OECD Reviews of Vocational Education and Training

Strengthening Apprenticeship in Scotland, United Kingdom



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Please cite this publication as:
OECD (2022), *Strengthening Apprenticeship in Scotland, United Kingdom*, OECD Reviews of Vocational Education and Training, OECD Publishing, Paris, https://doi.org/10.1787/2db395dd-en.

ISBN 978-92-64-62579-2 (print)
ISBN 978-92-64-87904-1 (pdf)
ISBN 978-92-64-92385-0 (HTML)
ISBN 978-92-64-92377-5 (epub)

OECD Reviews of Vocational Education and Training
ISSN 2077-7728 (print)
ISSN 2077-7736 (online)

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Foreword

Global megatrends, such as automation, digitalisation, the green transition and population ageing, are bringing about structural changes in labour markets around the world. These changes have an impact on skills demand and supply. Apprenticeships can play a key role in responding to changing labour market needs by equipping young people and adults with the right skills.

The COVID-19 pandemic affected education systems around the world, with apprenticeships being particularly impacted due to the difficulty of accessing workplaces and organising practical learning online or in classrooms, under strict health and safety regulations. Moreover, the resulting economic downturn has limited the capacity of employers to provide work-based learning opportunities. Innovative solutions are needed to ensure that apprenticeship systems continue to deliver high-quality relevant training. The COVID-19 crisis has underlined the benefits and opportunities of the use of digital technologies in apprenticeships, but also brought some key challenges to light. At the same time, apprenticeship systems have a crucial role to play in the recovery by providing workers and jobseekers with relevant training opportunities and by developing the right skills for the future.

All these changes highlight the need for resilient apprenticeship systems. This is also the case in Scotland (United Kingdom) where structural changes in the labour market and associated changing skill needs highlight the need for a strong apprenticeship system. The system will need support to continue to provide high-quality learning opportunities and to foster innovation that could increase its efficiency, quality and attractiveness. In an era of changing skill needs, the role of employers is more crucial than ever before. Apprenticeships can and should be a valuable learning path for a diverse group of learners, but sufficient support is needed to make apprenticeship accessible for all.

This report aims to support Scotland's efforts to strengthen its apprenticeship system, by assessing the key challenges and opportunities it faces and providing international examples and policy recommendations on how to make the system more responsive, innovative and inclusive. The report is part of the OECD Centre for Skills' broader work on *Facing the Future* in vocational education and training (VET), which supports countries in building strong and resilient VET systems.

This report was drafted by Shinyoung Jeon from the OECD Centre for Skills, and Simon Field as the author of the intermediate report *Strengthening Skills in Scotland*, under the supervision of Marieke Vandeweyer (manager of the VET team) and El Iza Mohamedou (Head of the OECD Centre for Skills). Simon Normandeau and Rodrigo Torres offered support for stakeholder interviews. The report has benefited from comments provided by Mark Pearson (Deputy-Director for Employment, Labour and Social Affairs). Administrative and editorial assistance was provided by Jennifer Cannon and Duniya Dedeyn from the OECD Centre for Skills and by Sally Hinchcliffe.

Acknowledgements

The OECD would like to thank Skills Development Scotland (SDS) in Scotland (United Kingdom) for the support to this report. Colleagues from SDS, in particular Jonathan Clark, Sophia Grant, Maxine McClintock, Lisa Pattoni, Katherine Peace and Mairi Rule, and Scottish Apprenticeship Advisory Board (SAAB) members have supported the work throughout this study, including organising stakeholder interviews and workshops and providing in-depth feedback on drafts.

This work integrates first-hand insights from a wide variety of stakeholders in Scotland working in close proximity to the Scottish apprenticeship system, as well as from several international experts and practitioners from the OECD's Group of National Experts on Vocational Education and Training (GNE-VET).

The authors also greatly appreciate the time given by other colleagues who contributed to this report by generously sharing their experience and insights on the topic throughout the project. Particular thanks is owed to colleagues from the OECD Centre for Skills, the Education and Skills Directorate and the Economics Department for their inputs and feedback.

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Acronyms and abbreviations

Abbreviation/Acronym	Full description
AAG	Apprenticeship Approvals Group
AEG	Apprenticeship Employer Grant
AI	Artificial intelligence
ALSFS	Adult Learning Strategic Forum Scotland
ALTO	Apprenticeship Long Term Outcome Framework
CBI	Confederation of British Industry
CBQ	Competence-based qualification
COSLA	Convention of Scottish Local Authorities
CPP	Community planning partnerships
CWBL	Centre for Work-based Learning
DYW	Developing Scotland's Young Workforce
EdTech	Education technology
EPS	Employer Perspective Survey
ESIF	Education and Skills Impact Framework
ESPA	Enterprise and skills partner agency
ESR	Enterprise and Skills Review
ESSB	Enterprise and Skills Strategic Board
FA	Foundation Apprenticeship
FIPS	Funding Information and Processing System in Scotland
FISSS	Federation for Industry Sector Skills and Standards
FSB	Federation of Small Businesses
FWDF	Flexible Workforce Development Fund
GA	Graduate Apprenticeship
GVA	Gross value added
HE	Higher education
HNC	Higher National Certificate
HND	Higher National Diploma
IHK	The Chambers of Industry and Commerce (*Industrie- und Handels-kammer*)
ICT	Information and communications technology
ILG	Industry leadership groups
ISCED	International Standard Classification of Education

Abbreviation/Acronym	Full description
LTA	Local training agency
LTC	Local training committees in Denmark
MA	Modern Apprenticeship
MAG	Modern Apprenticeship Group (former body of Apprenticeship Approvals Group prior to April 2020)
MSME	Micro, small and medium-sized enterprises
NEET	Neither employed nor in education or training
NOS	National Occupational Standards
NTC	National trade committees in Denmark
ONS	Office of National Statistics
PISA	Programme for International Student Assessment
QAA	Quality Assurance Agency
RPL	Recognition of prior learning
SAAB SAAB GB SAAB SFG SAAB EEG SAAB EEQ SAAB AEG	Scottish Apprenticeship Advisory Board SAAB's Group Board SAAB's Standards and Frameworks Group (sub-group) SAAB's Employer Engagement Group (sub-group) SAAB's Employer Equalities Group (sub-group) SAAB's Apprentice Engagement Group (sub-group)
SCC	Scottish Chambers of Commerce
SCQF	Scottish Credit and Qualifications Framework
SDS	Skills Development Scotland
SELFIE	Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies
SFC	Scottish Funding Council
SIMD	Scottish Index of Multiple Deprivation
SPJWG	Strategic Plan Joint Working Group
SQA	Scottish Qualification Authority - Awarding Body
SQA Accreditation	Scottish Qualification Authority - Accreditation body
STEM	Science, technology, engineering and mathematics
STF	Scottish Training Federation
STUC	Scottish Trades Union Congress
SUL	Scottish Union Learning
TEG	Technical Expert Group
VET	Vocational education and training
VR/AR	Virtual or augmented reality
WBL	Work-based learning

Executive summary

The Scottish apprenticeship system has made remarkable progress, becoming one of the most flexible and wide-ranging systems in the OECD. Until the COVID-19 pandemic intervened, apprenticeship starts had risen 10% between 2013/14 and 2019/20. Modern Apprenticeships, the typical apprenticeship in Scotland, reach a broad group of learners, including those from more deprived backgrounds and adult learners, offering them a chance to upgrade their skills in a changing job market. With the introduction of Graduate Apprenticeships, apprentices can now gain a university degree, while new Scottish Credit and Qualifications Framework (SCQF) level 4 and 5 customised awards offer work-based alternatives to pupils who might otherwise not have completed upper secondary education.

Outcomes have also been positive. Ninety percent of those completing their Modern Apprenticeship were in work six months later; employers reported that apprentices improved not just their technical skills but also their communication and teamwork – 21st century skills in increasing demand.

Despite this progress, Scotland's apprenticeship system will need to be strengthened if it is to help the economy close its growing skills gaps. It will need to be more responsive to employers' needs. Although employers take the lead in developing the frameworks and standards that underpin apprenticeships, not all play an equal role in apprenticeship design, and only 16% of employers take on any apprentices at all. Smaller employers – the backbone of the Scottish economy – are particularly under-represented in both areas. Because learning providers play a mediating role in determining the scale and mix of apprentice places, there is a danger that the system will be skewed towards the most cost-effective training rather than the training that is most needed by learners and employers. The Scottish Apprenticeship Advisory Board (SAAB) is therefore contributing to ensuring employers are given a leading role in the apprenticeship system, both in terms of design and delivery, to help make the system more responsive to changing skill needs.

The flexibility of the current system is its strength, but it also presents a risk. Scotland has some of the shortest apprenticeships among OECD countries, and some apprentices may receive no off-the-job training at all, posing possible challenges in terms of training quality. Setting certain minimum requirements could help strengthen the apprenticeship brand without losing much of the system's current flexibility.

Whether it is identifying potential apprentices and matching them to employers, or reducing the burden of assessment and accreditation, technology offers many ways to make apprenticeships systems more efficient and effective and hence more accessible to learners and employers alike. "Big data" can increasingly be harnessed to identify future skills needs, monitor the outcome of apprenticeships and even identify students at risk of dropping out. Robotics and virtual reality allow students a safer environment to master skills than would otherwise be feasible while assistive technology opens doors to students with disabilities. Scotland has strong innovation policies and has already made strides in developing online apprenticeships, virtual learning and e-portfolios but maximising these opportunities will rely on the capacity of the teaching and training workforce to turn strategies into practice. Strategic guidance and practical support can help in that respect.

As Scotland strengthens its apprenticeship system, it needs to ensure that no potential learners are left behind. Much progress has been made, including mainstreaming its "fair work" agenda and setting Apprenticeship Equality Action Plan, with some of the intended targets already being made. Despite the strong equity benefits apprenticeships offer, Scottish Government funding per student is less generous than for tertiary degrees, potentially reducing the number of places on offer and driving some learners into less suitable programmes. Although the flexibility of the current system makes it easy for workers with some experience to accelerate their apprenticeships, there is no clear route for those who already have almost all the skills they need to obtain a qualification directly. Nor are there clear routes for the sort of onward development found in other strong apprenticeship systems. In the German-speaking countries in Europe, this is partly addressed through the *Meister*, or "master craftsperson" qualification, that allows qualified apprentices, often with work experience, to acquire higher-level professional skills, learn how to run their own business, and develop the skills to train apprentices themselves. *Meister* qualifications could equip successful apprentices in Scotland to develop further and help create a new generation of workers for Scotland's future.

Key policy recommendations

Responsiveness with attention to quality

- Strengthening the role of employers in the apprenticeship system.
- Building a more demand-led funding system for apprenticeships.
- Establishing minimum requirements in terms of the length, mix and trainers of apprenticeships.

Innovation with strategic guidance

- Further expanding and promoting apprenticeships by using technology and innovation.
- Innovating the assessment and monitoring of the outcomes of apprenticeships.
- Providing strategic guidance and practical support for innovation in apprenticeships.

Inclusiveness and equity

- Mainstreaming inclusion and equity.
- Developing a direct route to a final apprenticeship assessments and qualifications.
- Developing further learning opportunities for qualified apprentices.

1 Key insights and recommendations for the Scottish apprenticeship system

This chapter provides a summary of the key findings and recommendations from the report. It provides a brief description of the importance of investing in apprenticeships and an overview of the Scottish apprenticeship system. It then summarises the recommendations from the report in three key areas: 1) strengthening the apprenticeship system to be more responsive; 2) innovating apprenticeships; and 3) making apprenticeships work for all.

1.1. Key insights on the Scottish apprenticeship system

Increasing the resilience of the Scottish economy will be key to the coming years, especially in light of the COVID-19 pandemic and global trends such as the green and digital transformation. This will require a continued commitment to increasing productivity and ensuring inclusive growth and fair work. Scotland's apprenticeship system has the potential to contribute to this task and help meet the challenges ahead, by building a solid foundation for the Scottish skills system. While the Scottish apprenticeship system has made remarkable progress in recent years, improvements could be made to increase its responsiveness, quality, innovation and inclusiveness. With the momentum created by the Scottish Government's new 10-year National Strategy for Economic Transformation, now is the time for Scotland to turn its attention to addressing these changes.

The importance of apprenticeship in a changing labour market

Scotland (United Kingdom) is experiencing changing demand for skills, a process that will only accelerate with digitalisation and automation, an ageing population, and the transition to a low-carbon economy. Changes in employment practices and declining employer support for training mean that training programmes like apprenticeships are increasingly important not just for youth but for adults needing to upgrade their skills.

Apprenticeships are an important driver of social inclusion in Scotland, especially for those from the most disadvantaged backgrounds. Not only do they provide good labour market outcomes for the young people who complete them, but their focus on work-based learning means they offer a good grounding in both the hard technical skills and the softer interpersonal skills that are increasingly in demand. Apprenticeships benefit employers, by cutting recruitment costs and potentially driving innovation. However, to reap those benefits, the apprenticeship system needs to offer high-quality training in the skills the labour market needs, and support employers to offer a wide range of apprenticeship jobs[1], especially as the economy recovers from the impact of the COVID-19 pandemic. Annex A of this report provides further details of key trends shaping the apprenticeship system.

The apprenticeship landscape in Scotland

Scotland has expanded its apprenticeship system in recent years, developing new types of apprenticeship at different education levels: Modern Apprenticeships (MAs), Foundation Apprenticeships (FAs) and Graduate Apprenticeships (GAs). MAs are the "typical" apprenticeship: industry-designed programmes offering a mix of work and on-the-job training and (usually) off-the-job training, delivered mostly at SCQF levels 5 to 7 (i.e. broadly consistent with level 3 in the International Standard Classification of Education (ISCED), or the upper secondary level) - although some higher-level MAs also exist. FAs, introduced in 2014, are a work-based learning option for upper secondary students, delivered alongside traditional school qualifications. GAs, launched in 2017, are employer-based four-year apprenticeship programmes that lead to a university degree. Modern and Graduate Apprentices are employees, with all the rights that status entails, but Foundation Apprentices are not. Apprenticeship outcomes are generally strong, and progress has been made on increasing the inclusiveness of the system. Until the COVID-19 crisis, apprenticeships were seeing rising numbers of starts, with GAs in particular expanding rapidly since their introduction (see Figure 1.1 below).

The governance of the apprenticeship system in Scotland is complex, with multiple stakeholders involved. The key bodies include (see Annex A for a comprehensive list of actors):

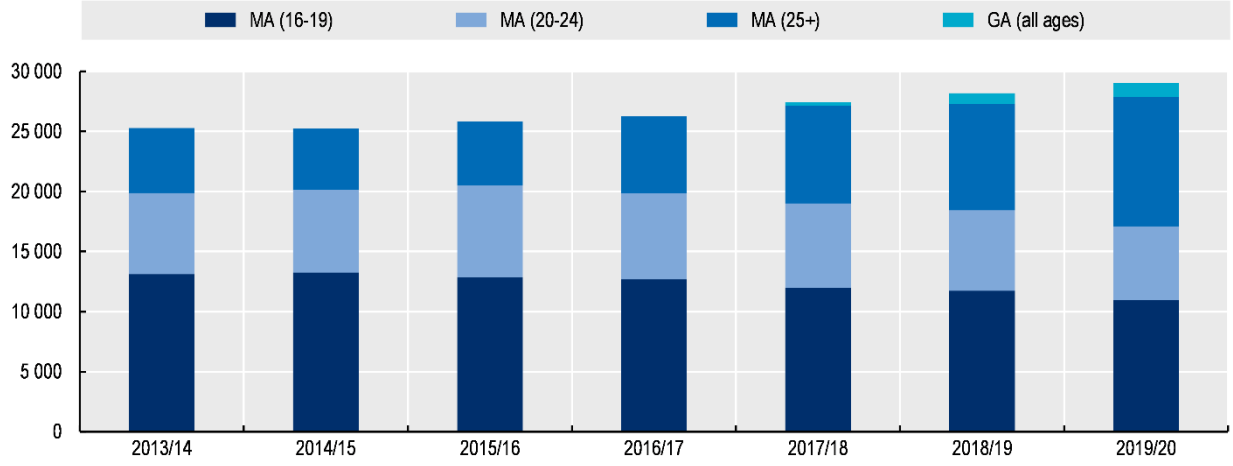
- Scottish Government, which sets policy, targets and budget for apprenticeships and provides skills agencies with guidance.
- Skills Development Scotland (SDS), which manages and funds the delivery of MAs.

- The Scottish Funding Council (SFC), whose main statutory function is to secure and fund coherent, high quality further and higher education by colleges and universities in Scotland including FAs[2] delivered in colleges and GAs.
- The Scottish Qualifications Authority (SQA) Accreditation which is the Scottish Qualifications regulator charged by Scottish Government to accredit and regulate the main qualification included in an MA and FA.
- The Scottish Qualifications Authority (SQA) Awarding Body which is responsible for developing, maintaining, and improving qualifications included in an MA or FA, and the quality assurance of education and training establishments which offer SQA qualifications.
- Quality Assurance Agency (QAA) Scotland which is responsible for monitoring the quality of GA delivery.
- Education Scotland who has been commissioned by the Scottish Government to undertake external reviews of the off-the-job and on-the-job training elements of Modern Apprenticeship (MA) programmes, within each of the industry sectors.
- The Scottish Apprenticeship Advisory Board (SAAB), which acts as the voice of employers in the system and set out the main principles underpinning apprenticeships, and the Apprenticeship Approval Group (AAG), a subgroup of SAAB, which ensures efficiency, coherence and quality assurance within the apprenticeship approval process.

The main supporting policy is Scotland's 2014 youth employment strategy, *Developing Scotland's Young Workforce*. Each occupation has an industry-specified apprenticeship framework, providing guidance on the content of apprenticeships within that occupation. Under the new apprenticeship development approach via Technical Expert Groups, apprenticeships will have standards defining the knowledge, skills and behaviours needed to achieve a given qualification level. Further details about the Scottish apprenticeship system are included in Annex A of this report.

Figure 1.1. Apprenticeship starts have increased in Scotland up until the COVID-19 pandemic

Evolution of apprenticeship starts



Note: Data for Foundation Apprenticeships can be found in Annex A.
Source: SDS (2022[1]), Modern Apprenticeship Statistics Up to the end of quarter 3, 2021/22, https://www.skillsdevelopmentscotland.co.uk/media/48909/modern-apprenticeship-statistics-quarter-3-2021-22.pdf; SDS (2021[2]), Modern Apprenticeship Statistics - Up to the end of quarter 4, 2020/21, https://www.skillsdevelopmentscotland.co.uk/media/48680/modern-apprenticeship-statistics-quarter-4-2020-21.pdf.

Challenges and opportunities related to responsiveness, innovation and inclusiveness

Scotland has taken a number of steps to improve the governance of the apprenticeship system in an effort to make the system more responsive. Most notably, the Scottish Apprenticeship Advisory Board (SAAB) was established and has developed a set of 14 principles to help define apprenticeships more clearly. Although SAAB and other associated groups are employer-led bodies, in general, employers' active participation in the apprenticeship system is relatively limited, in particular among micro, small and medium-sized enterprises (MSMEs). Although Scottish employers acknowledge the importance of work-based learning, only 16% of employers currently offer apprenticeships. This is comparable to other countries in the United Kingdom, but much lower than in leading apprenticeship countries such as Germany and Switzerland. SAAB has responsibility for strengthening employer engagement, including among those not represented by the main employer organisations, but has limited powers and lacks the capacity to give employers a leading role in the apprenticeship system. Moreover, there are few incentives to encourage employers to either offer apprenticeships or to get more involved in the governance of the apprenticeship system. In addition, the current funding system for modern apprenticeships in Scotland can give learning providers disproportionate influence over the mix and scale of places on offer, which could mean that the system partially reflects which apprenticeships are easy or cost-effective for the provider to offer, rather than what employers, trainees, or the overall economy needs. Chapter 2 describes these challenges in detail, as well as the actions taken in Scotland, international good practice examples, and detailed recommendations for making the apprenticeship system more responsive.

To further expand and strengthen the apprenticeship system, Scotland could make greater use of innovation and technology. Smarter use of data could help to align the apprenticeships on offer with current and future labour market needs, as well as identifying those young people and adults who would benefit most and making it easier to match potential apprentices to training places. More and better data can also facilitate the long-term monitoring of apprenticeship outcomes. New and emerging technologies could also improve the delivery of vocational training, including the use of virtual reality to allow students to develop practice-oriented skills, and advanced analytics to identify those learners at risk of dropping out, enabling early interventions. Innovations in assessment could also help with hard-to-measure skills and make it easier to manage the complex portfolios of evidence that apprentices, employers and learning providers need to keep track of. Such innovation works best when it is developed in partnership – with employers, trainers, awarding bodies and apprentices themselves, as well as technology companies and researchers. Scotland already has some interesting initiatives underway in this area which could be further developed and improved. Chapter 3 describes these opportunities and initiatives implemented in Scotland and other countries, together with detailed recommendations for innovating the Scottish apprenticeship system.

By allowing people to combine learning and earning, apprenticeships can be a powerful tool for improving inclusion and equity, whether it is helping young people make the transition to the world of work, or reskilling or upskilling workers. Making apprenticeships work for all means reducing barriers to accessing them through targeted support for different groups. Adults may have different needs and preferences to young learners. Scotland's flexible apprenticeships mean that it is easy to accelerate programmes for workers who already have some experience, but there is no route to allow the most highly skilled workers to bypass unnecessary training and gain an apprenticeship qualification directly. Moreover, there are no obvious routes for progression after completing an apprenticeship, with no equivalent to the "master craftsperson" qualification that provides a structure for career development and lifelong learning in some apprenticeship systems. Making apprenticeship work for all also means ensuring that funding is equitable. Currently, Scotland's funding system disproportionately favours higher education over apprenticeships. While higher education is fully funded, employers have to bear some of the training costs involved in Modern Apprenticeships, especially for older adults. This may be reducing the number of apprenticeships available, leaving skill gaps that MAs would be otherwise well placed to fill. Chapter 4 describes these challenges in detail, as well as the actions taken in Scotland, international good practice examples, and detailed recommendations for making the apprenticeship system more inclusive.

