021.	March to May 2021
Final list of approved qualifications published	Institute for Apprenticeships and Technical Education	Institute for Apprenticeships and Technical Education releases the final list of approved qualifications.	June 2021
First teaching of the approved qualification	Awarding bodies	Providers decide on courses and prepare for teaching. Teaching of new qualifications begins September 2022.	June 2021 to September 2022

Source: Institute for Apprenticeships and Technical Education (2020b).

Stakeholders involved

▪ The Institute for Apprenticeships and Technical Education is an independent, employer-led organisation which develops, approves, reviews and revises apprenticeships and technical education with employers (Institute for Apprenticeships and Technical Education 2020c).

– Route panels are managed by the Institute for Apprenticeships and Technical Education and consist of industry experts. They are responsible for ensuring that apprenticeship standards and technical

qualifications are of high quality and meet every eight weeks (Institute for Apprenticeships and Technical Education 2020d).

- – The Approvals and Funding Committee comprises four board members of the Institute for Apprenticeships and Technical Education. They have final approval on the content for apprenticeships and technical qualifications and advise of funding bands (Institute for Apprenticeships and Technical Education 2020e).

- ▪ Ofqual is the Office of Qualifications and Examinations Regulation. It regulates qualifications, examinations and assessments in England (GOV.UK 2020).

- ▪ Awarding bodies are organisations approved by Ofqual to deliver and award regulated qualifications.

Other relevant information

The approval of the higher technical qualifications is for an initial period of five years. The full process for reviews is yet to be made available but, to ensure continuity of delivery, reviews occur due two years before the end of the teaching period. For example, qualifications approved from June 2021 to June 2026 will need to be reapproved by April 2024 (Institute for Apprenticeships and Technical Education 2020f).

Changes to qualifications can be made by awarding bodies as part of a continuous-improvement process. Major changes, such as changes to the qualification's coverage of knowledge, skills and behaviours or assessment methods, will need to be approved by the Institute for Apprenticeships and Technical Education. The institute aims to respond to these requests within eight weeks (Institute for Apprenticeships and Technical Education 2020f).

Changes may also occur to qualifications following changes to the occupational standard on which it is based. Where there are changes to the content of the standard, such as to knowledge, skills and behaviours, an awarding body will have to submit changes to qualifications within a year of the occupational standard being revised. They will then need to teach the new approved qualification as soon as possible, typically allowing at least a year for new materials to be developed (Institute for Apprenticeships and Technical Education 2020f).

Scotland

Summary of qualification development process

There are two key aspects to vocational qualification development in Scotland: qualification product-development by standard-setting organisations (SSOs), such as sector skills councils, sector bodies and standard-setting bodies; and qualification development by awarding bodies (ABs), which are accredited by the Scottish Qualifications Authority to deliver training. Qualification products appear to be similar to training packages in Australia. Qualifications developed by awarding bodies can be based on approved qualification products developed by SSOs or they can develop and design their own qualifications. All qualification products and qualifications are accredited by SQA Accreditation (Scottish Qualification Authority 2018b, 2018c).