1.2. Key recommendations for strengthening the apprenticeship system

This report provides detailed recommendations within each chapter for Scotland to build a roadmap for the future apprenticeship system with the aim of shaping a solid foundation for expanding the provision of apprenticeships in the long term. A structured and systemic approach should be taken to implement the following recommendations as a coherent policy package. The recommendations are summarised below.

Strengthen the apprenticeship system to be more responsive (Chapter 2)

Strengthen the role of employers in the apprenticeship system (Section 2.1): Scotland should encourage and support employers to play a more central role in the apprenticeship system. Employers that could benefit from apprenticeships, and particularly MSMEs, should be supported by well-designed incentives and other support mechanisms. This will improve their capacity to provide apprenticeships, and also encourage and support them to be involved in the entire process of design, development and assessment of apprenticeship programmes. Much progress has been made in involving employers in the Scottish apprenticeship system, including the establishment of SAAB and other employer-led groups. Nonetheless, SAAB could play a stronger role in employer engagement, particularly by scaling up its efforts to reach out to employers from different sectors and sizes, increasing co-ordination and co-operation with other relevant stakeholders, and improving apprenticeship governance. To achieve this, SAAB will require more support to increase its capacity and influence.

Build a more demand-led apprenticeship system (Section 2.2): The scale and mix of apprenticeship provision should be driven by demand from employers and apprentices, while retaining an element of targeted funding to achieve strategic policy objectives. Such a demand-led approach would require an update or modification of the existing funding model to align it better with the needs of employers. Apprenticeship provision in Scotland has been mediated to some degree by learning providers, who may be biased towards those programmes which are easier and less costly to provide. In contrast, in many leading apprenticeship countries, provision is determined by demand from employers and learners. Such a demand-driven apprenticeship system would need to be supported by standards and frameworks that can be easily adapted to align with changing labour market needs, and a vocational teaching workforce with up-to-date technical skills.

Establish minimum requirements for apprenticeships (Section 2.3): Scotland should define minimum requirements for apprenticeships to ensure quality without losing responsiveness and flexibility. Currently, Scotland sets no minimum requirements for the length of apprenticeship programmes or the proportion of off-the-job training. Such requirements could guarantee a certain level of training quality. There are also no specific requirements or training available for in-company trainers. All these elements need to be defined and agreed, while maintaining certain elements of flexibility such as recognition of prior learning or fast tracks for experienced workers to shorten training where appropriate.

Innovate apprenticeships (Chapter 3)

Further expand and promote apprenticeships by using technology and innovation (Section 3.1): Scotland could engage more potential learners and employers and facilitate training through greater use of innovation. While Scotland is doing relatively well in the use of data analytics and online platforms to help match and connect potential apprentices and employers, it could do more to promote technology-enabled apprenticeships. When doing so, Scotland should build employers' technological capability, keep them strongly engaged in the development of systems, and help learning providers and trainers to find the right balance between in-person teaching and technology-enabled training. Using learner performance analytics on progression and strengthening the pedagogical skills of teachers and trainers to make effective use of technology in apprenticeships can help in this area.

Innovate the assessment and monitoring of apprenticeships (Section 3.2): Technology can offer more time- and cost-effective ways of assessing practice-oriented skills, helping to streamline the

assessment process. Significant untapped potential remains in this area, however. For example, technology can help reduce the work of trainers and assessors by supporting assessment tasks and can be used to set up an apprentice skill and qualification management system. Blockchain technology and micro-credentials such as digital badges can also open new avenues for credentialing in apprenticeships. In terms of monitoring apprenticeship outcomes, Scotland made significant progress in using data to monitor both the education and labour market outcomes of apprentices, as well as the costs and benefits for employers, for example, through working on the Education and Skills Impact Framework. Scotland could go further by regularly monitoring longer-term outcomes, costs and benefits, and refining apprenticeship design and delivery based on the results. In addition, Scotland could monitor how technology is used in apprenticeships and how that use contributes to the improvement of the quality of apprenticeship.

Provide strategic guidance and practical support for innovation in apprenticeships (Section 3.3): Scotland has developed several strategies that can help innovate Scottish apprenticeships. However, to translate these into practice, providers need strategic guidance and practical assistance and partnerships for apprenticeship innovation should be encouraged. Scotland could encourage education technology companies and developers to co-create with teachers, students and employers digital tools and materials for apprenticeships that are relevant, affordable, scalable, inter-operational and easy to use. Moreover, employers, training providers and research institutions should be encouraged to share knowledge, resources and tools on applying innovative approaches and available technology to apprentice training. Scotland can build on its ongoing efforts for the use of technology in apprenticeship delivery.

Make apprenticeships work for all (Chapter 4)

Mainstream inclusion and equity (Section 4.1): Important steps have been taken to make apprenticeships more accessible by introducing SCQF Level 4 and 5 work-based learning, but more can be done to provide targeted support and fair funding for apprenticeships to make the system work for different groups. Synergies with existing policy packages can be exploited to support targeted groups of learners to participate in apprenticeships. Moreover, the partial subsidy approach to the Modern Apprenticeship funding (which mostly focuses on support for off-the-job training among individuals aged 16-19) is inconsistent with the full subsidy approach for higher education and off-the-job training in Foundation or Graduate Apprenticeships. Therefore, Scotland should provide fully-funded off-the-job training in all apprenticeships. This will contribute to the ongoing efforts of attracting a more diverse and inclusive group of learners to the apprenticeship system.

Develop a direct route to final apprenticeship assessments and qualifications (Section 4.2): Although Scotland has well-established routes to accelerate apprenticeships for those with existing skills, there are very few options for direct access to an assessment leading to the same qualifications as those obtained through apprenticeship. Providing direct access to a final apprenticeship assessment and qualification can serve the needs of experienced workers who have acquired the necessary skills through non-formal and informal learning, and also migrants who have qualifications that may not be recognised.

Develop higher-level vocational qualifications for qualified apprentices with aspirations for further learning (Section 4.3): Building on its successful experience of providing Graduate Apprenticeships at degree levels and Modern Apprenticeships at higher levels, as well as other countries' examples, Scotland should develop master craftsperson qualifications that allow qualified apprentices to acquire higher-level professional skills, learn how to run their own business and allow them to train apprentices of their own.

Key policy recommendations

Responsiveness (Chapter 2)

- Strengthening the role of employers in the apprenticeship system: Provide incentives and support for employers to engage in the system, particularly MSMEs; establish a legal framework for the apprenticeship system; and increase the capacity of SAAB to act as the voice of all employers in the system (Section 2.1).
- Towards a more demand-led funding system for apprenticeships: Pilot and evaluate a demand-led system whereby the mix and number of apprenticeship places is set through labour market demand; offer incentives to employers providing apprenticeships meeting defined criteria; and update standards and frameworks to meet the changing requirements of the economy (Section 2.2).
- Establishing minimum requirements for apprenticeship programmes: Review the general education content of apprenticeships; introduce minimum requirements for programme length and the amount of off-the-job training; define minimum requirements for in-company trainers; and rebrand the entire apprenticeship family as “Scottish Apprenticeships” (Section 2.3).

Innovation (Chapter 3)

- Using innovation to expand and promote apprenticeships: Make better use of labour market intelligence; develop techniques to help identify and match potential apprentices and employers; help employers evaluate their skills and training systems; promote the benefits and provide appropriate guidelines on the use of technology to learning providers and in-company trainers; and provide professional development to teachers and trainers (Section 3.1).
- Innovating the assessment and monitoring of apprenticeships: Maximise the effective use of existing technology in assessment and certification; and refine apprenticeship instruments based on ongoing and future monitoring results (Section 3.2).
- Providing strategic guidance and practical support for innovation in apprenticeships: Do more to translate national strategies into practical guidance and assistance; encourage learning providers and employers to develop innovation plans; and encourage collaboration and partnerships to create digital tools (Section 3.3).

Inclusion and equity (Chapter 4)

- Mainstreaming inclusion and equity: Ensure that the full range of apprenticeships are accessible to all; pilot and evaluate fully funding Modern Apprenticeships for all ages; and roll out to all sectors accordingly (Section 4.1).
- Developing a direct route to a final apprenticeship assessments and qualifications: Clearly define a direct route to appropriate apprenticeship qualification; set the amount of work experience required; and designate a responsible body to administer the assessments (Section 4.2).
- Developing further learning opportunities for qualified apprentices: In liaison with the Welsh Government, pilot the development of a master craftsperson qualification, and develop an appropriate funding model (Section 4.3).

Box 1.1. About this study

Objectives

This study aims to provide guidance to Scotland on how to strengthen its apprenticeship system in the face of changing labour market needs. Phase I (2019-20) of the study provided policy recommendations on how to design and implement high-quality resilient apprenticeships (Field, 2020[3]). Phase II (2021-22) drew out policy recommendations on how strengthen to the apprenticeship system in two areas: 1) strengthening the role of employers; and 2) making effective use of innovative technology in the delivery of apprenticeships. This report synthesises all the policy recommendations from the two phases for building a responsive, innovative and inclusive apprenticeship system in Scotland.

Methodology

The report draws on Scotland's data and stakeholders' views as well as comparative data and the experiences of several OECD countries to distil policy messages. The information for this report was gathered through:

- **Data analysis and literature reviews:** Key data sources include publications and data produced by SDS the Scottish Government, the Scottish Employer Skills Survey (2020), Employer Perspective Survey (2019) and relevant international statistics.
- **Stakeholder interviews and workshops:** The OECD review team gathered inputs from remote bilateral interviews with stakeholders in Scotland, including SDS and SAAB, and other countries to explore future strategies to strengthening the apprenticeship system in Scotland. Inputs were also collected through workshops organised in collaboration with SDS.
- **Inputs and review by the Group of National Experts on VET (GNE-VET):** The OECD team gathered inputs from members of the GNE-VET through remote interviews and workshops, and written feedback.

Scope

This report focuses on apprenticeships at Scottish Credit and Qualifications Framework (SCQF) Level 4-11 (i.e. International Standard Classification of Education Levels 2-7; or secondary and tertiary education).

References

Field, S. (2020), *Strengthening Skills in Scotland*, OECD, Paris, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf. [3]

SDS (2022), *Modern Apprenticeship Statistics Up to the end of quarter 3, 2021/22*, https://www.skillsdevelopmentscotland.co.uk/media/48909/modern-apprenticeship-statistics-quarter-3-2021-22.pdf. [1]

SDS (2021), *Modern Apprenticeship Statistics - Up to the end of quarter 4, 2020/21*, https://www.skillsdevelopmentscotland.co.uk/media/48680/modern-apprenticeship-statistics-quarter-4-2020-21.pdf. [2]

Notes

[1] The report uses the term “apprenticeship jobs” when referring to opportunities provided by employers, and “apprenticeship places” when referring to opportunities provided by learning providers.

[2] Since 2021, the Scottish Funding Council took the responsibility of financing Foundation Apprenticeships that have college-based learning.

2 Making the Scottish apprenticeship system more responsive

This chapter explores the key challenges and policy responses involved in making the apprenticeship system in Scotland (United Kingdom) more responsive to labour market needs. It focuses on the role of employers in the apprenticeship system and identifies measures to strengthen employer engagement in Scotland. The chapter also examines the need to refine the minimum requirements for apprenticeship programmes.

The importance of responsiveness in the apprenticeship system

Apprenticeships need to be aligned with evolving labour market needs to ensure that they remain relevant to both employers and apprentices in a changing world of work. It is crucial that the design and development of apprenticeship systems make use of up-to-date information on skill needs, based on a range of data sources and stakeholder inputs. Moreover, strong engagement with social partners, i.e. representatives of employers and workers - usually employer organisations and trade unions, can contribute to ensuring that apprenticeship programmes are relevant and up to date.

A responsive apprenticeship system is one where the scale, scope and direction of apprenticeship provision are regularly calibrated against labour market requirements. More concretely, it means that the range of apprenticeship provision, across sectors, regions, programmes and age groups, is strongly determined by employer demand. A responsive apprenticeship system also seeks to balance long-term and short-term needs. That is, the system should be able to plan for training and skills needs that are of strategic policy importance – also considering the time needed to develop skills – while at the same time responding to immediate labour market needs.

Employer engagement in the apprenticeship system is therefore key. Employers can inform education and training providers about the skills the labour market needs both now and for the longer term, helping them to design and implement apprenticeship curricula that are relevant to such needs. The British Standard Institution (BSI) Review of Apprenticeship Governance in Scotland identified the need to involve employers in all aspects of apprenticeship governance as key to the transition to a new apprenticeship governance system (BSI, 2020[1]).

The Scottish Government has launched several initiatives to strengthen and improve apprenticeship governance so as to involve labour market actors more effectively and systematically:

- **Developing the Young Workforce – Youth Employment Strategy** to improve young people's transition into employment with a focus on the role of vocational education in reducing youth unemployment (developed by Scottish Government in 2014). SAAB was set up following this plan.
- **The Scottish Apprenticeship Advisory Board (SAAB)** was created in 2016 to provide employer leadership and contribute to the development of apprenticeships in Scotland. In 2019, the SAAB, supported by SDS, articulated a set of 14 principles, based on existing practice, international models and a wider stakeholder consultation exercise. These have helped define apprenticeships more clearly for all stakeholders (Box 2.1).
- **A reform of the strategy and approach to standards and frameworks to an employer-led approach**. The apprenticeship development model is built through three stages (evidence and inputs, development, and documentation and approval), involving SAAB, Technical Expert Groups (TEGs) and Apprenticeship Approval Group (AAG), all of which are led by employers. These stages are supported by the Provider Group (made up of learning providers) and the Qualifications Design Group (made up of awarding bodies, providers and the regulator).
- **The Enterprise and Skills Review (ESR) to improve co-ordination in the skills system**: The ESR seeks to align the relevant functions of Scottish Funding Council (SFC) and Skills Development Scotland (SDS) to ensure that Scotland's agencies are able to equip Scotland's people and businesses with the right skills and experience to succeed in the economy, not just now but in the future. The Scottish Government, working closely with SDS and SFC, have identified a set of key elements of an aligned skills system, which include a single set of strategic skills guidance from Government to the Boards of both agencies which supports the delivery of the Enterprise and Skills Strategic Board's Strategic Plan; a Skills Committee of the Strategic Board which informs joint delivery by both agencies and provides a joint decision making forum; and a joint team led by a single director reporting to the Chief Executives of both agencies. Moreover, the Scottish Government is working closely with SDS and SFC to jointly deliver a skills planning

and provision model which i) identifies skills needs in partnership with industry, other agencies, local government and the Enterprise and Skills Analytical Unit; ii) works with colleges, universities and training providers to respond to skills needs; iii) co-ordinates investment; iv) monitors and manages performance; and v) reviews and evaluates impact in partnership with the Analytical Unit. (Scottish Government, 2017[2]).

- **Implementation of the key drivers to transition to a new apprenticeship governance system,** as identified by the BSI (Box 2.2). These include involving employers in all aspects of Scottish apprenticeship governance.

These initiatives, and increased co-operation between the various bodies, are promising signs for the future of apprenticeships in Scotland and show that the need for a stronger employer-driven system has already been widely recognised. However, fully implementing such a system is likely to require more radical reforms than have so far been envisaged.

Box 2.1. The 14 principles of the Scottish Apprenticeship Advisory Board

1. All post-school apprentices are employed.
2. Each apprenticeship is a programme of work-based learning designed to develop competence in a defined occupation and apprenticeship pathway.
3. Apprenticeships are available across a wide range of sectors where there is demonstrable industry demand.
4. Apprenticeships support inclusion and diversity and are designed to ensure there are no unnecessary barriers to learning or assessment.
5. Apprenticeship frameworks are based on occupational standards and integrate professional standards where necessary.
6. Standards, frameworks and qualifications are defined by industry which adapts to emerging and future needs.
7. Apprenticeships offer internationally recognised, accredited or externally quality assured vocational, technical and professional qualifications with clear pathways for progression.
8. Each apprenticeship framework describes the required learning content and method of learning and assessment.
9. The qualifications included in apprenticeship frameworks are designed to develop transferable skills.
10. Each apprentice is supported in the workplace by a competent mentor and in their learning and assessment by a qualified trainer/ educator/ assessor.
11. Apprenticeship learning is delivered to fit the requirements of the apprenticeship framework, the needs of the business and the individual's pace of learning.
12. Employers and apprentice roles and responsibilities are clearly set out in an apprenticeship agreement.
13. Apprenticeships are underpinned by robust quality assurance processes.
14. Apprenticeship Framework documentation is clear, accessible and easy to understand.

Source: SAAB (2019[3]), Scottish Apprenticeship Advisory Board's Definition of an Apprenticeship. Recommendations to the Minister, www.stf.org.uk/wp-content/uploads/scottish-apprenticeship-advisory-boards-definition-of-an-apprenticeship.pdf.

2.1. Strengthening the role of employers in the apprenticeship system

Employers should be given the opportunity to play a role throughout the entire apprenticeship policy cycle and process. This requires sufficient empowerment, incentives, resources and support, but also regulations on quality assurance of the training process, fair work and equity. The governance of apprenticeship systems therefore needs to include employers, trade unions/federations, government, providers, apprentices and qualification/education bodies.

Scotland acknowledges the need to effectively engage with employers to ensure that apprenticeships evolve with a changing labour market, and has or is currently implementing, several measures, including SAAB's 14 principles (Box 2.1) and several of the BSI recommendations (Box 2.2). However, to systematically boost apprenticeships in the long term, Scotland will need to make further changes. SAAB's principles have helped to clarify some of the basic principles of apprenticeships, but they could be taken further. As a minimum, these principles need to be used more consistently across the entire apprenticeship system. While the Apprentice Approval Group (AAG) considers these principles to be useful in terms of ensuring quality assurance of apprenticeships, BSI pointed out that more work needs to be done by all stakeholders in the apprenticeship ecosystem to explore the principles in more detail and jointly agree on "what constitutes as evidence in demonstrating the desired outcomes for each principle" (BSI, 2020[1]).

Box 2.2. Key drivers to transition to a new apprenticeship governance system in Scotland

BSI identified the key drivers that can support the transition to a new apprenticeship governance system. These include:

- Involving employers in all aspects of Scottish apprenticeship governance to ensure that, from design to delivery employer needs are considered and reflected appropriately.
- Making the development of standards and frameworks more current and relevant to the occupation, building upon employee input.
- Making use of employee input to build upon the best practice of actual work situations.
- Updating evidence and directly engaging with employers, social and professional partners to reduce process time (contracted model to evolving Technical Expert Groups (TEG) model).
- Integrating meta-skills into apprenticeship development at all levels.
- Addressing fair work practices in the design and development of Scottish apprenticeships.
- Ensuring efficiency, coherence and quality assurance in the apprenticeship approval mechanism through the Apprenticeship Approval Group (AAG).
- Addressing the lack of apprenticeship coverage in some occupations by direct engagement with all relevant employers from any sector.
- Strengthening alignment with functions of governance: development (TEG), approval (AAG) and leadership (SAAB SFG) alignment to ensure that the system delivers coherence across Scottish apprenticeships.

Source: BSI (2020[1]), *Supporting the Development of Apprenticeships in Scotland: Review of the Apprenticeship Governance System.*

2.1.1. Supporting an expanding role of employers in apprenticeships

Challenge: Scottish employers' engagement in apprenticeships is limited

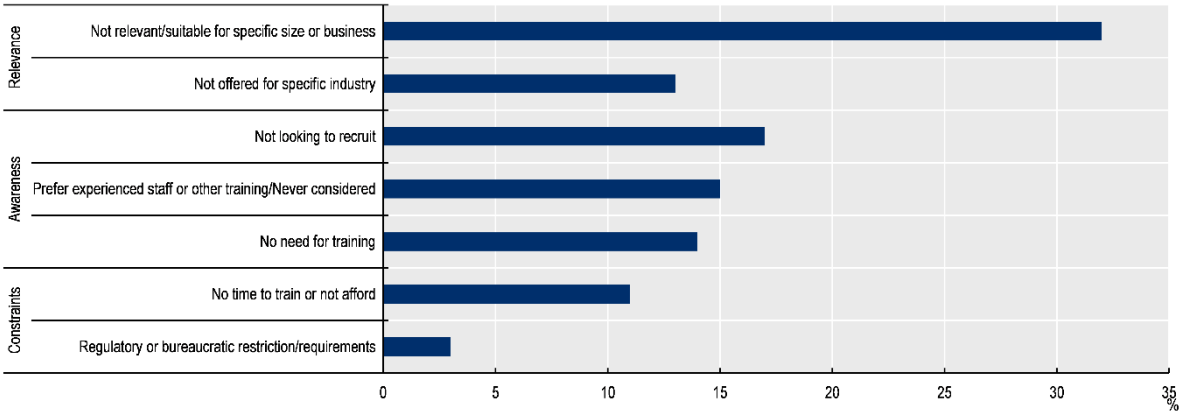
Employers can engage with the apprenticeship system either simply by offering apprenticeship jobs, or by becoming more deeply involved with the design, development and governance of the system. Under both measures, Scotland is underperforming relative to leading apprenticeship countries. According to the *Scottish Employer Perspectives Survey 2019*, about 16% of employers were offering apprenticeships at the time of the survey, unchanged from 2016 (IFF Research, 2019[4]). The survey estimates that 26% of the employers could potentially offer apprenticeships in the future. Despite these low levels, many employers value apprenticeships. For example, in a survey by Open University in 2020, 50% of Scottish employers acknowledged that apprenticeships and work-based learning would be vital to their organisation's recovery over the next year (Open University, 2020[5]). Given employers acknowledge the benefit of apprenticeships, there may be systemic barriers preventing them from making use of the system – in addition to the continuing effects of the COVID-19 pandemic.

The level of employer engagement in Scotland is generally similar to other countries in the United Kingdom: 19% of establishments were offering apprenticeships in England (United Kingdom) in 2019, 16% in Wales and 12% in Northern Ireland (IFF Research, 2020[6]). The distribution of engagement by firm size is also similar, as explored in Section 2.1.3 below. However, it is lower than in leading apprenticeship countries. About 24% of employers in Switzerland (gfs.bern, 2021[7]; gfs.bern, 2020[8]) and 21% in Germany provided apprenticeship opportunities in 2019 (BIBB, 2021[9]). However, no direct comparison is possible due to differences in governance and quality assurance mechanisms imposed on employers to train apprentices. For instance, only about half of German employers are eligible to offer apprenticeships.[1]

It is important to understand why employers do not engage in the apprenticeship system. Among Scottish employers not offering apprenticeships, one-third do not see apprenticeships as relevant to or suitable for their size or business (Figure 2.1). In more detail, 20% of these employers felt that apprenticeships are not suitable for a business of their size (20%) − a reason that was primarily cited by smaller employers with fewer than 10 employees – while 7% thought them not suitable for their specific business model and 5% not relevant to their specific business (5%). In addition, 13% had a perception that apprenticeships are not offered for their industry. These reasons may reflect a lack of information among employers about the range of apprenticeship frameworks applicable and how they can be tailored to their needs (IFF Research, 2019[4]), as well as a limited understanding of the benefits that apprenticeships can bring to employers.

Figure 2.1. Perceived lack of relevance is the main reason employers do not offer apprenticeships

Share of employers who do not offer apprenticeships by perceived reason



Note: The base number is all employers who do not offer apprenticeships (=2 028).
Source: Re-categorised based on IFF Research (2019[4]), *Scottish Employer Perspectives Survey 2019*, https://www.gov.scot/publications/scottish-employer-perspectives-survey-eps-2019-research-report/pages/9/.

The limited number of apprenticeship offers is in line with employers' relatively weak willingness or capacity to participate in the process of design, development, assessment and promotion of apprenticeships. Table 2.1 provides an assessment of the level of employer engagement in governance of the system in comparison to leading apprenticeship countries. This assessment suggests that active participation of employers is less apparent in some areas and is overall somewhat fragmented and inconsistent. As mentioned above, Scotland is working actively towards an employer-led apprenticeship system with the introduction of TEGs, the AAG and SAAB, which are employer-led bodies, and further measures to strengthen the system are underway. However, as discussed in Section 2.1.2, changes to the funding structures of some employer representative bodies, particularly the Sector Skills Councils, has reduced their operations and affected their ability to give all employers a voice in the system.

Table 2.1. Employer engagement in apprenticeship governance relative to leading countries

	Employers' potential roles	Level of engagement relative to leading apprenticeship countries (evidence in parentheses)
Policy advice	Determine the skills (& levels) apprentices need in order to succeed in the labour market.	**High** (SDS Labour Market Intelligence fed by employers; SAAB looks at market evidence)
	Develop, update and advise on training standards, relevant laws, measures, infrastructure and technologies.	**Low to moderate** (SAAB, TEGs and AAG work on this in co-ordination with SDS, however, there is no legal framework to ensure stability and consistency)
Governance of apprenticeship	Design and develop apprenticeships	**Moderate to high** (Newly created TEG that is employer-led)
	Define apprentice wages	**Moderate** (Minimum wages are defined by the Low Pay Commission, which includes social partners)
	Finance apprenticeships	**Moderate** (see Section 2.2)
	Approve and register apprenticeship training and/or employers that provide apprenticeships	**Moderate** (AAG, registration is largely done by providers. Approval for training employers is absent)

	Employers' potential roles	Level of engagement relative to leading apprenticeship countries (evidence in parentheses)
	Monitor and assess the quality of provision	**Moderate** (AAG; SAAB is involved in quality assurance mechanism operated by the NTP)
	Promote apprenticeships	**Moderate** (SDS/SAAB and diverse levels of employer/ professional associations do, but mainly focused on large companies)
Delivery/provision of apprenticeships	Supervise and monitor company-based training	**Moderate to high** (Employers play a major role but provider-led cases are reported)
	Pay apprentice wages	**High** (Apprentices are employees and employers are responsible to pay the wage)
	Assess/examine/certify the students' skills levels	**Low** (Assessment, examination and certification are largely done by providers and assessors, and there is little employer involvement)
	Benefit from apprenticeships	**Moderate** (16% of employers take on apprentices)

Note: The reference countries that are considered high in this assessment include Austria, Denmark, Germany and Switzerland.
Source: OECD's assessment based on stakeholder interviews and stakeholder engagement meetings in Scotland; Employer Perspective Survey.

In Austria and Germany, employers play a particularly important role in the governance of the apprenticeship system, mainly through chambers of commerce and industry. The involvement of these chambers in apprenticeship is regulated by law. In these countries, employer bodies and employee representatives are together essentially in charge of taking decisions about the curricula, structure and content of apprenticeship training. They also have other responsibilities, such as accrediting companies, monitoring in-company training, organising the practical parts of the apprenticeship exam, and supporting companies and providing information about apprenticeship training (Cedefop, 2019[10]). In Switzerland, the involvement of professional organisations (trade and employer organisations and trade unions) is also required in apprenticeship policy making by law. These organisations have a leading role in the content and examination process and draft core curricula and examination rules (e.g., admission requirements, occupational profiles, the knowledge and skills to be acquired, and qualification procedures) (OECD, 2014[11]).

Two broad factors prevent employers from engaging more strongly in both the design and the delivery of apprenticeships in Scotland:

- **Scotland offers relatively few incentives and limited support for employers to offer apprenticeship jobs.** Many OECD countries offer financial and non-financial incentives for employers to promote apprenticeship provision. These can be built into legislation and employer-driven apprenticeship governance or be implemented through a variety of measures. Scotland has some measures to support employers' apprenticeship offers, but these do not explicitly provide incentives to deliver apprenticeships. Two quite different schemes offer financial support to employers offering apprenticeships to specific target groups: Adopt an Apprentice and Access to Work payments (Field, 2020[12]).[2] However, the Adopt an Apprentice scheme is aimed at retaining existing apprentices under certain circumstances (such as economic downturns) but not engaging new apprentices in a normal business environment, so will not increase the number of apprenticeships on offer. Access to Work payments are not specifically targeted at apprenticeships and narrowly targets those with learning difficulties. In recognition of the challenges employers faced during the COVID-19 pandemic, the Apprenticeship Employer Grant (Table A.4) offered financial support for taking on an apprenticeship in 2020, but this is no longer available. Moreover, the support measures that do exist are often hard to navigate as they are scattered and cover more than just apprenticeships. Information on the take-up of existing financial

support for employers is not readily available for evaluation and further improvement, partly because some of the relevant funding responsibility now sits with local authorities.

- **The apprenticeship system does not mandate strong employer engagement**. Unlike many OECD countries, including many EU member states as well as Canada, Korea and the United States, Scotland has no legal basis for employer engagement in apprenticeship. SAAB's 14 principles only define employers' roles and responsibilities broadly. Standards and documentation define them in more detail but are not binding. Nor do the current conditions and principles that define apprenticeships ensure consistent and systemic support for employers, which is one of the reasons why there are so few support measures and incentives available. A strong legal framework could provide a more consistent foundation for funding and policy measures and set out a long-term vision for stakeholder engagement which could empower employers to become more involved in the apprenticeship system.

The next sub-section describes how employers could be effectively supported and encouraged to offer more apprenticeships, while the sub-section that follows explores how a legal framework could underpin such support mechanisms and encourage greater engagement.

Providing effective support and incentives for employers

There are several instruments that could be used to tackle the main barriers to providing apprenticeships:

- Some employers could be given financial support to compensate for the costs incurred by taking on and training apprentices (see Box 2.3 for examples). It is important to note that the evidence on the effectiveness of financial incentives for employers is mixed and thus they should be well-targeted to minimise deadweight loss and piloted and evaluated to assess costs and benefits. They should also be combined with assistance for micro, small and medium-sized enterprises (MSMEs) that may lack the capacity to access and effectively use such financial incentives (OECD, 2018[13]).
- Intermediary agencies could facilitate the process of starting and managing apprenticeships, alleviating some of the administrative burden that falls on employers who take on apprentices (see Sections 2.1.2 and 2.1.3).
- Employers can be encouraged to set up joint networks to provide the comprehensive training standards and frameworks require. Sharing or rotating apprentices can increase employers' capacity to train apprentices, while also making their training more relevant (see Section 2.1.3).
- Guidance and tailored advice can be offered by various stakeholders, including the Scottish Government, SDS, awarding bodies and learning providers, to better inform employers about apprenticeships and their benefits (see Finland example in Box 2.4). Training can also be provided to help employers effectively manage and deliver apprenticeships (see Section 2.1.3).

Scotland could build on these examples and its own experience and consider providing more unified, transparent and targeted incentives and support to encourage employers (especially small employers and those new to the system) not just to retain existing apprentices but also to take on new ones. Levy funding, in particular the Flexible Workforce Development Fund (FWDF), could be more actively used for this purpose, and also for engaging more employers in the apprenticeship agenda.

Box 2.3. Examples from Europe: Financial incentives and subsidies for employers

Austria: Financial incentives for training employers

Austria provides financial incentives for employers offering apprenticeships:

- **Direct subsidies and grants**: since 2016, every company offering apprenticeships gets a direct public subsidy for each apprentice. This basic subsidy is linked to the apprenticeship wage and is gradually reduced over time in line with the increasing productivity of apprentices.
- **Criteria-based subsidies** are intended to increase quality (e.g. coaching, building training alliances or providing extra preparation for trainers' final examinations or qualifications), and/or foster provision for specific target groups (e.g. by employing apprentices from supra-company schemes). Companies must apply at their local apprenticeship office and provide proof of expenses, and are partly reimbursed up to a set amount.
- **Indirect subsidies:** employers' social security contributions for apprentices for sickness, unemployment and insurance are waived. Tax deductions enable employers to write off training expenditures.

Denmark: Employers' Reimbursement Fund (AUB)

The Employers' Reimbursement Fund is a collective structure that establishes a common fund to spread the cost and benefits of apprenticeship training among its members. All employers in Denmark make a contribution to this fund for each full-time employee. The fund is then used to reimburse employers when their apprentices attend a vocational school.

The Netherlands: Subsidies for training employers

Subsidies are paid to accredited companies that provide apprenticeships, to a maximum of EUR 2 700 per year per apprentice. There must be a valid contract between the education and training institution, the apprentice, and the company. Companies apply for this subsidy to compensate for the cost of work-based training. There are also subsidies at the sectoral level. In addition, companies are also eligible for a EUR 1 000 contribution to the training costs of their apprenticeship supervisors/mentors.

Estonia and Norway: Transfer of resources to firms to compensate for workplace training costs

In Estonia, depending on the apprenticeship contract between the education and training provider (a school in the case of Estonia), the company and the student, the provider can transfer up to 50% of the cost of each study place to the enterprise to cover the salary cost of workplace supervisors (Estonian Ministry of Education and Research, 2017[14]).

In Norway, apprenticeships are part of upper-secondary VET (which starts for most learners at age 16). They are typically organised on a 2+2 basis, with learners spending the first two years in full-time school-based education and the last two years in full-time work-based learning. As such, these programmes are one year longer than most other upper-secondary programmes (which last three years). However, public funding for the apprenticeship programme is in line with other three-year programmes: the state funds the two years of school-based education and provides grants to employers who train apprentices of an amount approximately equivalent to one year of school-based education. Therefore, this model allocates resources from schools to firms without increasing the total cost of provision and is a special type of subsidy based on the cost of VET student education.

Source: Kuczera (2017[15]), Incentives for Apprenticeship, https://dx.doi.org/10.1787/55bb556d-en; Cedefop (2019[10]), Cedefop European database on apprenticeship schemes, https://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/apprenticeship-schemes; Kurt (2019[16]), Companies Engaging in Dual VET: Do Financial Incentives Matter?, https://www.dcdualvet.org/wp-content/uploads/DC-dVET_Discussion-Note-Financial-Incentives.pdf; Cedefop (2021[17]), The Vienna training alliance model – Aid for companies in the Covid-19 crisis, https://www.cedefop.europa.eu/en/news-and-press/news/vienna-training-alliance-model-aid-companies-covid-19-crisis?src=email&freq=weekly;

Box 2.4. Finland: Knowledge sharing on work-based learning

The Finnish National Board of Education together with partners published a manual on transferring innovative work-based learning (WBL) practices. It is designed to help the many providers and stakeholders that are unsure how to select the most appropriate WBL model and apply it in their context. The manual is targeted at a range of different audiences including vocational education and training (VET) providers, colleges, training centres, and employers. It focuses on the process of transforming and innovating VET programmes and WBL practices. It encourages providers to identify good practice from other providers and also offers practical examples of how they can identify where improvements to WBL are required, how to plan to make such improvements and how to deal with changes that have been made.

Source: Musset (2019[18]), "Improving work-based learning in schools", https://doi.org/10.1787/918caba5-en.

Establishing a legal framework for apprenticeship to support employer engagement and underpin incentives and support mechanisms

One route to systematically setting up and underpinning incentives and support measures for stronger employer engagement is the establishment of a legal framework for apprenticeships. As examples from Germany and Denmark show, apprenticeship systems with a "high degree of standardisation and consistency" can motivate employers to be more consistently involved in apprenticeships, and this consistency can be ensured through an established legal framework (Pfeifer, 2016[19]; Chankseliani and Anuar, 2019[20]). A study of five European countries (Ryan, 2000[21]) identified the existence of a strong institutional framework, including a legal framework, as an important condition for the successful implementation of apprenticeship training. A strong legal framework could:

- Provide a foundation for funding and policy measures, enabling the apprenticeship system to expand in a more predictable and stable way.
- Signal Scotland's commitment to apprenticeships, raising their profile.
- Empower and protect employers and apprentices by laying out clear definitions for all aspects of the apprenticeship system, including apprenticeship pathways; the roles and responsibilities of the different actors involved; and the role of government in supporting employers, apprentices and training providers.

In Scotland, Developing the Young Workforce – Youth Employment Strategy (see above) forms the current policy basis for apprenticeships (Scottish Government, 2014[22]), combined with the existing labour and minimum wage laws set by the Low Pay Commission, an independent body that advises the UK Government (insofar as apprentices are employees). However, these frameworks do not sufficiently take into account the dual status of apprentices as students/learners and employees – as well as the role of apprenticeships in upskilling companies' existing employees.

Most leading apprenticeship countries have a strong legal basis that exclusively covers apprenticeships and clearly defines what employers must commit to (Table 2.2). For instance, Austria's Federal Act on the Vocational Training of Apprentices defines apprentices, the duration and end of training, authorised apprenticeship companies and trainers (prerequisites, duties) and also regulates the companies who host apprentices, training alliances, contracts and remuneration, funding, exams and certification. In other countries, apprenticeship legislation is fully embedded into wider VET or education legislation, as in Germany, and the Netherlands, where all aspects of apprenticeships are covered by the Law on Education and Vocational Education of 1995.

Table 2.2. Legal frameworks for apprenticeships in selected countries

	Legal framework for apprenticeships
Austria	1969 Federal Act on the Vocational Training of Apprentices (*Berufsausbildungsgesetz*): the roles of stakeholders involved in apprenticeships are legally defined. The law regulates the amount of training in the workplace, the requirements in terms of equipment and suitability of the trainers etc.
Belgium	Decrees on the system of learning and working of 2008 and dual learning of 2016 in the Flemish Community. Co-operation agreement on alternance training of 2015 in the French-speaking Community.
Denmark	Vocational Training Act (*Lov om erhvervsuddannelser*): details about curricula, duration, remuneration etc. are decided for each programme by the social partners in the trade committees. The 1937 Apprenticeship Act: discussion on the Act resulted in the introduction of trade committees and an apprenticeship council, which were granted a consultative role and also the authority to make decisions. The 1956 Apprenticeship Act: less stringent demands were imposed on the companies that were allowed to employ apprentices.
Germany	1969 Vocational Training Act (*Berufsbildungsgesetz*), amended in 2005, regulates the apprenticeships including requirements for in-company training staff, training companies and the examination system.
Korea	2020 Act on Supporting Industrial Site Work-Study Dual System (see Box 2.5).
Netherlands	1995 Law on Education and Vocational Education and Training (*Wet educatie en beroepsonderwijs*): defines key elements of apprenticeships at system level such as qualification structure, study duration, mix of provision, stakeholder responsibilities in relation to setting up educational programmes and to ensuring learning objectives are in accordance with contractual agreements, leaving the VET institutions a high level of freedom. Dutch Act on Adult and Vocational Education governs adult vocational education.
Norway	The Education Act. The "Reform 94" formally integrated the apprenticeship system in upper secondary education. The main features of Reform 94 were based on a Green Paper (the Blegen Committee of 1991) and a Joint Declaration on Vocational Education and Training in Schools and Workplaces (1990), signed by The Norwegian Confederation of Trade Unions and the Confederation of Norwegian Enterprise.
Switzerland	The Federal Act on Vocational and Professional Education and Training (VPET) states that the Confederation, the cantons, and professional organisations are jointly in charge of governing VPET as well as safeguarding its quality and accessibility (the first act was in 1933 then a new one in 2004). The State Secretariat for Education, Research and Innovation (SERI) is responsible for strategic governance and developing VPET. The cantons put the federal legislation into practice and supervise VPET. Professional organisations (social partners, trade associations and businesses) determine the VPET programmes' subject matter and objectives.
United Kingdom (England and Wales)	2009 Apprenticeships, Skills, Children and Learning (ASCL) Act provides for a statutory framework for apprenticeships and creates a right to an apprenticeship for suitably qualified 16-18 year-olds.
United States	National Apprenticeship Act provides statutory authority for the bodies governing the apprenticeships.

Source: OECD elaboration based on Cedefop (2019[10]), Swiss Conferation (2021[23]), Federal Act on Vocational and Professional Education and Training, https://www.fedlex.admin.ch/eli/cc/2003/674/en. Bøndergaard (2014[24]), The historical emergence of the key challenges for the future of VET in Denmark, http://nord-vet.dk/indhold/uploads/report1a_dk.pdf.

The establishment of a legal framework would require a thorough assessment of associated costs and benefits from the perspective of the long-term goal of developing an apprenticeship system that is more robust, systematic and sustainable but that remains flexible. Caution is needed not to impose too many roles and responsibilities on employers that could discourage them from offering training. Incentives and support measures for employers would be established based on the legal framework, and its foremost objective should be to help employers to meet the various quality requirements and guide them on how to initiate apprenticeships and obtain support from the government or relevant networks.

The design of a legal framework would also require a whole-of-government and stakeholder consultation process with discussion and co-operation among ministers, including, but not limited to, the Minister for Higher Education and Further Education, Youth Employment and Training; the Minister for Just Transition, Employment and Fair Work; and the Minister for Business, Trade, Tourism and Enterprise. Denmark example shows that the adoption of the Apprenticeship Act did not stop the discussions on the legislation governing apprenticeships, but on the contrary, the early period after the adoption of the legislation saw a lively discussion on the design of the apprenticeships (Bøndergaard, 2014[24]).

Recognising the costs and benefits of having and building a legal framework for apprenticeships, several countries that previously had no legal basis for apprenticeships have succeeded in establishing one. For

example, Korea enacted the Act on Supporting Industrial Site Work-Study Dual System in 2020 (Box 2.5). This act defines the roles and responsibilities of employers and other rules that ensure quality apprenticeships (KRIVET, 2019[25]).

A legal framework can come in many forms. An apprenticeship act is not the only way to form or use legal or regulatory instruments to leverage apprenticeships and employer engagement. For example, SAAB members highlighted during OECD consultations that they see value in the development of an employer charter to ensure consistency in the apprenticeship provision and the quality of experience for apprentices. Moreover, if appropriate, existing legislation can embed the apprenticeship elements with a clear aim to strengthen and expand apprenticeship provision.

Box 2.5. Korea: A recent example of establishing a legal framework for apprenticeships

Korea's Act on Supporting the Apprenticeship System in 2020

Like Scotland, Korea has a high share, and an oversupply, of college degree holders. Similarly, its apprenticeships have been led by providers, rather than by industry, leading to skills mismatches. To tackle this, the Korean Ministry of Employment and Labour established an apprenticeship system in 2013 and has been expanding it with an aim of accommodating 120 000 apprentices by 2022. By 2019, about 15 000 companies had offered apprenticeships for almost 94 000 apprentices. Recent initiatives have expanded the apprenticeship target scope from graduates to currently enrolled students in apprenticeship high schools, Uni-Tech and IPP apprenticeships.

For quality purposes, the Act defines employer requirements and selection criteria, and sets restrictions on offering apprenticeships for participating companies. Companies with over 20 employees and appropriate human resources (HR) and training capacity can offer apprenticeships, as can companies of "excellent qualities", or with particular specialties or innovations. Apprenticeships cannot be offered by employers with records of delayed payments, industrial accidents, cancelled apprenticeships and other evidence of negative conduct. The Act also defines requirements for in-company trainers and HR staff of training companies. On-the-job training must make up more than 50% of the total training time, while off-the-job training should make up 20-50%.

Source: KRIVET (2019[25]), Apprenticeship in Korea, www.krivet.re.kr/eng/eu/zc/euZ_prB.jsp?gn=E1%7CE120200898%7C0%7C3.