Qualification product development by SSOs

Table 9   Key stages in Scottish qualification product development

Stage	Summary
Establish purpose for qualification development or review	The SSO needs to consider the following when deciding whether to develop a new qualification product or revise an existing product: • the roles the qualification is aimed at • the functions that will be covered in the qualification • if the qualification will confirm knowledge, skills or combination of both • what broad areas of knowledge and/or skills the qualification will develop • current provision of qualifications and any gaps • whether the qualification is intended to be used within a Modern Apprenticeship or for a regulatory or licensing scheme. Evidence of the need for a new qualification, such as skills gaps and shortages, demand and licensing requirements, as well as support from employers and awarding bodies, is also needed.
Develop qualification structures	An occupational and functional analysis should be undertaken to help inform the qualification structure. This will help to identify gaps in existing NOS or unit coverage. The qualification structure must also include: • identification of potential content • qualification and unit titles • number and combination of mandatory and optional units required • pathways between qualifications • flexibility and progression for learners • overlap with other qualifications.
Develop assessment strategy	The assessment strategy describes how the qualifications are to be assessed and is to provide a consistent approach to assessment for awarding bodies. It should include information on the following: • how external quality control of assessment will be achieved • which aspects must be assessed through workplace performance • the extent to which simulated working conditions can be used to assess competence • the occupational expertise assessors and verifiers require. Awarding bodies and other relevant stakeholders should be consulted during this step.
SCQF credit rating	All vocational qualifications should be credit-rated for the Scottish Credit and Qualifications Framework (SCQF). This involves calculating SCQF credit points and allocating SCQF levels to units and qualifications.
Core skills signposting	Core skills signposting outlines opportunities to develop core skills within units. Signposting must be completed for each unit. There are five core skills: communication, numeracy, information and communication technology, problem-solving and working with others.
Consultation activity	Stakeholders may include the following groups of people: • Scottish employers • awarding bodies • training providers • professional bodies • unions • regulators • Scottish Government • further and higher education institutions. Stakeholders originally involved in NOS development should also be consulted. Consultation may include a combination of any of the following activities: • consultation events • face-to-face meetings and telephone discussions • questionnaires • articles in trade press • web-based surveys • focus groups. Plans should be in place for low or no responses, such as switching to other consultation methods.
Preparing final products for submission	During this stage the following is undertaken: • key stakeholder group sign-off

	• internal quality assurance • preparation of final documentation, which includes a report summarising the process undertaken, the qualification structures in grid template, copies of units/NOS contained in qualification structure, assessment strategy and core skills signposting.
Submission to SQA Accreditation	Files are sent to SQA Accreditation and are firstly assessed by the accredited manager for the relevant sector. Once they agree that the submission is ready, they produce a report to be submitted to the Accreditation Co-ordination Group (ACG), which will make a decision regarding the qualification. This group meets weekly and a decision is made within 20 working days from submission. The SSO is notified in writing of the outcome within 5 working days of the ACG meeting.
Submission to Modern Apprenticeship group (if appropriate)	If the qualification product is aligned to a modern apprenticeship group, then it must also be submitted to the Modern Apprenticeship group for approval following SQA approval.

Source: Derived from Scottish Qualifications Authority (2018b).

Qualification development by awarding bodies

Table 10   Key stages in Scottish qualification development

Stage	Summary
Develop qualification structure	The qualification structure document lists the title, any units in the qualification, combinations of units and credit rating. If using an approved qualification product, then all titles must match those within the approved product. Awarding bodies may choose to offer the full approved qualification structure or parts thereof. They must clearly state in their qualification submission which units or pathways they will be offering. If designing and developing their own qualifications, then the awarding body must follow a similar process to the SSO in developing qualification structures regarding allocating titles, allowing for flexibility and progression, and considering how it may overlap with other qualifications.
Develop assessment methodology	The assessment methodology must define: • where the qualification will be assessed • how the qualification will be assessed • who will assess the qualification • how the qualification will be quality-assured • who will assure the qualification. If the qualification is based on an approved qualification product, then the assessment strategy developed as part of that process should be used as the basis for the assessment methodology.
SCQF credit rating	Accreditation managers should be consulted when undertaking credit rating. The credit rating provides the SCQF level and credit value for the qualification and component units. Even if the qualification is based on an approved qualification product, the credit rating may differ if the awarding body is not implementing the full approved qualification structure. In this case the minimum and maximum credit values will need to be recalculated.
Develop core skills signposting	Core skills signposting is mandatory for Scottish vocational qualifications. It indicates where core skills may be attained through delivery and assessment of the qualification.
Develop support materials for qualification	Supporting information for qualifications may include items such as guidance for assessors, qualification specification, instruments of assessment, evidence requirements, as well as materials related to assessment. SQA Accreditation does not approve the support materials but they may be scrutinised under their regulatory activity.
Develop quality assurance	An appropriate quality assurance mechanism, including both internal and external elements, must be developed for the qualification. It should outline who the quality assurance personnel are, how they will assure the quality, where it will be done, such as workplace or classroom, and how often it will occur.
Marketing materials	A marketing plan for the qualification should be submitted with the qualification to outline how the qualification will be promoted.
Submission to SQA Accreditation	Once the submission is received by SQA Accreditation, it is assessed by the relevant accreditation manager within 20 working days to ensure it is ready for consideration by the ACG. Once approved, the qualification is added to the SQA Accreditation website.