2.1.2. Strengthening the role of the Scottish Apprenticeship Advisory Board while improving the co-ordination among relevant stakeholders

SAAB works to ensure that apprenticeships are developed to meet industry and economic needs, ensure fair work, and develop job opportunities (Box 2.6). It was created in 2016 following the "Developing the Young Workforce – Youth Employment Strategy", with the goal of developing an apprenticeship system led by employers. It is made up of leading employers and representatives from industry bodies across a range of sectors. It covers apprenticeship policies, standards and frameworks, communications, and funding, and has sub-groups on standards and frameworks, equalities, employer engagement, and apprentice engagement in addition to the group board.

SAAB has taken important steps to ensure it can effectively carry out its many responsibilities. However, many stakeholders, including SAAB members themselves, agree that it needs to be refreshed and strengthened. Given its voluntary nature, both in terms of membership and participation in activities (e.g., meetings, consultations), it has limited power and capacity to increase employer engagement in apprenticeships and ultimately to provide employers with a leading role in the apprenticeship system.

In order to enable employers to take this leading role, the SAAB's first task would be to improve the co-ordination of relevant stakeholders and promote co-operation in the short term. In the longer term, SAAB could be central to the development of a legal framework providing more concrete definitions of stakeholders' roles and responsibilities within the apprenticeship system, in particular for employers (as discussed in Section 2.1.1). Such a framework could provide SAAB with a strong foundation upon which to build a more stable, well-co-ordinated and reactive governance of the apprenticeship system.

This section examines the governance of the apprenticeship system today – i.e., patterns and mechanisms for accommodating interdependence and co-ordinating activities of different actors within the apprenticeship system (Cedefop, 2016[26]) –to understand SAAB's position and function. It discusses ways SAAB could strengthen its role, particularly increasing employer engagement in apprenticeships.

Box 2.6. The structure and remit of the Scottish Apprenticeship Advisory Board (SAAB)

To ensure apprenticeships are demand/employer-led and aligned with industry needs, SAAB carries out multiple functions through specialised bodies.

- **SAAB Group Board**: provides advice and makes recommendations on the guiding principles, operational policy, systems and structures supporting apprenticeships and influences relevant Scottish Government policy. It includes representatives from the five sub-groups that feed into this board.
- **Employer Engagement Group (EEG)**: informs and influences the strategic direction of policy with members acting as ambassadors for Scottish apprenticeships; supports and encourages employer participation in apprenticeships.
- **Employer Equalities Group (EEQ)**: addresses under-representation in apprenticeships and supports improved access, participation and outcomes; informs, influences and advocates for equalities policies and best practice, across SAAB groups and other employers.
- **Standards and Frameworks Group (SFG)**: oversees apprenticeship standards and framework development for apprenticeships; provides leadership on approvals governance through the AAG, while ensuring apprenticeships and demand are employer-led at each stage; ensures standards and frameworks are aligned with industry, economic growth, job and progression opportunities and develops transferable skills for occupations which have common currency across the United Kingdom. For "in school" apprenticeships this includes ensuring alignment with curriculum for excellence objectives.
- **Apprentice Engagement Group (AEG)**: communicates the benefits of Scottish apprenticeships to young people, employers, parents and other stakeholders; members act as ambassadors and are the face of apprenticeships in the Scottish system.

In addition, the independent **Apprentice Approval Group (AAG)** was established in 2020 upon recommendation of SAAB and is responsible for approving all Scottish apprenticeships. It is employer-led and aims to ensure Scottish apprenticeships meet the needs of employers. It works closely with the SAAB SFG as part of the governance structure. The Group reports to the Minister.

Source: SDS (2021[27]), Scottish Apprenticeship Advisory Board Structure and Remit, www.skillsdevelopmentscotland.co.uk/media/48448/saab-structure-and-remit-november-2021.pdf.

Challenge: SAAB lacks the powers needed to drive an employer-led apprenticeship system

In contrast to other employer organisations, such as the Scottish Chambers of Commerce (SCC) or Confederation of British Industry (CBI), SAAB is in a unique position as a single-purpose institution focusing only on apprenticeships. It has specific responsibilities and plays a valuable role advising government but

lacks the wider spectrum of responsibilities which could have helped it to encourage employers to engage in the apprenticeship system. Despite its clear focus, SAAB does not have an authorising or approving role but rather is only able to endorse and recommend. Its membership and representation are also relatively limited; for example, many of its members represent British multinational companies. Stakeholder interviews with the OECD team also confirmed that SAAB's membership has not changed much since its creation to broaden the group's diversity and scope, and consequently its advice and recommendations – although since its creation and until mid-2022 eight new company members joined and fourteen left SAAB.

Table 2.3 outlines the favourable or ideal governance structure for an apprenticeship system as synthesised by Cedefop (2016[26]). When comparing this to the Scottish system, it is clear that SAAB will need a better enabling environment if it is to fulfil its mandate of strengthening employer engagement in apprenticeships and making the apprenticeship system employer driven. This would enable SAAB to take the lead in the apprenticeship system, consolidate the views of employers, and co-ordinate the apprenticeship activities of the TEG, AAG and employer organisations.

Factors that make up a weak "enabling environment" for SAAB, which otherwise could provide an opportunity to reach its full potential and fulfil its core mandate, include the following:

- **SAAB works without a legal framework**. Employers' responsibilities are defined in the apprenticeship standards and frameworks, but these are not legally binding and support mechanisms are weak (see Section 2.1.1).
- **Employers' collective efforts are fragmented and still at a relatively low level**. SAAB would be best placed to provide some form of centralised governance role, while embracing and leveraging the strengths and capacities of partner organisations including the Scottish Chambers of Commerce (SCC),[3] Sector Skills Councils/Organisations, Federation of Small Businesses (FSB), Industry leadership groups, CBI Scotland[4] and other employer stakeholders. However, SAAB still competes with, rather than co-ordinates, these bodies. The BSI (2020[1]) identified the decline of the Sector Skills Councils/Organisations as one reason why not all occupations, sectors, and sizes of firms have a voice in the apprenticeship system, arguing that "the current lack of coverage across all occupations is creating issues around the ownership of Scottish Apprenticeships". It suggested a new model was needed that could achieve direct engagement with all relevant employers from any sector and "not just the ones where there is a strong sector skills organisation presence" (BSI, 2020[1]).
- **Benchmarks do not balance input and outcome measures**. The SDS benchmarks, which also influence the work of SAAB, are currently oriented towards quantity of inputs (e.g., a target of having 30 000 apprenticeship starts) rather than quality (e.g., minimum requirements, see Section 2.3) or outputs (e.g., learning and labour market outcomes) although some work on outcome tracking is taking place (see Chapter 3). The focus on quantitative inputs is understandable given the clear need to further increase the number of apprenticeships and the fact that Scottish apprenticeships appear to already lead to sound learning and labour market outcomes, but this skewed balance of efforts will not meet the needs of an evolving apprenticeship system. As the number of apprenticeships grows, there will be a need to strike a more appropriate balance.

Compared to institutions in other countries that may be considered to play a similar role (Table 2.4), SAAB has relatively limited capacity and influence. In Germany, Chambers of Commerce and Industry undertake a comprehensive set of tasks in the apprenticeship system, including supervising apprentices, registering contracts, monitoring registered training employers and trainers, organising final assessments, and providing advice and support for training companies. The Chambers represent the voices of employers and are institutionally embedded in the structure of apprenticeships. This means that in practice, while apprenticeships in Scotland could operate without SAAB, those in Germany cannot operate without

Chambers. The Chambers are employer-owned bodies that are relatively independent of government, and local chambers which operate apprenticeships are common throughout Germany.

Table 2.3. Scotland's enabling environment for apprenticeship governance relative to the ideal

Criteria for a favourable governance structure for apprenticeship		OECD assessment of gaps in Scotland
1. Consistent legal framework	- A single act or a coherent legal framework (with several laws complementing each other). - Legal framework/mandatory regulations for co-operation between the different learning venues (learning providers, companies) - The status and rights of apprentices are regulated by law.	- Legal framework is lacking, and alternative framework under the "Developing the Young Workforce – Youth Employment Strategy" is relatively fragmented, reflecting the fact that there are three distinct types of apprenticeships with different funding, rules and regulations.
2. Balanced allocation of strategic and operational functions	- National level is responsible for strategic functions and long-term objectives; local level is responsible for operational functions. - National level defines/sets training standards and curricula; specialisations determined at local level. - Learning venues have autonomy to implement training programmes/training plans.	- SAAB holds strategic functions in collaboration with SDS, but without full capacity in certain areas. - Apprenticeship contracts depend more on SDS funding rules than on employer demand for apprenticeship.
3. Stakeholder involvement	- The legal framework adequately defines the responsibilities of various stakeholders involved (companies, training institutions, supervising bodies, awarding bodies). - Institutional framework for dialogue with involvement of government, training institutions, social partners, researchers and learners. - Social partners participate in designing apprenticeship curricula and standards, assessing learning outcomes, and ensuring quality. - One institution has a co-ordinating and/or moderating role. - Co-operation between the different learning venues (learning providers, companies) is institutionalised.	-SAAB's roles and responsibilities are loosely defined. - In its co-ordinating role, SAAB provides an institutional framework for dialogue among diverse stakeholders. It aims to give employers a leading role in designing curricula and standards. However, it has limited power, capacity or mechanisms to co-ordinate different levels, including sectoral bodies, awarding bodies and training providers.
4. Quality assurance and development/ innovation strategies	- There are regular evaluations of curricula and standards; and regular assessments of learners' competence (systematic analysis/competence diagnostics as opposed to examinations or trade tests). - Research on training quality and its improvement. - Regular monitoring of demand for and supply of apprenticeships. - Adequate qualification standards for teachers and trainers and a system of initial and continuous education and training.	- Admission rates of apprenticeship (i.e. the share of those applying for apprenticeships who were successful) are not systemically collected to inform demand and supply (i.e. prospective and existing employers and apprentices). - There are no minimum requirements for teachers and trainers, however requirements for qualified assessors contribute to ensuring that candidates are adequately assessed against the requirements of the qualification
5. Balanced input and outcome orientation	- *Input orientation*: activities of the bodies involved are determined by certain norms and rules (e.g. regulations on company permission to train apprentices); completion of a specific/mandatory curriculum is a prerequisite for awarding a qualification. - *Outcome orientation*: mandatory objectives and benchmarks for apprenticeship are defined in law; educational standards (knowledge, skills and competences to be acquired by learners) defined in occupational profiles and curricula; examinations oriented towards learning outcomes; possibility of recognising learning outcomes acquired outside regular training programme in line with strict equivalence criteria.	- Companies are not required to have accreditation to train apprentices except in some sectors (e.g. based on minimum quality indicators such as qualified trainers, training duration or training outcomes). - No minimum requirements for length and off-the-job proportion of apprenticeships. - There are quantitative benchmarks (e.g. 30 000 starts), but no objectives on outcomes (e.g. share of apprenticeships completed or leading to employment).
6. Adequate financing arrangements	- Government covers the costs of school-based components. - Employers cover the costs of company-based components (in a cost-effective system, returns and cost-savings generated by apprentices are at least equal to their wages and other training costs); apprentices receive moderate wages, progressively increasing to reflect the level of their productivity.	- Off-the-job training is not fully funded by government while employers cover the costs of on-the-job training. - No information on whether apprentice wages reflect productivity.

Notes: See Cedefop (2016[26]) for more details about the criteria.
Source: Criteria adapted from Cedefop (2016[26]), "Governance and financing of apprenticeships", http://dx.doi.org/10.2801/201055; OECD's assessment based on stakeholder interviews and workshops.

Similarly, in Austria, the Federal Economic Chamber and the Chamber of Labour play a particularly important role in the governance of the apprenticeship system. They are essentially in charge of taking major decisions about in-company curricula, skills and qualification profiles, and the structure and content of apprenticeship training via their work in relevant advisory councils, for example the Federal Advisory Board on Apprenticeship (*Bundesberufsausbildungsbeirat*, BBAB) and state advisory boards (*Landesberufsausbildungsbeiräte*, LBABs). The regional apprenticeship offices of the Chamber of Commerce have considerable responsibilities, such as accrediting companies, monitoring in-company training, organising the practical elements of the final apprenticeship exams, doing essentially all the administrative documentation of training companies and in-company trainers, and providing information and giving support to companies about apprenticeship training (Cedefop, 2019[10]) (see Table 2.4).

As SAAB is a single-purpose institution, it is not well placed to advise employers on issues other than apprenticeships. In comparison, Austrian and German Chambers provide a diverse set of services unrelated to apprenticeships, which can provide opportunities to make connections and share information promoting apprenticeships when appropriate. As all firms and all apprenticeship contracts in Austria and Germany must be registered in their local chamber, this creates a wide network, contact points and information sources for apprentices and training companies.

This is not to suggest that SAAB should take over the responsibilities of other existing and effective groups – rather that SAAB cannot strengthen the apprenticeship system alone. In leading apprenticeship countries, employers and employer groups work together in a complex web at different levels. These include intermediary organisations and agencies, as seen in Table 2.4 (see also Box 2.7 for local level examples). In contrast, OECD stakeholder interviews found that some stakeholder groups in Scotland, such as those representing MSMEs and local-level actors, do not feel particularly well represented within SAAB and face hurdles in participating in the systemic process (see Section 2.1.3).

In leading apprenticeship countries, the bodies that play a similar role to SAAB are generally closely connected with well-established employer or industry groups at the local level. While Scotland has some local and sectoral level players, such as Lantra (a Sector Skills Council) which works together with SDS at the local level to design apprenticeship and gather input from employers, there are no clear links to SAAB (except indirectly via a TEG).

The importance of involving employers at different levels is also clear from the Danish VET system. Denmark has national, sectoral and local level advisory bodies – the VET advisory council, national trade committees (NTCs) and local training committees (LTCs) – which all engage with social partners. At the national level, social partners advise the education ministry on overall VET policy topics and help to determine the structure and framework for VET. Each trade has its NTC, funded by social partners. NTCs feed inputs into the advisory council, which is similar to SAAB but with a wider set of responsibilities. At the local level, LTCs[5] co-operate with VET colleges over adapting curricula to respond to local labour market needs, strengthening contacts between the college and local employers, and delivering programmes, for example by securing work placements for students. They also serve as a link between local and national levels, ensuring that NTCs have a good overview of local circumstances, and that local policy is aligned with national objectives. For example, they assist and advise NTCs on approving local enterprises as qualified training establishments and in mediating conflicts between apprentices and enterprises (Andersen and Kruse, 2016[28]). The NTCs also have the ability to devolve responsibilities to the LTC when appropriate (Kuczera and Jeon, 2019[29]). In Norway and Switzerland the local level also plays a crucial role in the governance of the apprenticeship system (Box 2.7).

Table 2.4. Responsibilities of national apprenticeship bodies in OECD countries

National-level employer bodies that advise on apprenticeship policies in selected OECD countries

	SAAB equivalent	Co-ordination mechanism/memberships	Main roles regarding apprenticeships/key objectives
Austria	Federal Economic Chamber and the Chamber of Labour	Comprises social partner representatives, supported by federal and local advisory boards (BBAB and LBABs). BBAB is comprised VET school teachers and social partners, with equal representation from the social partners. It defines the basic design and almost all aspects of apprenticeship training (especially in-company training) using unanimous voting.	Decide what in-company curriculum and/or competence profile a qualification for an apprenticeship occupation is based on; the structure and content of apprenticeship training via their work in relevant BBAB and LBAB. The regional apprenticeship offices of the Chamber of Commerce accredit companies, monitor in-company training, organise practical parts of the final exam, undertake administrative tasks with respect to training companies and in-company trainers.
Belgium (Flanders)	Flemish dual learning Partnership (More similar to AAG's roles)	Employers and employees are represented together with education stakeholders and the government. Funded by Flemish authority for education.	Contributes to better alignment between the needs of the labour market and the apprenticeship training offer; provide public authorities with guidance on VET and apprenticeship policy; assess the apprenticeship programmes.
Belgium (German-speaking Community)	Institute for VET in small and medium-sized companies	Composed of trade unions, guilds, ministry, VET providers and company representatives. Its organisation, functioning and objectives are based on a decree on VET in small and medium-sized companies. Financed by the government.	Focuses on managing apprenticeship; provides apprenticeship curricula and contracts and manages relationships with training companies. Be in charge of the financial, administrative and pedagogical supervision of VET providers, the adjustment of the legal base, and contacts to other VET stakeholders. Audit and certify companies.
Denmark	The national advisory council on upper-secondary VET.	All VET stakeholders are represented: social partners, local governments and regional organisations, schools, teachers, and student associations; meet 8-10 times a year. 31 representatives from the employer and employees organisations. Supported by sectoral committees (employer and employee) and local training committees (represented by the local business community).	Advise the ministry on the establishment of new VET programmes and changes in existing ones for better alignment to the labour market needs (Undervisnings Minsteriet, 2018[30]) and provide public authorities with guidance on VET and apprenticeship policy.
Germany	Chambers of Industry and Commerce (IHK): 79 local chambers and 68 690 companies are members.	Compulsory membership for firms, which pay fees (participation in employers' association is voluntary). Social partners are represented, participate in the supervision of VET at the local level and in the design of curricula at the national level, represented in the boards of examiners and the VET advisory boards at the chambers. At the national level, represented in the governing board of the Federal Institute for VET. Consulted by the government (obligatory) when a curriculum is newly developed or amended.	Supervise apprenticeships, register contracts, monitor employers' compliance with the requirements on training companies, organise final assessments and provide advice and support for apprentices and training companies. Take examinations for qualifications, monitor apprenticeship quality, establish guidelines and mediate training positions. Approve trainers and evaluate foreign professional qualifications.
Netherlands	Organisation for the co-operation between VET and the business sector	Organised with VET sector representatives and social partners at national, sectoral and regional level; has legal duties to recognise training companies, developing qualification structure, and supporting relevant research (thus subject to inspection for quality). Organised into eight sectoral chambers responsible for workplace learning quality and keeping VET qualifications up to date in their own sector. Each chamber is supported by social partners.	Select, review and update VET occupations. Collect and provide information on labour markets, work placements, apprenticeships, and the efficiency of VET study programmes. Advise, accredit, evaluate and coach training companies; develop and maintain the qualification structure; advise the education minister on VET (skills needs, qualification and examination structures). Develop/measure the quality of apprenticeships; ensure sufficient apprenticeship supply; carry out research and additional activities to foster the coordination between education and training and the labour market; has a say in the design of the curriculum. SBB is responsible for maintaining the qualifications for secondary VET, works on themes with a cross-regional and cross-sector focus (Smulders, Cox and Westerhuis, 2016[31]).

	SAAB equivalent	Co-ordination mechanism/memberships	Main roles regarding apprenticeships/key objectives
Norway	National council for VET (Samarbeidsrådet for yrkesopplæring)	Composed of nine Vocational Training Councils (Faglige råd) where social partners are represented. advisory role in respect of the first two school-based years of apprenticeships but a decisive role in the last two work-based years of apprenticeships.	Contribute to better alignment between the needs of the labour market and the apprenticeship training offer; improve the quality of apprenticeships through performance monitoring and teacher/trainer training; provide public authorities with guidance on VET and apprenticeship policy.
Switzerland	Professional organisations (referring to trade associations, employer associations and trade unions)	The involvement of professional organisations in apprenticeship policy making is required by law.	Have the leading role in the content and examination process (e.g. admission requirements, occupational profiles, the knowledge and skills to be acquired, qualification procedures and the legally protected title) and the exclusive right to initiate the design of new ordinances or update existing ones, and prepare training plans. Draft core curricula, which are approved by the Swiss authorities.[1] Conduct examinations and ensure relevance of federal diplomas.

Note: While other countries have no exact equivalent to SAAB at the national level given their different apprenticeship systems, this list provides indicative information on how the institutions with similar goals and roles as SAAB are formed and function. The list also includes regional-level bodies in Belgium where the vocational education and training is devolved matter, as in the United Kingdom.
1. The role of Swiss authorities (at Confederation level) includes approving examination rules, supervising examinations and issuing federal diplomas.
Source: OECD's assessment based on stakeholder interviews in Scotland; EPS (IFF Research, 2019[4]), Scottish Employer Perspectives Survey, https://www.gov.scot/publications/scottish-employer-perspectives-survey-eps-2019-research-report/pages/9/; 2019EAfA (2021[32]), Apprenticeships coalition survey by European Alliance for Apprenticeships (EAfA), https://ec.europa.eu/social/main.jsp?catId=89&furtherNews=yes&newsId=9991&langId=en; Germany: IHK (2021[33]), Ausbildung, https://www.ihk.de/themen/ausbildung. Cedefop database (Netherlands): Cedefop (2019[10]), Cedefop European database on apprenticeship schemes, https://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/apprenticeship-schemes; Fazekas, M. and S. Field (2013[34]), A Skills beyond School Review of Switzerland, https://doi.org/10.1787/9789264062665-en.

Box 2.7. Norway and Switzerland: Intermediary organisations in apprentice training

In recent years, Norway and Switzerland have both introduced local training agencies (LTAs), local intermediary organisations consisting of firms involved in apprentice training. In both countries, the starting point for the formation of the LTA was roughly similar: enabling more firms to participate in apprentice training. Despite similar goals, LTAs have developed differently in the two countries. In Norway, LTAs have evolved as general-purpose tools for the governance of apprentice training while in Switzerland they are restricted to small niches. In Norway, 80% of all apprenticeships are recruited by LTA member firms.

LTAs in Norway receive high levels of state subsidies, which implies high levels of dependency to the state, while those in Switzerland receive fees from the participating companies. LTAs in Norway provide links between local government and the firms in apprentice training and monitor training, but do not intervene in the training of individual member firms. LTAs in Switzerland are more active in running a training network, recruiting apprentices, organising a rotation plan, supervising the apprentices, and supporting the companies in their training tasks. They also function as mediators between the companies, apprentices and the cantonal authority in the quality assurance of apprenticeships.

Source: Michelsen et al. (2021[35]), "Training agencies as intermediary organisations in apprentice training in Norway and Switzerland: general purpose or niche production tools?", https://doi.org/10.1080/13636820.2021.1904437.

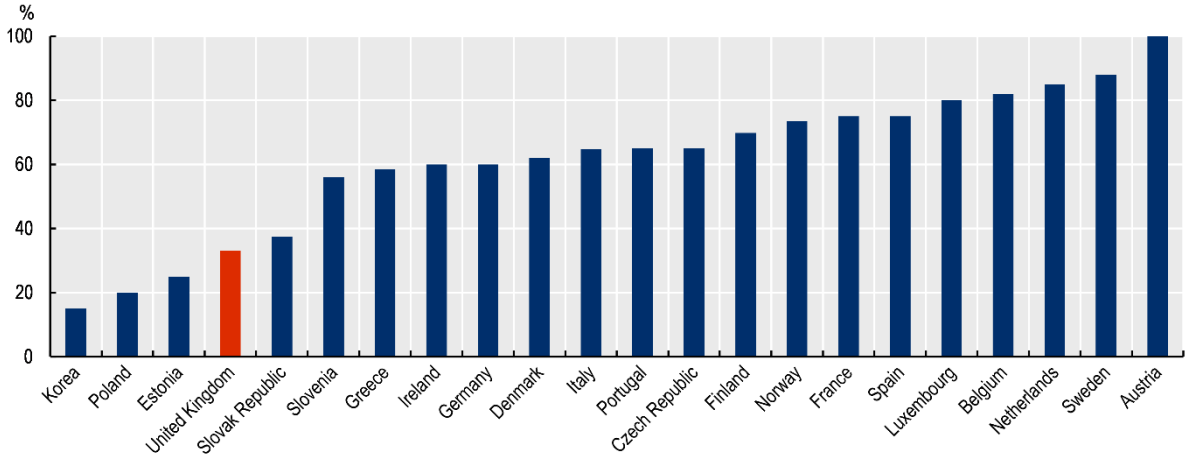
Scaling up SAAB's efforts to reach out to and co-ordinate employers

SAAB is at the heart of Scotland's endeavour to strengthen the apprenticeship system, but it has limited capacity to realise its full potential. Although SAAB has been led by extremely committed employer representatives, its volunteer membership has reached a practical limit relative to a desire to expand its capacity and influence. To support its co-operation and co-ordination with relevant stakeholders, SAAB should leverage existing employer networks, with the aim of expanding its influence to sectoral and local levels, with the assistance of SDS.

Employers in Scotland are not as well organised as those in many other OECD countries. Employer organisation density levels in the United Kingdom – measured as the share of private sector employees in firms affiliated to employer organisation – are among the lowest in the OECD (Figure 2.2). This low density means that even though SAAB engages with key employer organisations and several large multinationals, there are still many employers who are not members of these organisations and whose voices are therefore not well represented. This implies that engaging employers in Scotland will be more challenging or require greater efforts than in many other OECD countries.

Figure 2.2. Employer organisation density in the United Kingdom is relatively low

Percentage of private sector employees in firms affiliated to employer organisation, latest year available



Note: Latest year is 2008 for Greece, Ireland and Portugal; 2009 for Korea; 2012 for Denmark, France and Italy; 2013 for the Netherlands, Slovenia and Spain; 2014 for Belgium, the Czech Republic, Finland, Germany and Luxembourg; 2015 for Estonia and the Slovak Republic; 2016 for Norway, Sweden and the United Kingdom; and 2017 for Austria.
Source: OECD (2019[36]), *Negotiating Our Way Up: Collective Bargaining in a Changing World of Work*, https://doi.org/10.1787/1fd2da34-en.

Employers' associations and other relevant employer groups need to be better co-ordinated, both internally and with one another, to engage more effectively and efficiently in the apprenticeship system. A common challenge for all these groups is positioning themselves with a consolidated, coherent, clear and strong voice. For example, while a national body may take one position, sectoral and regional level bodies or employers' associations representing different firm sizes may take other positions and adopt different strategies. This weakens the overall legitimacy and bargaining power of the national employers' representation and with it the stable, consistent and trusted provision of apprenticeships.

In Scotland, discussion during the OECD review pointed towards the unequal participation of employers from different sectors and firm sizes in apprenticeships. The government and relevant bodies in Scotland are aware of this imbalance and the need to address this issue. Aligning and clarifying the roles and responsibilities among employer-representing bodies – such as employers' organisations, sectoral skills councils, industry leadership skills council, and local bodies as well as SAAB – would help reduce

inefficiency in co-ordination and ultimately strengthen the role of SAAB as a central body in leading apprenticeships.

A legally binding framework with clear standards and a co-ordination mechanisms for the relevant employer bodies (in particular via SAAB) would support more and better collaboration. Regularly monitoring of SAAB could be helpful to assess how effective it is in engaging stakeholders in general (not just the members themselves but also a wider stakeholder group), and how effectively it is engaging stakeholders that are typically less well represented.

Increasing SAAB's co-ordination and co-operation with other stakeholders

Employers' involvement will be more effective where it is complemented by other stakeholders. Therefore, co-ordination between SAAB and other non-employer bodies needs to be streamlined. In particular, co-ordination with the Scottish Funding Council (SFC), as part of the strategic alignment of skills bodies, needs to be made more concrete; some efforts to increase collaboration between the two bodies are already underway (SFC, 2021[37]). The involvement of trade unions in the design, development and implementation of apprenticeships is also a key success factor. As apprenticeships are employment-based training arrangements, the active involvement of unions is crucial, especially on advancing the fair work agenda (OECD/ILO, 2017[38]). With the new TEG approach to the development of frameworks an important step has been taken to increase trade union involvement in the Scottish apprenticeship system.

Practical recommendations for strengthening the role of SAAB

Scotland may need to explore different models for the structure and operation of SAAB, but meanwhile, there are practical steps that could strengthen its role by improving the co-ordination of relevant stakeholders:

- **Expanding and diversifying the mechanisms through which employers can engage**. SAAB should improve the representativeness of its membership to reflect the business reality in Scotland where 97% of businesses are MSMEs (UK DBEIS, 2020[39]). SAAB should actively identify employer organisations that are well-suited to represent and actively engage with under-represented groups. Rotating its membership or expanding it to all employers offering apprenticeships could be helpful. Online SAAB meetings have allowed a wider range of employer participation and consultation, which could continue. For offline meetings, which also have their own benefits, a travel subsidy for MSME members and under-represented sectors could help widen participation.
- **Strengthening collaboration with the wider skills system**. This includes working with the SFC, higher education institutions, secondary school representatives, awarding bodies and Education Scotland to better integrate the apprenticeship system into the broader skills system in Scotland. For example, the SFC recently recommended that SAAB includes representatives from the SFC in order to bring coherence to planning, funding and policy development functions (SFC, 2021[37]). In the context of new funding management, SAAB and the SFC need to co-plan the provision of Foundation and Graduate Apprenticeships based on industry demand in order to avoid dividing their efforts between two different agencies and discouraging employers from engaging with the system.
- **Setting challenging goals.** SAAB needs goals that will lead to visible achievement and have a direct impact on employers and their skill pipeline. SAAB should ask bold questions of its members and other stakeholders in the Scottish apprenticeship system so that it is forced to think more strategically. The next step would then be a robust performance assessment against those challenging goals.
- **Leveraging existing local networks and resources.** One key precondition for effective apprenticeships is local partnerships between training providers and the employers providing the workplace training. Such partnerships facilitate the initial offer of workplace training (in the case of

FAs) or employment for the duration of the apprenticeship (in the case of MAs and GAs). Subsequent exchanges between the training providers and employers take place to ensure that the on-the-job or workplace training fits effectively into the apprenticeship programmes. It could be beneficial for Scotland to build upon existing partnerships at the local level, encourage further partnerships, and connect those effort to the national level through SAAB.

Table 2.4 shows examples of co-ordination mechanisms used by other countries, while Box 2.8 describes how Australia use a toolkit to help engage stakeholders in policy domains, including skills. This toolkit begins with a mapping exercise to identify the right groups to engage with at a particular stage of the policy cycle, as well as the composition of target groups. It also delineates the risk of not including these groups.

Box 2.8. Australia: Increasing capacity and willingness to engage with stakeholders

Australia: A government toolkit to engage stakeholders in policy design and delivery

The government of Australia has produced a toolkit to help the public sector engage stakeholders in different policy domains, including skills. The toolkit identifies the key elements of effective engagement:

- *Involve the right people*: To identify the right stakeholders, it should be clear why there is a need to engage them and what the scope of the engagement will be. Who needs to know? Who has an interest? The answers will ultimately determine the composition of the target group of stakeholders. The risks of not engaging particular stakeholders should also be considered.
- *Use a fit-for-purpose approach*: There is no one-size-fits-all approach to engaging stakeholders – each interaction should be tailored. Stakeholders have different expertise, objectives and capacity to engage with government. Do not assume that what worked for one situation will work for another. Often a mix of approaches will be needed and policy makers may need the flexibility to adjust their approach quickly.
- *Manage expectations*: Stakeholders should have a clear understanding of how their contributions will be used, and the degree of influence their input will have as approaches to policy design and implementation are formulated. When stakeholders' expectations cannot be met, anger, frustration or cynicism may result, which will affect the current and future relationship with the government. The purpose of the engagement and the role of participants, including how their input will be used, need to be clear from the beginning.
- *Use the information*: Engagement is not just about collecting information, it should involve a process of responding to the gathered information to shape and improve the quality of the initiative. Information from stakeholders may also indicate whether the engagement approach itself needs to change. Greater organisational benefits will flow if lessons learned from engagement are shared across the agency, particularly when the agency regularly engages with the same set of stakeholders on a variety of issues.

The toolkit also assesses common challenges to stakeholder engagement. These include: 1) the purpose of the engagement may not be clear; 2) stakeholders may have limited capacity and resources (time, people and money) to engage with the government; 3) government may have limited experience and skills to implement effective stakeholder engagement; 4) unfocused dialogue may cause stakeholders to highlight a range of issues that are important to them but not related to the government initiative that is the object of the engagement; and 5) failure to review and evaluate may negatively affect the capacity to assess the results of the approach. The engagement plan should include review points throughout the policy design and implementation, with the flexibility to adjust the approach if needed.

Source: Australian Government Department of the Prime Minister and Cabinet (2013[40]), *Cabinet Implementation Unit Toolkit: 3. Engaging Stakeholders*, https://www.pmc.gov.au/sites/default/files/files/2014%2011%2014-%201%20Planning%20-%20Final.rtf.

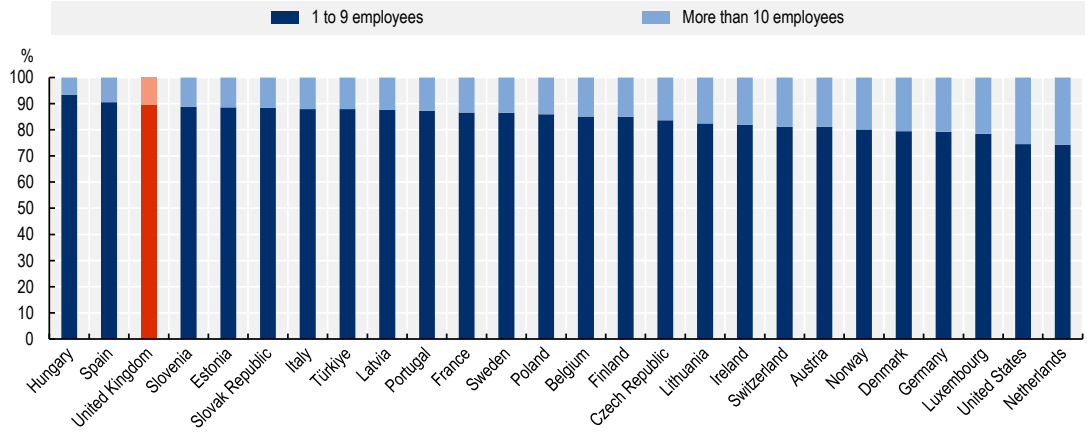
2.1.3. Engaging smaller employers in the apprenticeship system

Challenge: Small employers are less engaged in apprenticeships

In many OECD countries, small employers are the engine of employment, and Scotland is no exception. According to the UK Department for Business, Energy & Industrial Strategy, 97% of businesses in Scotland employed under 50 employees (small or micro businesses) in 2018-20; 81% were micro business with 1-9 employees (UK DBEIS, 2020[39]). While these shares are similar to the UK averages of 97% and 82% (UK DBEIS, 2020[39]), they are relatively high from an international perspective. The United Kingdom had the third highest share of micro businesses among 26 OECD countries in 2018 (Figure 2.3). Therefore, actively involving MSMEs in apprenticeships will be key to strengthening and expanding the Scottish apprenticeship system.

Figure 2.3. Micro businesses are important in the United Kingdom

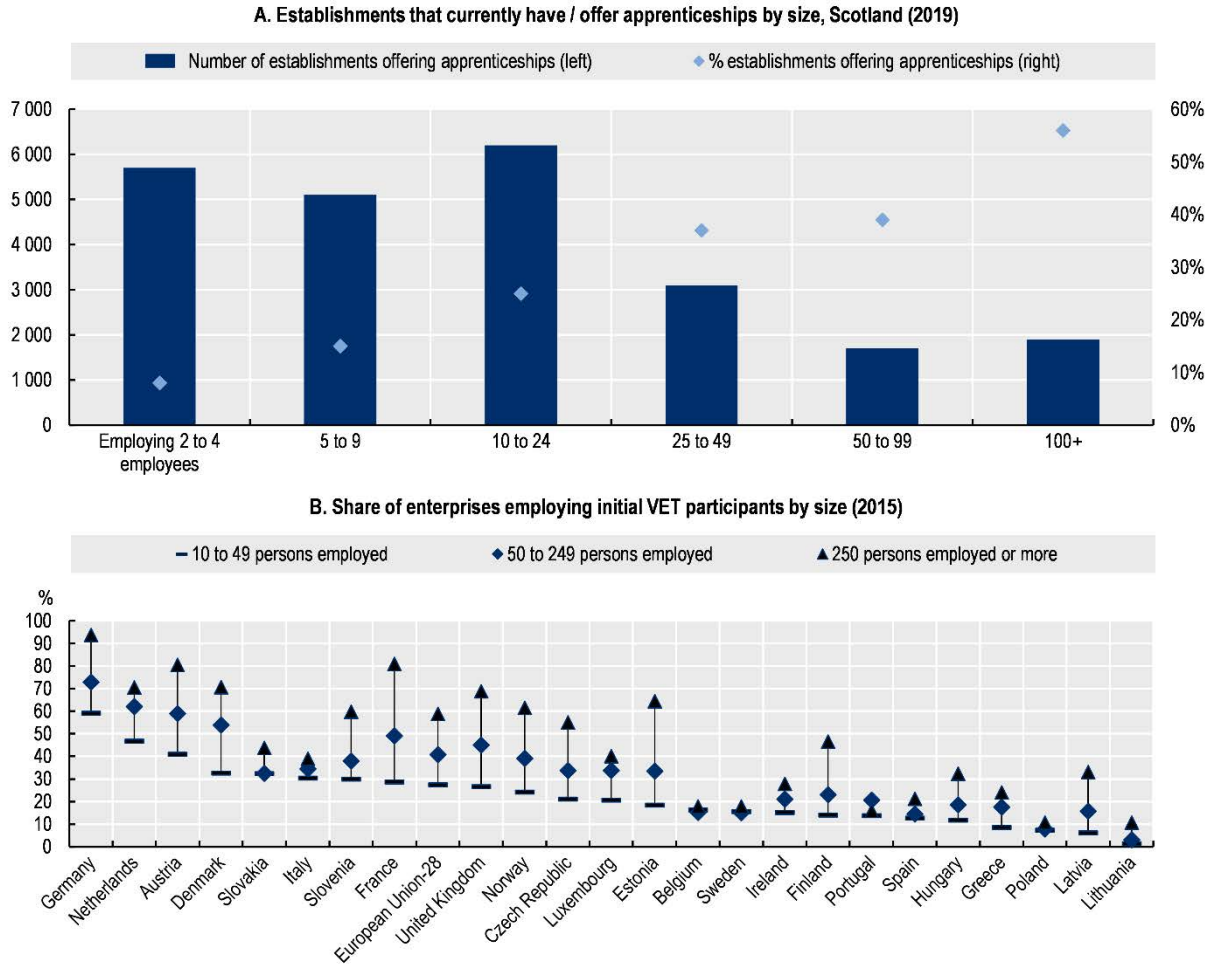
Share of employing enterprises by size (based on number of employees)



Note: Austria data include provisional data. Data from Estonia, Luxembourg, the Netherlands and the United Kingdom include confidential data that were excluded from the database.
Source: Eurostat (2021[41]), Eurostat database, https://ec.europa.eu/eurostat/data/database [bd_9fh_sz_cl_r2]; the US data from Bureau of Labor Statistics (2020[42]), Distribution of private sector firms by size class, https://www.bls.gov/web/cewbd/table_g.txt & Distribution of private sector employment by firm size class https://www.bls.gov/web/cewbd/table_f.txt.

Although in total there are more MSMEs in Scotland offering apprenticeships than large enterprises, the shares do not reflect their relative importance to the economy. Only about 8% of establishments with 2-4 employees and 15% with 5-9 employees offer apprenticeships (a combined total of 10 800) compared to 56% of establishments with more than 100 employees (a total of about 1 900 establishments) (Figure 2.4, Panel A). This suggests that many MSMEs in Scotland face barriers to engaging in apprenticeships. Many countries face similar difficulties, including Denmark (DEG, 2021[43]), England (United Kingdom) (IFF Research, 2020[6]) and Germany (BIBB, 2021[9]). International data from the European Continuing Vocational Training Survey show that only 27% of employers with 10-49 employees in the EU-28 employed initial VET students (apprenticeships and other forms of work-based learning) in 2015, compared to 59% of large enterprises (at least 250 employees). However, the difference between small and large enterprises is particularly striking in the United Kingdom (27% vs. 69%), with only France and Estonia having a larger gap (Figure 2.4, Panel B).

Figure 2.4. A smaller share of MSMEs offer apprenticeships compared to large companies



Note: Initial VET refers upper secondary VET at ISCED level 3, which is equivalent to SCQF 5-7 levels. See Box A.2 in Annex A for more details. VET refers both apprenticeships and school-based VET programmes designed for learners to acquire the knowledge, skills and competences specific to a particular occupation, trade, or class of occupations or trades (OECD, 2017[44]).
Source: IFF Research (IFF Research, 2019[4]), Scottish Employer Perspectives Survey 2019, https://www.gov.scot/publications/scottish-employer-perspectives-survey-eps-2019-research-report/pages/9. Eurostat (2015[45]), CVTS 2015, https://ec.europa.eu/eurostat/web/microdata/continuing-vocational-training-survey.

There are many reasons why MSMEs might not offer apprenticeships. As mentioned above, the 2019 Employer Perspective Survey (EPS) found that 20% of all employers which did not offer apprenticeships failed to do so because they believed they were not suitable for a firm of their size (IFF Research, 2019[4]). This may point to a lack of awareness or knowledge among some small employers as to the breadth of apprenticeship frameworks available and the ability to tailor apprenticeships to their needs (IFF Research, 2019[4]). It may also reflect a "conservative bias" among training providers (see Section 2.2): because larger employers are often more familiar with apprenticeships, training providers may find it easier to build volume through existing partnerships with large employers, rather than seeking out smaller employers with little or no apprenticeship experience (Field, 2020[12]).

Supporting MSMEs to increase the quality provision of work-based learning

Strengthening MSMEs' capacity to deliver quality apprenticeships could help encourage new employers to engage in the system (OECD/ILO, 2017[38]). The means to do this could include:

- **Providing targeted financial and policy support to strengthen MSMEs' capacity**. MSMEs are often unable to provide apprenticeships due to reasons such as their size, variable demand, perceived lack of utility or issues with skills matching (Steedman, 2015[46]), meaning they require more specialised assistance.[6] Many countries provide targeted or more generous financial incentives for MSMEs. Sharing in-company trainers with large companies within their supply chain can be helpful, as can the training alliance models developed in in other countries (Box 2.9). These could also be used to strengthen capacity among MSMEs which have just started to engage in apprenticeship provision.
- **Promoting the development of collective training offices**. MSMEs are less likely to have well-developed HR and support functions that can find, train, support and protect apprentices. Several countries provide the option of collective or inter-company training to reduce the burden of apprenticeship provision, assessment and administrative costs. Such arrangements can not only help new employers provide training to apprentices, but also offer networking opportunities and gradually strengthen their training capacity and quality. The Enterprise and Skills Strategic Board recommended exploring group training schemes for micro businesses to share training costs and HR support in partnership with larger firms, chambers of commerce, the FSB, trade bodies and sectoral industry leadership groups (ESSB, 2020[47]). Such an approach is useful for building non-firm specific skills including meta-skills and sectoral and occupational skills. Scotland could build on existing initiatives, for example expanding the "Adopt an Apprentice" scheme so that different employers (in particular MSMEs) can assist in providing a breadth of work to cover the entire apprenticeship curriculum. It could also gain insight from existing consultation results such as those from CITB Training Group Consultation (CITB, 2021[48]), and examples from other countries (Box 2.9).
- **Rotating apprentices among groups of MSMEs or training networks**. MSMEs tend to have more specialised operations and may thus require very specific skillsets from apprentices. Their narrow focus, particularly among micro enterprises, may leave them unable to develop the full range of skills among their apprentices that might be required by standards and frameworks. As with collective training offices, rotating apprentices could help MSMEs to collectively cover the training their apprentices need to complete their apprenticeship, allowing them to benefit from experiencing a range of different work environments and production technologies.

Box 2.9. International examples: Support for MSMEs to provide apprenticeships

Austria: Training alliance model to support training companies

In Austria, companies that have difficulty in meeting certain standards – for example because they are too small or too specialised to provide their apprentices with the training required – may form training alliances. These alliances are supervised at the state level by the Apprenticeship Offices appointed by Economic Chambers. The Economic Chambers help to find partners for firms willing to create new training alliances.