Source: Derived from Scottish Qualifications Authority (2018c).

Stakeholders involved

- The Scottish Qualifications Authority Accreditation arm provides accreditation approval of qualifications and awarding bodies to develop and deliver qualifications. The specific areas involved in qualification development are:

  - An accreditation manager is available for each sector to help with the development of qualifications. Their role is to ensure the process meets the requirements of SQA and to facilitate sign-off. The qualification developer, whether SSO or awarding body, should update the accreditation manager regularly and include them in meetings. They can also provide advice around consultation and assigning SCQF credit ratings (Scottish Qualifications Authority 2018b).

  - The Accreditation Co-ordination Group (ACG) is part of Scottish Qualifications Authority and approves qualifications. The group consists of the Head of Accreditation, Senior Accreditation Manager, Senior Regulation Manager, Information and Research Manager and Accreditation Officer (Scottish Qualifications Authority 2018b).

- Standard-setting organisations (SSOs) are sector skill councils, sector bodies and standards-setting bodies, or a partnership thereof, which are involved in the development of qualification products (Scottish Qualifications Authority 2018c).

- Awarding bodies are organisations, companies and charitable bodies that have been approved by SQA Accreditation to deliver accredited qualifications (Scottish Qualifications Authority 2018b). They develop the qualifications that they offer.

Other relevant information

Scottish Qualifications Authority Accreditation reviews registrations and certifications every six months to identify accredited qualifications with no uptake. If a qualification has had no candidate uptake for a period of two years, then it will be reviewed by SQA Accreditation and a recommendation may be made to the ACG to withdraw it. The awarding body is notified of the intention to review the qualification and is able to provide justification for keeping it registered. Some of the reasons for continuing registration of the qualification include active promotion of the qualification and sufficient unit uptake, as opposed to full qualification demand (Scottish Qualifications Authority Accreditation 2020).

Northern Ireland and Wales

Information regarding the qualification development process for vocational or technical qualifications in these nations is unclear. Vocational qualifications in both Wales and Northern Ireland are closely aligned to England to allow for international mobility (Qualifications Wales 2016), although it is unclear whether this remains the case following the recent changes in England. Like England, the qualifications are developed by awarding bodies, with many of the awarding bodies based in England (Qualifications Wales 2016). These qualifications are aligned to the Regulated Qualifications Framework for Northern Ireland and England, and the Credit and Qualifications Framework of Wales (QAA et al. 2019). Ofqual in England maintains the register of regulated qualifications for England and Northern Ireland (Ofqual 2020). Qualifications in Northern Ireland are regulated by CCEA Regulation, and in Wales they are regulated by Qualification Wales (CCEA [Council for the Curriculum, Examinations & Assessment] 2020; Qualifications Wales 2020a). Vocational qualifications in both Northern Ireland and Wales are linked to the National Occupational Standards mentioned earlier. However, further information regarding vocational qualification development and approval specifically for these countries could not be found at this stage.