Moreover, social partners and educational researchers recently designed a new training alliance model to support training companies severely affected by the COVID-19 pandemic, in particular those from the hotel and restaurant sector in Vienna (supplementing the support offered at the federal level, such as short-time work, apprentice bonuses for newly concluded apprenticeships). Under this special alliance model, company-based training can be temporarily taken over by supra-company training providers, with the costs of the training alliance and the training allowance covered by the public sector. The model was developed by the Economic Chamber, the Chamber of Labour, the public employment service (AMS Vienna) and the Vienna Employment Promotion Fund (*Wiener Arbeiterinnen Förderungsfonds*, Waff), with conceptual support from research institutes. The outsourced training is conducted in two-month long modules. A maximum of two modules can be taken per apprenticeship year. The modules cover selected content related to the job profile of the relevant apprenticeship year, which can be individually adapted. The training is recorded in a co-operation agreement (between the company and the apprentice) which, in legal terms, is a supplement to the apprenticeship contract. The training costs are covered jointly by Waff and AMS Vienna during the co-operation measure.

Australia, Norway and Switzerland: Group/collective training organisations for MSMEs

Collective training offices are organisations that mediate between employers, apprentices and the government. The precise structure differs across apprenticeship systems but their common feature is that they shift the bureaucratic and administrative burden of engaging with the apprenticeship system away from employers. This enables more employers to engage with the system.

In Australia, group training organisations (GTOs) are not-for-profit enterprises but receive government funding. GTOs employ apprentices and allocate them to host employers, who pay a fee to the GTOs. In addition to recruiting apprentices, GTOs also support enterprises in administration, management of on- and off-the-job training, and the rotation of apprentices among participating employers to ensure that apprentices acquire the full range of experience.

In Norway, collective training offices are owned by employers and are usually related to specific trades. They sign apprenticeship contracts with the government on behalf of groups of small firms who offer training places. This shifts the legal obligation for off-the-job training to the collective organisations, who are then able to use economies of scale to provide a full range of training services to apprentices. They aim to facilitate apprenticeships by identifying potential training companies and supporting employers and the staff involved in apprenticeships. This is particularly useful for smaller firms which would not otherwise be able to meet the national minimum standards for training apprentices and helps uphold the quality of apprenticeship programme.

In Switzerland, enterprises group together in host company networks to share responsibility for apprentice training. This arrangement is aimed at maximising the training potential of MSMEs and/ or those companies that are too specialised to cover all the competences specified in a defined VET curriculum on their own but may be able to offer the full spectrum by joining forces as a group. Usually, one enterprise takes the role of co-ordinator and organises the coaching, training and rotation of apprentices between other companies during their apprenticeship.

Germany: Meeting the needs of SMEs by customising apprenticeship placements

In 2007, the German federal Ministry for Economic Affairs and Energy developed a programme (PV) to strengthen the small and medium-sized enterprise (SME) sector by customising apprenticeship placements. Intermediaries that help place apprentices into suitable positions are common in Germany,

and come in different forms such as 1) a lead enterprise with overall responsibility for training partnering with other enterprises to co-deliver it; 2) several small enterprises working together to take on trainees; and 3) individual enterprises establishing an organisation for the purpose of the training that takes over the organisational and administrative tasks, while the lead enterprises offer the training (Poulsen and Eberhardt, 2016[49]). The PV programme provides funding to agencies such as intermediate training placement companies and chambers of commerce, which then match candidates with businesses.

The programme helped to make apprenticeships more attractive among SMEs. The majority of targeted SMEs found that they received accurate and appropriate apprentices for the apprenticeship vacancies available and the programme allowed them to save 40-50% of apprenticeship recruitment costs. Similarly, around 90% of apprenticeship applicants found the mediation services "largely helpful".

Source: Cedefop (2021), The Vienna training alliance model – Aid for companies in the Covid-19 crisis, www.cedefop.europa.eu/en/news/vienna-training-alliance-model-aid-companies-covid-19-crisis?src=email&freq=weekly. OECD/ILO (2017[38]), Engaging Employers in Apprenticeship Opportunities: Making It Happen Locally, https://dx.doi.org/10.1787/9789264266681-en; ILO (ILO, 2020[50]), ILO Toolkit for Quality Apprenticeships. Volume 2 Guide for Practitioners: Innovations and strategies in apprenticeships, www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_751118.pdf.

Recommendations and implementation for strengthening the role of employers in the apprenticeship system

2.1. Strengthening the role of employers in the apprenticeship system

Scotland can build upon the successful establishment of SAAB, the TEGs and AAG and their products and achievements, including the key principles, standards and frameworks, to further strengthen employer engagement in the apprenticeship system. Specifically, the OECD recommends that Scotland:

- Provide incentives and support mechanisms for employers to offer workplace training and engage in the governance of apprenticeships. Targeted financial support can be offered to encourage employers who would not otherwise take on apprentices to do so and compensate for the costs involved. In addition, non-financial support, for example, for setting up training alliances or intermediary agencies and offering guidance and tailored advice, can also make it easier for employers to take on apprentices and build and strengthen training capacity.
- Establish a legal framework that not only ensures consistent policy and financial support for apprenticeships and employers but also defines the role of employers in the apprenticeship system. The aim should be to increase systemic, stable employer engagement and reduce the burden of time and resource costs involved in updating principles and guidelines. It will require a whole-of-government and stakeholder consultation to agree on the form and content of such a framework. This legal framework does not necessarily need to focus solely on apprenticeships but should in some form achieve the goal of supporting apprenticeships and increasing employer engagement covering the entire apprenticeship family and all learners.
- Increase the capacity and influence of the Scottish Apprenticeship Advisory Board (SAAB) to help strengthen the role of employers in the apprenticeship system. This can be done through better co-ordination and co-operation with the relevant stakeholders, in particular employer groups. SAAB should focus on consolidating fragmented activities by different employer groups and individual employers, and leverage the SCC, Sector Skills Councils/Organisations, the FSB, industry leadership groups, CBI Scotland and other employer stakeholders. SAAB should also increase co-ordination with and among non-employer actors, including unions and providers.

These efforts can build upon existing sectoral and regional networks, with the assistance of SDS.

- Strengthen the training capacity of MSMEs and better integrate them into SAAB to increase their representation in the apprenticeships system. After assessing where MSMEs need the most support, they can be given targeted financial and policy support, such as the option of collective or inter-company training. Funding for such support, should be secured including through the FWDF.

2.2. Towards a more demand-led funding system for apprenticeships

An effective, resilient and responsive skills system is one that delivers the changing skills mix the economy needs. This means that decisions about the type and mix of training on offer reflect the needs of employers and learners. However, Scotland gives too large a role to learning providers in driving the mix of provision, compared to other countries (Field, 2020[12]). In other words, learning providers are acting as mediators in Scotland, whereas in leading apprenticeship countries, this role is played by employers and dedicated intermediary agencies. Under the current funding system, learning providers could be biased in favour of programmes that are less costly or easier to deliver. Hence, even if the system is built on clear policy priorities and involves employers, there is a risk that the apprenticeship opportunities provided will not meet labour market needs. To avoid such imbalances, Scotland should develop a more demand-led apprenticeship system, supported by increased employer engagement (discussed in Section 2.1 above), while maintaining space for strategic funding priorities.

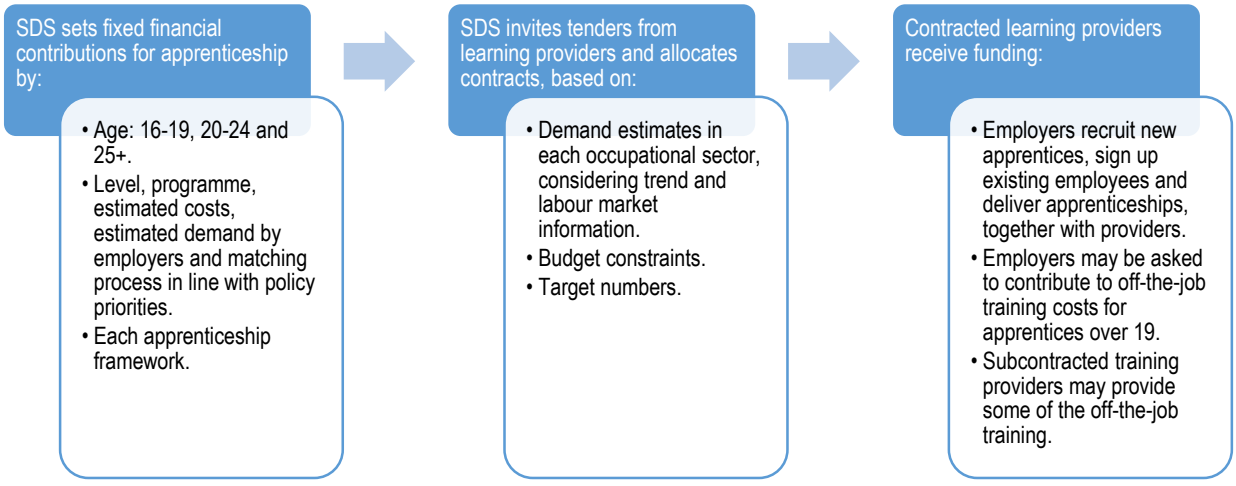
Challenge: The current apprenticeship system is mediated by training providers

In Scotland, the total number of apprenticeship positions offered is primarily a policy decision taken centrally by the Scottish government. The mix of provision – such as the proportion of different occupational groups, Scottish Credit and Qualifications Framework (SCQF) levels, gender, and age groups – is determined by a complex sequence of decisions taken by SDS and mediated by learning providers based on inputs and estimates from employers and potential apprentices. This complexity means that it is very difficult to ensure that the scale and mix of provision meets the needs of either the labour market or individuals (Field, 2020[12]). However, recent changes have made funding priorities clearer and more streamlined, with more emphasis on equalities (SDS, 2022[51]).

The funding system for Modern Apprenticeships (MAs) observed during the time of the OECD review reflects the fact that the apprenticeship system is provider-mediated (Figure 2.5). Government funding is conceived as a partial subsidy to be supplemented by employers. The aim of public sector funding for apprenticeships is to encourage training that would otherwise not take place. However, this funding cannot be allocated efficiently and flexibly as the exact costs of training delivery are unknown, being a commercial matter between learning providers and employers. This means that SDS does not know the extent to which contribution rates fully cover the costs of training, either for individual learning providers or for individual apprenticeship frameworks (Auditor General for Scotland, 2014[52]). This funding system is very different from that in many other countries.

Locally there is competition between different learning providers in seeking to “sell” apprenticeships to employers (Field, 2020[12]), and they provide employers with advice on the suitability of different apprenticeship options – which also reflects that one of the evaluation criteria for learning providers is employer involvement (SDS, 2021[53]). Hence different parts of the system may be responding in different ways to existing incentives. How all of these factors work together to drive the mix of provision is unclear (Field, 2020[12]).

Figure 2.5. Simplified apprenticeship financing process in Scotland



Note: For those aged 16-19, the SDS' contribution rates range from GBP 1 300 (customer service, at SCQF 5) to GBP 10 200 (engineering, at SCQF 6). For those aged 20-24, they range from GBP 500 to GBP 8 600 and for older apprentices, from GBP 300 to GBP 8 000 (over the entire apprenticeship programme for 2021-22) [https://www.skillsdevelopmentscotland.co.uk/media/48180/2021-22-appendix-1-ma-contribution-table-010921.pdf]. Financial contributions are based on: the estimated costs of the framework, in terms of administration, taught elements, assessment and core and career skills requirements; and policy priorities, including the prioritisation of younger participants, tackling occupational segregation, and supporting strategic growth sectors.
Source: OECD elaboration based on Field (2020[12]), Strengthening Skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf. SDS (2021[54]), Modern Apprenticeship Contribution Table 2021-22, https://www.skillsdevelopmentscotland.co.uk/media/48180/2021-22-appendix-1-ma-contribution-table-010921.pdf.

Just as the number of apprenticeships offered should reflect the requirements of the Scottish economy and apprentices themselves, so should the mix of apprenticeship provision. SDS allocates apprenticeship places in designated occupational sectors. Although learning providers cannot allocate their apprenticeship places entirely as they wish -as all the apprenticeships delivered correspond to a participating employer and a participating apprentice-, they may still steer the mix of provision to reflect their own preferences (e.g., training that is easy and less costly to provide). If demand from employers for apprenticeships exceeds supply then learning providers end up in a strong position in choosing how to allocate provision (Field, 2020[12]). Off-the-job learning providers that receive public funding can be partially or heavily biased in how they identify employers and apprentices to work with. From their point of view, these are rational decisions allowing them to minimize costs and operate efficiently. For example:

- *A conservative bias* leads providers to prefer to deliver training that was previously delivered as they consider it easier or less costly. This may be due to the skills of the existing teaching staff, the equipment available, and organisational familiarity with particular apprenticeship frameworks.
- *An ease of training bias* results in learning providers choosing training that is less costly or resource intensive, for example to apprentices with some existing knowledge and skills or to apprentices working close to the provider's site.
- *A commercial bias* favours employers who have training budgets from which they can readily fund off-the-job training of apprentices. On commercial grounds, learning providers will prefer employers who are more willing or able to pay.

The collective impact of these apparently rational decisions could be significant and result in a mix of provision that, at least in part, reflects the interests of learning providers rather than those of the labour market and apprentices.

Moving towards a more demand-led funding system

A demand-led or market-based apprenticeship system delivers the scale and mix of apprenticeships as determined by market requirements, which would tend to vary with the economic cycle (Brunello, 2009[55]), without mediation by training providers. In such a system, engaging employers in different phases of apprenticeship design and delivery is crucial, as argued in Section 2.1 above. An agile apprenticeship system must be able to respond effectively to rapidly evolving requirements, which may include involving new and small employers in innovative fields. This could make it harder to provide off-the-job training, as it would require new equipment and staff. From this perspective, otherwise rational decisions by learning providers could result in non-ideal outcomes for the skills system and labour market as a whole. In a demand-led system, providers would have little scope to steer provision towards apprenticeships that are easy or easier to deliver. This approach would still permit the pursuit of strategic policy objectives, however, such as an emphasis on science, technology, engineering and mathematics (STEM) apprenticeships, increasing the proportion of higher-level apprenticeships or tackling specific skills shortages. These objectives could be achieved through targeted incentive payments to employers.

Scotland should therefore move towards a more demand-led apprenticeship system that goes hand in hand with fully funded off-the-job training (for apprenticeships that offer off-the-job training), discussed in Chapter 4. The details of how to design such a system are described in the "Recommendations and implementation" box below. In parallel, Scotland should also work on:

- **Updating standards and frameworks to respond to changing requirements in the labour market**, while allowing apprenticeship training providers some flexibility to address local skills needs.
- **Ensuring that learning providers regularly update their workforce's technical and pedagogical skills**, for example, by encouraging the recruitment of trainers who have work experience in industry and providing relevant training to the workforce (OECD, 2021[56]).
- **Collecting relevant data to support a demand-led system.** The mix of provision needs to respond quickly to the changing needs of the labour market sectorally, regionally and in terms of occupations. Balancing demand and supply will require better information on the number of potential apprentices, and employers willing to offer apprenticeship jobs. This could be achieved by collecting data on admission rates (the share of those applying for apprenticeships who were successful). Currently SDS does not collect such data, but examples from Germany and Switzerland can offer some insight.

Recommendations and implementation for building a more demand-led funding system for apprenticeships

2.2. Towards a more demand-led apprenticeship system

To align its apprenticeship system with the needs of employers, Scotland should build a more demand-led funding system in which employers determine the provision of apprenticeships.

- Determine the mix and total number of apprenticeships by labour market demand, so that an apprenticeship contract between an employer and an apprentice should automatically trigger fully funded off-the-job training provision and assessment (see Chapter 4). Learning providers contracted by SDS should meet the scale and mix of demand defined by the apprenticeship contracts concluded between employers and apprentices. This reform can be more effectively

implemented if off-the job training is fully funded (Chapter 4), which would discourage the current secondary market in which training providers negotiate financial contributions from employers.

- Launch a pilot to determine how the total number of apprenticeships in the piloted sectors increase due to the increased funding available for older apprentices. The evaluation of the pilot should also examine how the age and regional mix of apprenticeship changes and any implications for equity. Employers and apprentices should be surveyed on their experiences, and to estimate the added effects of the funding changes, looking at possible deadweight costs. To estimate the additional expenditure impact, there would need to be careful assessment of the extent to which provision is displacing other types of education and training programmes, including higher education, and the net public expenditure implications (see Section 4.1).
- Establish incentives through extra payments to employers offering apprenticeships meeting defined criteria, e.g., in line with strategic priorities (see Section 2.1). This could be used to encourage apprenticeships in STEM fields for example or expand existing incentives for people with a disability.
- Combine demand-led funding with efforts to update standards and frameworks to respond to changing requirements of the economy alongside investment in the skills of the teaching and training workforce.

2.3. Ensuring that responsiveness and quality go hand in hand

High-quality apprenticeships have well-defined and high-standard requirements (OECD, 2018[13]). An apprenticeship represents career training for an occupation. Learning a broad skill set, rather than just a specific skill, can take a number of years. Substantial periods of training may also be necessary for employers to realise benefits from offering apprenticeships, as relatively skilled apprentices become increasingly productive towards the end of their apprenticeship programme (Kuczera, 2017[57]; SDS, 2020[58]). High-quality apprenticeships also balance on- and off-the-job training and meta-skill requirements. While practical learning by doing in the workplace is hugely valuable, the rationale behind apprenticeships is the widespread recognition that more theoretical requirements are best acquired in the classroom and that the two forms of learning are complementary. Many countries therefore expect apprenticeships to involve a combination of on- and off-the-job training (Field, 2020[12]).

Challenge: There are no clear minimum requirements for Scottish apprenticeships

One of the defining strengths of apprenticeships in general is that they offer substantial career training through a structured blend of work-based learning and off-the-job training. By international standards, Scotland's apprenticeship system is exceptionally flexible in respect to programme length and the mix of off- and on-the-job training. While this flexibility allows providers and apprentices to more easily adapt to particular needs, it may risk weakening the perception of apprenticeships as a recognised and respected way of gaining skills and education.

Unlike in Scotland, apprenticeship systems in many other countries require a certain length of training, typically by regulation. Apprenticeship frameworks often, but not always, contain guidelines on expected programme length (Field, 2020[12]). The SAAB report (SAAB, 2019[3]) makes no specific recommendation on the length of apprenticeships as one of its 14 principles but suggests that such a minimum might be desirable. While there are no regular data on the length of apprenticeships in Scotland, an indirect estimate suggests that apprenticeships are around 20 months long on average with substantial difference across programmes (Field, 2020[12]).

Scottish apprenticeships are shorter on average than in most countries, and some are less than 12 months which is particularly unusual by international standards (Figure 2.6). Within the United Kingdom, apprenticeships in Northern Ireland usually take at least two years and up to four years according to official guidance, but they are not "time-served" (Northern Ireland Government, 2017[59]). In England, following recommendations in the Richard report, apprenticeships are now required to last a minimum of 12 months (Powell, 2019[60]).

Internationally, apprenticeships are considered to require a combination of on-the-job and off-the-job training. A group of international organisations working in this area, have agreed on the following definition: "Apprenticeships provide occupational skills and typically lead to a recognised qualification. They combine learning in the workplace with school-based learning in a structured way. In most cases, apprenticeships last several years. Most often the apprentice is considered an employee and has a work contract and a salary" (Inter-agency Group on Technical and Vocational Education and Training, 2018[61]). The leading apprenticeship countries reserve a non-negligible proportion of an apprenticeship to off-the-job training.

Only some Scottish frameworks specify off-the-job training requirements as there is no general rule for how much off-the-job training is included in an MA. For example, the MA in food and drink operations at SCQF Level 6 requires that 10% of programme time should be spent in off-the-job training for pathways 1-6, and 20% for pathway 7 (National Skills Academy for Food and Drink, 2021[62]). However, many other frameworks make no mention of off-the-job training requirements. During their visit to Scotland, the OECD team were told that some apprenticeship programmes, up to two years in length, are delivered without any off-the-job training.

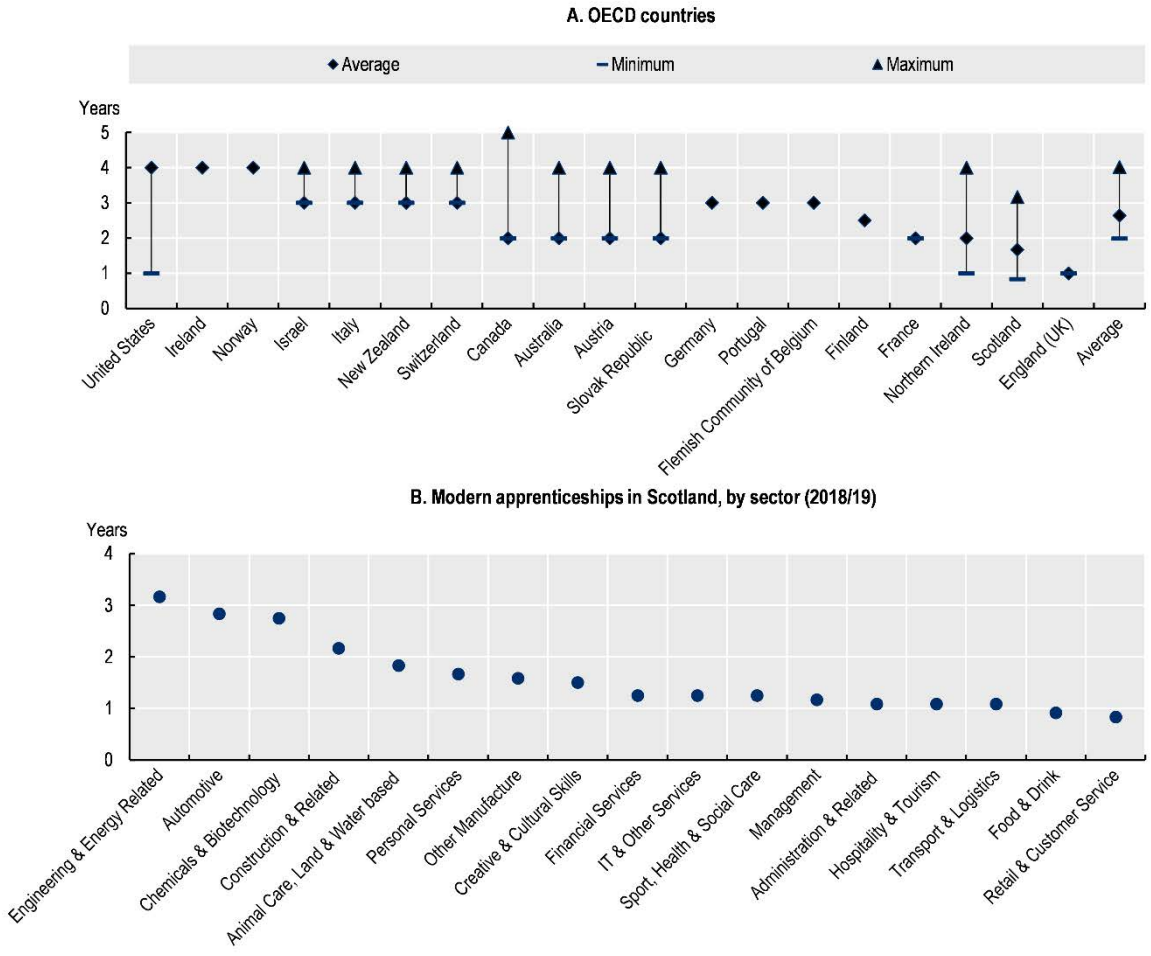
This may be related to the fact that, as indicated by the SAAB report (SAAB, 2019[3]), "off-the-job" has various interpretations. It could refer to training outside productive work (but possibly still at the workplace), training at a location other than the workplace, or training delivered by a provider other than the employer. In Scotland, the employer can also qualify as a learning provider – in which case they may be delivering some classroom elements of an apprenticeship programme within the workplace but separate from productive work. SAAB has proposed leaving off-the-job requirements to individual industry sectors – its guidance for employers and sector groups is yet to come (SAAB, 2019[3]).

The Scottish approach to off-the-job training is also different from that of other countries. First, it is more closely linked to generic job skills than to factors of general or academic education (e.g. covering subjects such as mathematics, English, foreign language, science and humanities). Second, the requirement is linked to demonstrated competences rather than required time in off-the-job education (Box 2.10).

While very short programmes, or those with little or no off-the-job training, may be delivering useful workplace skills and deserve support, this does not mean that they fit the definition of an apprenticeship. In particular, a not-insignificant proportion of Scottish apprenticeships are much shorter and deliver much less off-the-job training, than most international counterparts, including other parts of the United Kingdom. A lack of data on programme lengths and minimum requirements for off-the-job training also leaves much uncertainty, both for students and employers, about what an apprenticeship usually involves. In Germany, very detailed data on apprenticeship time structures are available, not just about on- and off-the-job training but beyond. Work is underway in Scotland to tackle these drawbacks, such as developing new standards including guidance on minimum durations and designing new apprenticeship frameworks.

Figure 2.6. Many Scottish apprenticeship programmes tend to be shorter

Estimated length of apprenticeships



Note: For Scotland, estimated average length of programme is calculated as the ratio of those in training to starts in the course of one year. The result is adjusted upwards to reflect the proportion of non-completers (24%) who are assumed to only complete half the programme length. Italy only includes apprenticeship for those aged 15-25.

Source: Field (2020[12]), Strengthening skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf; OECD (2014[63]), G20-OECD-EC Conference on Quality Apprenticeship. Country information on apprenticeship, OECD, https://www.oecd.org/els/emp/Youth%20questionnaire%20country%20responses-Compilation1.pdf. Austria, Flemish Community of Belgium, Germany, Israel, Portugal, and Slovak Republic from OECD (2020[64]), Education at a Glance 2020: OECD Indicators, https://doi.org/10.1787/69096873-en.

Table 2.5. How countries define the proportion of "off-the-job" training

Selected countries responding to the OECD-G20 questionnaire, 2013

Country	Off-the-job training arrangements
Australia	Traditional training models provided for apprentices have included one day per week (or the equivalent in 'block training') at a training provider.
Belgium (Flanders)	Dual system: in-company training (4 days per week) and training (1 day). Part-time education[7]: 3 days per week of in-company training, 2 days theory in centre for part-time education.
Canada	80% to 90% of an apprentice's training time is in the workplace. The remainder is provided at a public or private providers, usually in eight-week training blocks. In Quebec, the in-class training is taken prior to apprenticeship.
Estonia	One-third of the studies take place at school providing theory and basic practical skills.
Finland	Programme includes 20 to 30% of theoretical instruction in vocational institutions.
France	Usually three weeks a month are dedicated to training with the employer and one week to off-the-job training, which takes place in *Centres de Formation des Apprentis*.
Germany	Training is mainly provided in the company (3 to 4 days per week) – supported by teaching in vocational schools (1 to 2 days per week).
Ireland	About 20% of the total programme duration is spent in off-the-job training, in a Training Centre, Institute of Technology or College of Further Education.
Italy	In the 3-4-year apprenticeship for 15-25-year olds, off-the-job training includes between 400 and 990 hours/training, depending on entry-level competences of apprentices and the training pathways. Accredited agencies provide the training.
Netherlands	The apprenticeship pathway (BBL) has 60% work placement or more. The programmes must comprise 850 hours of education per year, of which at least 200 hours must be school-based instruction (begeleide onderwijsuren) and of which at least 610 hours must be work placement (beroepspraktijkvorming, bpv). In practice, this means that apprentices usually spend 1 day per week in the education institution and 4 days per week in the company.
New Zealand	Off-the-job training includes a minimum of 40 credits per year (each credit is equivalent to 10 notional learning hours) or a third of full-time, provided by public and private industry training organisations.
Norway	The programme normally includes two years at school with practical training in school workshops and short work placements in a company, followed by two years with an employer.
Switzerland	Training takes place through the totality of the programme, 3-4 days per week with the employer, leaving 1-2 days at the vocational school.
United States	For each year of the apprenticeship, there is a recommended minimum of 144 hours of related classroom instruction (plus 2 000 hours of on-the-job training). Training is provided by apprenticeship training centres, technical schools, and community colleges.

Source: Field (2020[12]), Strengthening skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf; for the Netherlands, Cedefop (Cedefop, 2019[10]), Cedefop European database on apprenticeship schemes, https://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/apprenticeship-schemes/country-fiches.

Box 2.10. General education components of off-the-job training for apprentices

One important function of off-the-job training is to provide a general education. This may parallel the general education delivered to those in academic secondary education, particularly for young apprentices.

In **Scotland**, until recently, Modern Apprentices have been expected to be certificated in a set of five "core skills", namely communication, working with others, problem solving, information and communication technology, and numeracy. Sometimes apprentices will already have achieved the core skills as part of their prior school qualifications or as integrated into the Scottish national curriculum. Alternatively, if the core skills can be mapped onto the relevant parts of the qualification which is included in the apprenticeship framework, then they will not need to be separately certificated. The development of Apprenticeships Standards going forward will be based around practical occupational activities as identified by employees and employers. Other learning or competencies outside the Standards will be supplemented by the wider skills and education system. See Chapter 4 for more information on Standards.

In **Switzerland**, all apprentices receive 2.5 hours per week of teaching in the official language, communication, civic education (including some applied mathematics) and 45 minutes of physical education (e.g. programme for kitchen employees). This adds up to 120 hours of basic skills education and sport per year, approaching 400 hours over a 3-year apprenticeship.

In **Germany**, apprentices receive 160 hours of general education per year, and this time is divided among subjects such as German, English, sports, and economics or social science.

In **Norway**, most apprentices spend the first two years of their apprenticeship in full-time school education before moving to a work placement for the remaining two years of their apprenticeship. During the 2 school-based years apprentices have 588 hours of basic education including Norwegian (or other official language), mathematics, English, science and physical education.

In addition to general education, apprentices in these three countries also receive education and training in occupation-specific subjects during their off-the-job education.

In **Australia**, the employer-led training packages which define apprenticeships contain a relatively limited amount of general education, and for that reason have been criticised as inadequate.

Source: Field (2020[12]), Strengthening Skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf

Many European countries impose requirements on the qualifications or skills of in-company trainers, i.e. the individuals in companies who train and support learners during their apprenticeship or other form of work-based learning, before companies are eligible to provide work-based learning (Box 2.11). In Austria, training companies must apply to the local apprenticeship office of the Federal Economic Chamber before they can recruit apprentices. The apprenticeship office, in collaboration with the Chamber of Labour, determines whether the company meets the prerequisites for apprenticeship training such as fulfilling the legal and corporate conditions. These include having a sufficient number of professionally and pedagogically qualified trainers. For example, there must be one part-time trainer available for every 5 apprentices, or a full-time trainer for every 15 apprentices (if a company cannot provide the full complement for an apprenticeship, then it must be part of an alliance of companies). This is based on the recognition of the fact that the success of company-based apprenticeship training is determined by the trainer's professional competence and pedagogical skills (Cedefop, 2019[10]).

Box 2.11. Examples from Europe: Requirements and training of in-company trainers

Austria

Workplace trainers must be qualified, through attending a 40-hour course, passing an exam organised by the economic chambers to prove their professional pedagogical skills and legal knowledge, or having a trainer or equivalent qualification. Although a company may accept apprentices even if the intended trainer does not yet have the trainer qualification, the trainer must catch up on the trainer qualification or appoint a person working in the company who has the trainer qualification as the trainer.

The trainer qualification is acquired through a trainer examination or a successfully completed trainer course. The trainer examination is organised by the master's examination offices of the Chamber of Commerce. Preparatory courses for the trainer examination are offered by the economic development institutes of the Chamber of Commerce (WIFI) and the professional development institutes (bfi). Trainer training courses are offered by WIFI, bfi and other training institutions.

The following specialist knowledge must be proven within the framework of the trainer examination or the technical discussion after the trainer course:

- establishing training goals based on the job description;
- training planning in the company;
- preparation, implementation and control of the training;
- behaviour towards the apprentice;
- knowledge of the Vocational Training Act (BAG), the Child and Youth Employment Act, employee protection and the position of the dual system in vocational training in Austria.

Many exams can replace the trainer exam. Trainer exams can be as part of the master craftsman's examination or qualification examination or as a separate examination in front of an examination committee.

Source: WKO (2019[65]), In-company trainers, https://www.wko.at/service/bildung-lehre/Ausbilder.html.

The Netherlands

All companies offering work placements (both in apprenticeship and school-based programmes) have to be accredited and the accreditation has to be renewed every four years (ECBO, 2016[66]). One of the criteria for accreditation is the availability of a trained supervisor or tutor. Tutors must be qualified to at least at the same level for which they are supervising work-based learning. Tutors must also be able to share their working expertise with students and be pedagogically competent (validated by diplomas/ certificates). In addition, the company has to offer sufficient training opportunities to allow students to develop the skills and competences prescribed in the curriculum. The company has to agree to co-operate with the VET school and workplace tutors have to contact the school on a regular basis. The work environment has to be safe for VET students.

Source: ECBO (2014[67]), Apprenticeship-Type Schemes and Structured Work-based Learning Programmes The Netherlands, https://cumulus.cedefop.europa.eu/files/vetelib/2015/ReferNet_NL_2014_WBL.pdf; Smulders et al. (2016[68]), Netherlands: VET in Europe: Country Report 2016, http://libserver.cedefop.europa.eu/vetel ib/2016/2016_CR_NL.pdf.

Estonia

In Estonia, VET teachers are responsible for training in-company trainers. They organise seminars and training courses, and supervise and support in-company trainers. In the past, VET institutions could apply for additional funding to develop training of trainers. The purpose of the training is to raise the quality of supervision during work placements and the efficiency of such training. Courses are 8-40 hours long and participants receive a certificate. They cover preparing, administering and evaluating work practice, and include didactics, supervision and training provision; curriculum objectives and assessment principles; and work practice and supervision for special education needs students (Ministry of Education and Research of Estonia, 2017[69]).

Norway

The Norwegian Directorate for Education offers free resources for apprentice instructors on their website, including short movies showing how instruction can be carried out in practice (Norwegian Directorate for Education and Training, 2011[70]).

Switzerland

In Switzerland, trainers at companies providing apprenticeships have to have a special qualification, which is awarded upon attending 100 hours of training in pedagogy, VET law, VET system knowledge, and problem-solving methods for adolescents. VET trainers for intercompany courses have to complete 600 hours of pedagogy preparation and there are also special requirement for examiners (Hoeckel, Field and Grubb, 2009[71]). In addition to formal requirements, Switzerland provides in the QualiCarte a checklist of 28 quality criteria that are used by companies for self-assessment (OECD, 2010[72]).

Enhancements to the quality of apprenticeships

The OECD recommendations in this report to improve the responsiveness of and funding for apprenticeships, need to be supported by the assurance that the apprenticeships on offer are of high quality. This assurance can only be realised through a significant upgrading of minimum expectations on apprenticeship to meet international norms. Scotland should establish minimum requirements for apprenticeship programmes, including the length and mix of on- and off-the-job training. This should include making off-the-job training mandatory in apprenticeships and ensuring that workplace training is supported by quality standards.

- **Strengthening the capacity of and requirements for in-company trainers**. Defining requirements for in-company trainers may encourage investment in the trainer workforce. Additional training to the trainers and supervisors of apprentices may need to be implemented with extra support (e.g., grants for trainers' training).
- **Clarifying and increasing minimum requirements for apprenticeships in Scotland** could send a clear signal not only in terms of quality, but also of the quantity and form of training involved. Such minimum standards could be established without seriously disrupting a distinctively flexible approach to apprenticeships. In particular, relevant data should be collected to identify the length of different apprenticeships, and what proportion of off-the-job training they include. This information is of policy importance and should be regularly collected.
- **Considering rebranding apprenticeships to increase their attractiveness**. This would further position apprenticeships as a high-quality training pathway. The term "'Modern Apprenticeships" has been in use since 1994, and by definition they are no longer modern. The name is also unhelpful for those with Scottish apprenticeship qualifications who wish to work in England where the term is no longer used. Given the substantial reforms to Scottish apprenticeship standards and frameworks now under way, and the clarification of the boundaries of apprenticeship as proposed here, it would be timely to consider new names. One option would be to use the term "Scottish apprenticeships", to also include Graduate and Foundation Apprenticeships, and it appears to already be in use. Given an increasing divergence between the apprenticeship systems of Scotland and those in England, Wales and Northern Ireland, a signal of the difference would be helpful.

Recommendations and implementation for ensuring that responsiveness and quality go hand in hand

2.3. Establishing minimum requirements for apprenticeship programmes

Scotland can enhance the quality of its apprenticeships and strengthen the brand of its apprenticeship system by establishing minimum requirements for the length of programmes, the time to be spent on off-the-job learning, and the competences of in-company trainers.

- Conduct a review of what type of general education might reasonably be expected to be included in apprenticeship, including transferable skills and meta-skills, as this bears on the minimum requirements for off-the-job training.
- Introduce minimum requirements for programme length and the proportion or absolute amount of off-the-job training, based on a complete understanding of what proportion of programmes will be affected. Apprenticeships that fall below these requirements should be assessed to establish whether those programmes are likely to be maintained. For those that are not, there should be an assessment of whether the training involved is desirable and useful, and if it should be supported in some other way as useful non-apprenticeship training.

- Define minimum requirements for in-company trainers to ensure quality provision of work-based learning. Based on those requirements, Scotland should provide necessary training for those who do not meet such requirements or encourage employers to invest in such training. This can be linked to the development of a higher-level qualification such as mastercraftsperson, as recommended in Section 4.3.
- Rename the entire apprenticeship family "Scottish Apprenticeships". The aim would be to use this as the standard term in official documentation – and this appears to already be in use – and to develop easier pathways between the different work-based learning options. The different levels of apprenticeship should primarily be distinguished in relation to SCQF levels, although there is no reason why the term Graduate Apprenticeship should not be retained.

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Notes

[1] Three legal documents (Berufsbildungsgesetz, Handwerksordnung and Jugendarbeitsschutzgesetz) administer the eligibility of employers and training companies to offer vocational training. Under these laws, over half of German employers are eligible to offer apprenticeships. Since 2000, around 50% of eligible employers have participated in the vocational education system. The participation rate of eligible employers is positively correlated with the size of the workforce of the enterprise (OECD/ILO, 2017[38]).

[2] Adopt an Apprentice payments go to employers taking on an apprentice who has been made redundant by another employer. In 2020 the payments were increased from GBP 2 000 to GBP 5 000. Access to work payments support the additional costs of taking on an employee with a disability, and this covers apprentices as well as other employees.

[3] With a network of 30 local Chambers of Commerce, SCC represents more than 12 000 companies and over 50% of Scotland's private sector workforce.

[4] CBI is a UK business organisation. It promotes business interests by lobbying and advising governments, networking with other businesses and creating intelligence through analysis of government policies and compilation of statistics.

[5] Around 50 national trade committees (*faglige udvalg*) are responsible for 106 upper secondary VET programmes. These are composed of, and funded by, employer and employee organisations. Trade committees update existing courses and propose new ones; define learning objectives and final examination standards; decide the duration of the programme and the ratio between college-based teaching and practical work in an enterprise; approve enterprises as qualified training establishments and rule on conflicts which may develop between apprentices and the enterprise providing practical training; and issue journeyman's certificates in terms of content, assessment and the actual holding of examinations (Andersen and Kruse, 2016[28]).

[6] For example, the apprenticeship employer toolkit developed by SDS and Lantra Scotland in the land-based, aquaculture and environmental sector provides employers with guidance and support needed when offering apprenticeships, which could be scaled up to be used in other sectors (see for example, the "Rural Employers' Toolkit").

3 Innovating apprenticeships in Scotland

This chapter explores the policy responses to support innovation in apprenticeships in Scotland (United Kingdom). It presents emerging approaches to apprenticeship delivery and learning and teaching methods, as well as ways to attract apprentices, assess their skills and monitor outcomes using innovative technology. Finally, the chapter discusses the importance of providing strategic guidance and practical support for innovation in apprenticeships.

The importance of innovation and technology in the apprenticeship system

When it comes to apprenticeships, technology can play an important role in reducing the transaction costs of matching apprentices and employers, facilitating teaching and learning, and enabling better communication among relevant stakeholders. More broadly, innovation and technology can help to increase the number of apprenticeships; improve the quality of teaching, training and learning; and enable closer monitoring of the system. The COVID-19 pandemic has shown the benefits of using innovative technology for teaching and learning, especially in the context of school closures (OECD, 2020[1]; OECD, 2021[2]), but also highlighted the challenges faced by the vocational education and training (VET) sector where practice-oriented learning in workplaces, workshops and simulated work environments is the norm.

Technologies such as online learning, virtual/augmented/mixed reality and simulators, all provide opportunities to make training more accessible, flexible, safe, and efficient (Box 3.1 gives an overview of the different types of technology that could be used in vocational education). The use of technology in apprenticeships is expanding in several countries, including in Scotland, complementing or (partially) replacing more traditional forms of delivery and assessment along the apprenticeship journey. Nonetheless, there are opportunities for Scotland to accelerate the adoption of technology in education and apprenticeships. For example, although some Scottish learning providers benefit from well-established information and communications technology (ICT) infrastructure and systems for remote learning delivery, not all of them had invested sufficiently in their ICT infrastructure prior to the pandemic. Many colleges reported a range of issues in relation to connectivity, particularly in rural areas (Education Scotland, 2021[3]). In addition, the pandemic also highlighted the complexities of supplementing or replacing work-based learning opportunities.

To overcome barriers like these, strategic guidance and practical support for the effective use of technology will be crucial, as well as the involvement of both the private and public sector – employers, training providers, colleges, universities, research institutions and government. Those who provide teaching and training in classrooms and workplaces should play a role in ensuring that low-quality digital learning tools do not displace valuable instructional activities that could be better done without digital devices (OECD, 2021[4]). Drawing on international examples, this chapter focuses on how Scotland could use technology to expand and strengthen its apprenticeship system.

Box 3.1. Types of technologies that are (or can potentially be) used in apprenticeships

Artificial intelligence (AI) with sensors and learning management systems

When combined with sensors and learning management systems, AI can give teachers a sense of how their different students are learning, and where they are making progress or getting stuck. AI can help teachers, especially novice ones, read the classroom better and adjust the speed of teaching or stimulate students with techniques such as pop quiz questions. AI can also help with assessments, especially integrating learning and assessment using real-time data and feedback.

Virtual or augmented reality (VR/AR)

VR/AR supports the provision of practical training in a scalable, flexible and safe manner. It may supplement or replace existing training, as it improves the efficiency and quality of training. In the energy sector, for example, apprentices use virtual power plants, designed following industry standards, to simulate electrical failures and solve technical issues. VR applications in the aerospace industry allow industrial maintenance students more time to learn how to use physical equipment where a limited supply of equipment for training would otherwise limit their time. VR can also be used to develop soft skills, for example using realistic immersive scenarios that allow users to improve their communication and collaboration skills while interacting with colleagues, leading a team or selling a product to a client.

Learning analytics

Learning analytics can help teachers plan teaching and training better based on the real-time learning processes and results of students.