Other information

Qualifications Wales has its own 'Vocational Qualifications Strategy', released in 2016; it highlights a concern that the qualifications developed for use by the three countries are also available in the Welsh language (Qualifications Wales 2016). Wales also has its own strategies in place for ensuring that the available vocational qualifications meet its economic needs and the needs of its learners. A series of sector reviews has been introduced to analyse the qualifications available in the sector for learners aged 14 years and upwards to determine whether they are sufficient for the Welsh environment. These sector reviews involve engagement with a range of stakeholders, such as employers, providers and higher education providers (Qualifications Wales 2016). These sector reviews may result in an identified need for a new qualification. If this occurs, then Qualifications Wales either:

- invites awarding bodies to submit qualifications that meet the approval criteria that Qualifications Wales has developed and published; or

- commissions an awarding body to develop the new qualifications (Qualifications Wales 2020b).

United States

Overview

Vocational education and training in the United States is more commonly referred to as ;career technical education' (CTE). From our previous work, we know that there is a National Career Clusters Framework, consisting of 16 career clusters and 79 career pathways, which is used to organise CTE programs, curriculum design and instruction across most states (Wibrow & Waugh 2020). Development of the National Career Clusters Framework was led by the US Department of Education (Dortch 2014). The Common Career Technical Core (CCTC) provides a set of standards to underpin each of the career clusters and career pathways and highlights the knowledge and skills students should possess after completing their program of study (National Association of State Directors of Career Technical Education Consortium & National Career Technical Education Foundation 2012). Development of the Common Career Technical Core was led by Advance CTE (formerly National Association of State Directors of Career Technical Education Consortium), a national non-profit organisation representing state CTE directors and state leaders of career technical education (Advance CTE: State Leaders Connecting Learning to Work 2020). However, as each state is responsible for its own training system, qualification development differs by state.

Additionally, there is no national qualification framework in the United States, which further increases the differences between states (UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training 2015). While there have been some calls to move towards a centralised credentialling system to understand the number of credentials across the United States, this does not appear to be mandatory (Credential Engine 2018).

The section below focuses on the development of CTE qualifications in Californian community colleges, as this group is one of the largest providers of CTE in the United States. California has 116 colleges, which teach more than 2.1 million students each year (California Community Colleges Chancellor's Office 2020).

CTE qualification development in California Community Colleges

Much of the program and course development in community colleges is tied to Californian legislation, specifically the Education Code and California Code of Regulations. This stipulates who can approve courses, standards and criteria for courses, the award of certificates and a range of other items. They are also highlighted in the *Program and course approval handbook* (California Community Colleges Chancellor's Office 2019).

The *Program and course approval handbook* outlines the requirement for approval of all courses and programs (similar to units and qualifications in Australia, respectively) developed by the community colleges. It is not broken down into specific stages nor does it provide an indication of the timeframe taken to develop a CTE program. However, the following information is required for the approval of degrees submitted with the program goal of 'career technical education':

- narrative of the program goals and objectives addressing a valid workforce preparation purpose; catalogue description of skills and learning outcomes; program requirements like sequencing; master planning, showing how it fits in with mission of education in California; enrolment and completion projections; how the program fits in the college curriculum; similar programs at other colleges; and transfer preparation information.

- course outline of record (COR) of all courses in the major area of emphasis

- labour market information showing that jobs (tied to standard occupational codes) are available for program completers within the regional area of the college and covering information such as the new job market, earning potential, career potential, emerging occupations, competitive fields, CTE skills and entrepreneurial opportunities

- advisory committee recommendation, which can include industry and curriculum members

- regional consortium recommendation, which is a group of CTE faculty and administrators from that region who provide leadership on economic development and CTE, coordinate staff development and increase knowledge of programs in the region

- appropriate transfer preparation documentation if the program is designed for both CTE and transfer (California Community Colleges Chancellor's Office 2019).

Approval of community college programs in California consist of three main steps:

1. 'The District Governing Board approves the course or program

2. The Regional Consortium recommends the program (only for programs with an occupational goal)

3. The Chancellor's Office chapters the course or program and a control number is issued' (California Community Colleges Chancellor's Office 2019, p.22).

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