Robots

Robots can assist with a wide range of teaching and learning tasks. They can assist students with disabilities or different mother tongues than the instructional language. For example, vocational teachers use welding robots to introduce students to automatic welding. They show how welding robotic arms can be programmed using specialised software. They also demonstrate how car parts, metallic structures or industrial equipment can be welded using this technology. Automated welding can be more efficient than manual welding for repetitive tasks. In automated contexts the welder's role involves handling some of the parts to be welded; programming, operating and troubleshooting the welding robot; and inspecting the quality of the final product.

Simulators

Simulators allow students to develop their ability to confront real-life challenging scenarios. In engineering, for example, students on the operation and control of engine rooms use simulation software. In the logistics and transportation sector, apprentices use simulators to learn how to drive a truck or operate a loader vehicle facing real-life issues. The maritime sector also widely uses simulators to train apprentices in the navigation and operation of vessels, both at sea and in ports.

Blockchain

Although no applications have yet been realised, blockchain has great potential to bring skills and qualifications together in a reliable, user-friendly credential system. Reskilling and upskilling could be facilitated by blockchain-verified qualifications.

Source: OECD (2021[4]), *OECD Digital Education Outlook 2021: Pushing the Frontiers with Artificial Intelligence, Blockchain and Robots*, https://dx.doi.org/10.1787/589b283f-en; OECD (2021[5]), *Teachers and Leaders in Vocational Education and Training*, https://dx.doi.org/10.1787/59d4fbb1-en.

3.1. Using innovation and technology to further expand and promote apprenticeships

3.1.1. Innovative ways to identify and reach potential beneficiaries

Using skills intelligence to align apprenticeship provision to labour market needs

Aligning apprenticeship provision to labour market needs is one of the most difficult but important tasks in an agile apprenticeship system. Technology can help by providing relevant and timely data, including big data about labour market needs and data analytics (ETF, 2020[6]). Such datasets provide many opportunities and are increasingly being used, but also need to be used with caution (Box 3.2). Combining big data with complementary sources of skills intelligence will be key to generating statistically robust, detailed and policy-relevant evidence (Cedefop; European Commission; ETF; ILO; OECD; UNESCO, 2021[7]).

Scotland is doing well in assessing and anticipating skills needs. For example, Skills Development Scotland (SDS) systemically produces sectoral and regional skills assessments, focusing on employment, vacancies and new job openings. SDS already combines evidence from multiple qualitative and

quantitative sources with real-time data to offer estimates of current and future skills needs. They are used to inform apprenticeship offers and other skill matters (SDS, 2021[8]).

However, stakeholder discussion in preparation for this OECD review highlighted that employers in Scotland still feel that there is a need to identify and address local and regional skills shortages in a more agile and responsive manner. Data on the match between the apprenticeships on offer and labour market demand are limited. It would be necessary to gather evidence to show whether apprenticeship starts are well aligned with the needs of the labour market (see also Chapter 2) and whether employers make forward-looking skills investments. For example, data on how well apprenticeship starts reflect current labour market needs such as in fast-growing sectors and occupations or strategic priorities for the future – ideally disaggregated by level of skills, sector and other targeted characteristics – could be useful for designing and guiding apprenticeship provision.

More could also be done to help employers and learning providers to access and understand the results of skills intelligence and to effectively use them for their skills planning and training provision – both in the short and long term. Skills intelligence could benefit not just those working on curriculum design and delivery, but also those working in areas such as career guidance and counselling, budget allocations for training programmes, human resources, and migrant workers. Scotland is currently building "skills and technology route maps" to help stakeholders use skills intelligence at the skills planning stage.

Box 3.2. The challenges of using big data to understand labour market needs

Real-time, online labour market data have great potential to improve the understanding of trends in skills needs. The advantages of web-based big data over conventional approaches include timeliness and granularity. However, such data tend to need more effort to prepare them for analysis than those collected using conventional approaches. The unstructured information provided often suffers from statistical, selection and conceptual biases. Despite advances in information and natural language processing and cloud computing, setting up a stable and well-functioning system for gathering, processing and analysing big data remains challenging. Developing such a system is complicated and resource intensive, but it can be beneficial in the long run.

Web-based big data cannot and should not replace existing skills intelligence methods and sources. Exploiting the complementarities between big data and other sources of skills intelligence is key in generating statistically robust, detailed, and policy-relevant evidence. It is the combination of artificial and human intelligence that will be key to further developing big data's role in shaping effective vocational education and training and skills policies.

Source: Cedefop; European Commission; ETF; ILO; OECD; UNESCO (2021[7]). Perspectives on Policy and Practice: Tapping into the Potential of Big Data for Skills Policy, http://data.europa.eu/doi/10.2801/25160.

Matching and profiling potential apprentices, employers and learning providers

Technology cannot only be used to reduce mismatch between the apprenticeship offer and labour market needs overall, but also to better match learners, learning providers and employers. Technology can help connect them, by profiling individuals' skills and aspirations, employers' skills needs, and learning providers' training offers, and finding the best matches between them. This can help reduce searching and matching costs and increase the effectiveness of matching skill needs and training.

Scotland has set up a comprehensive online apprenticeship portal called apprenticeships.scot. Among its many functions, the portal offers services to connect apprentices and employers, and provides information on apprenticeship jobs and funding opportunities, and general guidance and advice on apprenticeships.

Although the majority of apprentices are not recruited via this portal – in practice many apprentices have been working for their employer for some months or years before they start their apprenticeship – hard-to-fill vacancies such as in the childcare sector are regularly advertised through it. In order to make this function more effective, the platform could use profiling technology. For example, data analytics and statistical profiling could help to target, identify and reach out to potential apprentices and employers. Statistical models can help governments identify target groups based on their policy goals as well as economic needs. Scotland already has various databases, including the records in SDS's Customer Support System, which could be further exploited to that end.

Public employment services in various countries profile individuals and match them to services or interventions based on factors commonly associated with long-term unemployment and at-risk groups. Rather than relying on traditional one-to-one matching, more innovative profiling models are likely to become more prominent as big data become more widely available. Combined with new machine learning techniques, the models can use the data to improve their predictive power and target results more precisely, ideally in conjunction with a continuous dialogue between data analysts, policy makers and practitioners (Landeghem, Desiere and Struyven, 2021[9]). With more detailed data collection on students, apprentices and graduates, as well as learning providers and employers, profiling models could be used to identify individuals who could benefit from an apprenticeship, including early school leavers and job seekers. Flanders (Belgium) provides a useful example of a deep learning model using real-time labour market data and job seekers' skills data to support people in taking up vocational training or finding jobs (Box 3.3). Likewise, on the employer side, data on employees' skills and employers' training systems can show which enterprises could benefit from offering apprenticeships and/or need support to engage in apprenticeship provision. Box 3.4 describes Germany's self-assessment tool for companies to use to identify how far they have progressed towards Industry 4.0, as well as to analyse their employees' skills, their own efforts to develop skills and their training practices.

Box 3.3. Flanders (Belgium): Using AI to better match learners and training opportunities

The Flemish Employment and Vocational Training Service (VDAB) helps residents of Flanders find jobs and take vocational training, by using machine learning (ML). VDAB recently partnered with Radix.ai, a Belgian ML startup, to make the matching process more effective and efficient. This initiative uses the VDAB data contained in CVs and job postings and applies ML to provide better-targeted matches for VDAB users. Deep learning, a subset of ML, enables machines to mimic human behaviour, and in order to train the deep learning model, VDAB regularly uploads new vacancies and CVs to their storage engine. With each new dataset, the engine learns how the job market evolves, noting changes in job demand and how trends shift over time.

The deep learning model also learns how jobs are spoken of and what the changing interplay of words means. For example, "data scientist" is a relatively new job, related to the roles of machine learning engineer, data analyst and even AI architect. The model allows machines to learn the meaning of words and continue to improve matching quality. Based on word relationships and the interests and behaviour of the users, job matches are more closely aligned to the aptitudes, talents and preferences of job seekers.

Source: Amazon Web Services (2021[10]), AWS Partner Story: VDAB & Radix.ai, https://aws.amazon.com/partners/success/vdab-radix-ai/ https://www.tijd.be/de-tijd-vooruit/tech/ai-bedrijf-radix-helpt-vdab-jobs-op-maat-aan-te-bieden/10313389.html.

These identification and matching tools could be combined with existing tools for raising awareness about and the attractiveness of apprenticeships and should not replace more traditional efforts to promote and strengthen the image of apprenticeships.

Box 3.4. Germany: Business diagnostic tools that could support improving apprenticeships

Germany's self-check for businesses helps small and medium-sized enterprises (SMEs) check how prepared they are for Industry 4.0 (see Box 3.10 for information on Germany's Industry 4.0 initiative). This benchmarking and assessment tool uses a survey on business characteristics and practices, as well as key performance metrics, to identify how far the business is progressing towards Industry 4.0. Businesses input details on their structure and organisation and receive detailed feedback. The tool is well-known among mechanical engineering and manufacturing industries as the sector was heavily involved in its development.

The questionnaire contains two parts: basic information about the firm, including its sector, revenue, and number of employees, primarily to ensure the representativeness and projections, and details about business practices related to industry 4.0. These questions identify a set of indicators across the six modules of the Industry 4.0 Readiness Model, including analysing employee skills in various areas and company's efforts to acquire new skill sets and training practices. The tool then provides a scorecard and rating of the business' level of Industry 4.0 readiness.

The benchmarking tool was launched at the German Mechanical Engineering Summit in Berlin in 2015. Nearly 7 000 firms completed the check between 2017 and 2019. About 45% of these respondents were assessed at Levels 2 (beginner) and 3 (intermediate). Only 1.6% of firms achieved Level 4 (expert) and none reached Level 5 (top performer). The average level mechanical and plant engineering was 1.4 and the average in manufacturing was 1.3. Overall, the lowest levels were achieved in the Smart Factory and Data-driven services dimensions at 0.8 and 1.1 respectively. The dimension with the highest assessment score was Employees at 1.7.

Source: OECD (2020[11]), "Digital business diagnostic tools for SMEs and entrepreneurship: A review of international policy experiences", https://doi.org/10.1787/516bdf9c-en.

3.1.2. Promoting and supporting technology-enabled apprenticeships

The benefits of using technology in apprenticeship provision

The COVID-19 pandemic provided an impetus for innovation by forcing education and training providers to use technology to ensure continuity of learning during school closures, including in vocational education. Many countries have increased the share of online vocational education programmes (Briggs, López and Anderson, 2021[12]). The pandemic gave many workers and students a chance to work and study remotely – as work goes virtual, so too must apprenticeships. Learners in Scotland have since highlighted how much they appreciate, and have benefited from, increased and flexible online access to support functions. However, the pandemic also highlighted some challenges, including around digital skills and connectivity issues – which are not specific to apprenticeships but could have an impact given the increasing use of online courses relevant to apprenticeships. According to Education Scotland (2021[3]), a number of colleges in Scotland identified digital skills gaps among individual learners and staff, as well as issues with access to digital equipment and connectivity. In most colleges, learning resources and activities were also made available as physical resource packs, delivered directly to learners, to support those facing barriers to accessing remote learning such as poor connectivity or digital poverty (Education Scotland, 2021[3]).

The benefits of more and better technology use in education go beyond the pandemic, and this is also the case for apprenticeships. Technology can help increase the accessibility of apprenticeships (Box 3.5). Online and virtual learning can improve access for learners in remote areas by providing remote connections to learning providers and employers – as long as Internet connectivity is up to standard. For example, the Open University in Scotland offers flexible distance-learning opportunities, including Graduate Apprenticeships in software development and cyber security. It reaches out to employee-apprentices working in remote areas such as the Shetland Islands, far off the northern Scottish

coast. Another example is *e-Sgoil*, a Scottish initiative that promotes online learning to improve equity and access across the Western Isles, supporting Foundation Apprenticeships (e-Sgoil, 2021[13]). In Norway, apprentices in rural settings have successfully completed certain programme requirements through e-learning platforms (OECD/ILO, 2017[14]). Other types of technology can also make apprenticeships more accessible to students with disabilities that may have prevented them from following certain pathways in the past. For example, AI systems can help students overcome obstacles, such as through text-to-speech or speech-to-text applications or wearables to help visually impaired students read books (Vincent-Lancrin and van der Vlies, 2020[15]).

More advanced technology can help to diversify training options, by overcoming material shortages that might otherwise limit what governments and learning providers can offer to students and how students can progress. For example, virtual or augmented reality (VR/AR) and simulators, can enable students to develop vocational skills by performing specific tasks like operating heavy machinery, learning how to repair a car engine, or testing chemical products in a laboratory (OECD, 2021[4]). In such cases, it may be cheaper and safer to use simulators or VR/AR than traditional laboratories that are expensive to set up, maintain and update.

Technology can also increase the effectiveness of learning in terms of learning progress and outcomes. According to a World Bank study, VR training is more effective on average than traditional training in developing technical, practical and socio-emotional skills; it is particularly promising in fields of health and safety, engineering and technical education. Students who had VR training used inputs and time more efficiently and/or were better at avoiding performance errors than students receiving traditional training. For each additional hour of VR training, students scored 3% higher in technical learning assessments than those exposed to the same content delivered through traditional methods (Angel-Urdinola, Castillo-Castro and Hoyos, 2021[16]).

Another potential benefit of technology is that it can be used to provide personalised support to learners and teachers. Learner tracking systems, where teachers and trainers have detailed information on learners, can improve the quality of training provision, similar to the player-level analytics available to a professional sports coaching staff. Such systems can provide teachers and trainers with information that they may have neglected during lessons due to their workload or other systemic, technical, or institutional issues. Data analytics and statistical profiling models can be also used to identify students at risk of dropping out, using the administrative micro-data that are increasingly being collected by education systems and organisations. While identifying a good set of early warning indicators remains difficult, a few systems have shown a high level of accuracy and enriched thinking about the reasons students drop out (OECD, 2021[4]). These techniques may help prevent students dropping out, detect potential problems, and provide opportunities to intervene earlier. For example, in the United Kingdom, predictive analytics tools can be used to identify high-risk programmes and learners by measuring trends in learner engagement and motivation (Box 3.5).

Finally, technology can also be used to reduce administrative and repetitive tasks involved in apprenticeship management, such as managing admissions and school allocations, assessment reports, proctoring systems, and resource allocation and planning (OECD, 2021[4]). The Scottish apprenticeship system is already making use of such technologies to some extent.

While there are many potential benefits to the use of technology, it also poses challenges and traditional face-to-face learning will in certain cases remain the preferred option. Increasing the use of technology should be a means to an end and not an end in itself. Hence, technology and innovation should be carefully embedded into curricula and pedagogy with the aim of achieving a higher level of performance. Any new approach by training employers and providers should be supported by research and development, and supplemented by learner performance analytics on progression. Although World Bank research (Angel-Urdinola, Castillo-Castro and Hoyos, 2021[16]) found that VR training can be as effective as traditional training methods, its effectiveness differs across sectors and subjects.

Box 3.5. International examples: Using technology to improve access and completion

Scotland (UK): Online apprenticeships, blockchain technology, virtual learning and e-portfolios

The Open University (OU) works with employers to offer online Graduate Apprenticeships in cyber security and software development. Learning material includes online activities, eBooks, video and audio resources, OU Anywhere App, and face-to-face and online tutorials. The OU provides apprentices with a support network: an apprenticeship programme manager, practice tutor, line manager/mentor, academic tutor and student support team. It also provides pre-programme learning and induction. As part of the QualiChain project, the OU's Knowledge Media Institute is planning to use blockchain technology to allow learners to manage and verify their educational and employment qualifications. The project aims to develop an open-source platform to capture learners' data and a decentralised approach to archiving, managing and verifying them.

Another example is BAE Systems, a global defence, aerospace and security company, which provides apprenticeships in Scotland and was graded excellent in SDS's quality assurance assessment in 2019-20. The company has well-equipped training rooms that provide a modern training environment. A high-tech Virtual Experience room enables apprentices to "walk round" a ship while still in the training suite. The Learning Assistant e-portfolio option is available to all apprentices to complete and upload evidence, which supports them to progress their portfolio and complete their qualification. Emails and messaging facilities in the E-portfolio system provide helpful communication channels between apprentices and the skills and training team.

Likewise, Ident Training Ltd is a vocational learning provider for dental nurses, which was graded excellent in SDS's quality assurance assessment in 2019-20. It meets businesses and learners' needs by providing hybrid learning: e.g. Saturday morning classes and evening Skype calls together with online learning platforms to provide flexible training options depending on location and work patterns. The provider also uses an e-portfolio system to enable employers and apprentices to access information on the learning progress of apprentices and also developed an online resource site for staff, apprentices and employers (e.g., classes are saved and uploaded on the resource site). The provider's classroom facilities include a fully equipped IT suite with interactive smartboard.

Canada: Flexibility and Innovation in Apprenticeship Technical Training (FIATT) project

The FIATT project funded ten pilots that experimented with alternative delivery approaches such as a combination of online learning with classroom learning, mobile training units, instructor support, and simulators. Courses were created for the trades of carpenter, construction electrician, gasfitter, heavy-duty equipment technician, mobile and tower crane operators, plumber, refrigeration and air conditioning technicians, steamfitter/pipefitter and welder.

According to an evaluation (2015-18) by the Canadian Apprenticeship Forum, more FIATT apprentices relocated and incurred fewer costs when relocating, compared to non-FIAAT apprentices. FIATT apprentices were more likely to agree that their training was flexible. They missed fewer hours of work and reported fewer lost earnings. The following defining success factors were identified: engaging employers to be aligned with the latest industry standards and workplace practices, involving faculty in programme development, connecting trades instructors and IT specialists to make engaging online learning content, and structuring online courses to offer reminders about assignments to support apprentice progression. However, connectivity and capacity in remote and rural communities were challenging.

The United States: Micro-industry engagement

In Louisiana, hands-on teacher support is combined with technology to connect rural students with employers. A major component of this micro-industry engagement is a strategic partnership with Nepris, a company that virtually connects schools, teachers and students with workplace experts and professional mentors. Through this partnership, teachers have engaged industry experts to conduct interviews with students, provide feedback on a capstone or other project, or judge student competitions. The micro-industry engagement is intended to be a series of cumulatively structured

engagements and is designed around four key tenets: 1) virtual access to workplace experts in every industry sector; 2) teachers are empowered with the technologies and curated instructional resources; 3) schools offer virtual and in-school exercises akin to onsite workplace-based learning; and 4) students prepare with workplace experts, mastering sophisticated communication skills.

Singapore: Virtual and augmented reality

The Institute of Technical Education (ITE), a principal provider of vocational education and training (VET) in Singapore, introduced two types of immersive VET technologies: 3D virtual reality (VR) and augmented reality (AR).

3D VR technology facilitates access to real-world work sites. For example, students enrolled in the Marine and Offshore Technology course used a multi-wall 3D VR system to practise their skills on a simulated oil rig platform. Using this technology, students were able to safely train for adverse weather conditions and learned to adjust to a variety of environmental conditions and associated job hazards.

3D AR applications enable students to interact with real world environment using real time data, contextualising knowledge for just-in-time learning. For example, students on the Aerospace Technology course were able to load 3D aircraft engine models into their mobile devices and watch simulations of these engine parts in the AR viewer. These 3D simulations helped them to visualise details of complex systems and the operational flow inside the equipment. The schools worked closely with technology solution providers to design relevant learning activities for students, based on the curriculum requirements.

The United Kingdom: Predictive analytics to indicate dropout risks and learning progress

Predictive analytics (PA) can identify the various profiles or combinations of factors which might indicate, for example, the likelihood that an apprentice will drop out. Computer algorithms can use big data to find the patterns which predict an outcome, for example the responsiveness of tutors, determining how quickly work is assessed and returned to apprentices. PA has the potential to match tutors with individual learners and provide high-level reporting of retention risks across groups of apprentices, by measuring trends in learner engagement and motivation. PA can also be used to support tutors in managing their workloads.

In the United Kingdom, one-stop apprenticeship management apps such as Aptem offer these services with built-in machine learning functionality. Aptem identifies issues among programmes or learners through its early warning system and manages the apprenticeship programme from start to finish, generating rich data to assess the pace and progress of personalised learning.

Source: Open Univ; CAF-FCA (2019[17]), https://caf-fca.org/wp-content/uploads/2019/01/CAF-FIATT-Report_EN_F.pdf;
The Open University (2022[18]), New grant to develop blockchain technology for learning, www.open.ac.uk/research/news/new-grant-develop-blockchain-technology-learning#:~:text=The%20OU's%20Knowledge%20Media%20Institute,their%20educational%20and%20employment%20qualifications;
SDS (2020[19]), Quality Assurance Assessment 2019-20: BAE Systems Ltd, https://www.skillsdevelopmentscotland.co.uk/media/47146/bae-systems-qa-report-may19.pdf; SDS (2020[20]), Quality Assurance Assessment 2019-20: Ident Training Ltd, https://www.skillsdevelopmentscotland.co.uk/media/47162/ident-training-ltd-qa-report-dec19.pdf; UNESCO (2017[21]), Beyond Access: ICT-enhanced Innovative Pedagogy in TVET in the Asia-Pacific, https://bangkok.unesco.org/sites/default/files/assets/article/ICT%20in%20Education/TVET/TVET%20pub.PDF; Advance CTE (2020[22]), CTE Distance Learning in Rural Communities, https://cte.careertech.org/sites/default/files/documents/factsheets/CTE_Distance_Learning_Rural_Fact_Sheet_2020.pdf.
ILO (2020[23]), ILO Toolkit for Quality Apprenticeships. Volume 2 Guide for Practitioners: Innovations and strategies in apprenticeships, https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_751118.pdf;
Abrahams (2018[24]), Patron Think Piece - Aptem: Smart machines can transform apprenticeships, https://www.aelp.org.uk/news/news/think-pieces/patron-think-piece-aptem-smart-machines-can-transform-apprenticeships.

Assessing the current status of advanced technology in the apprenticeships system

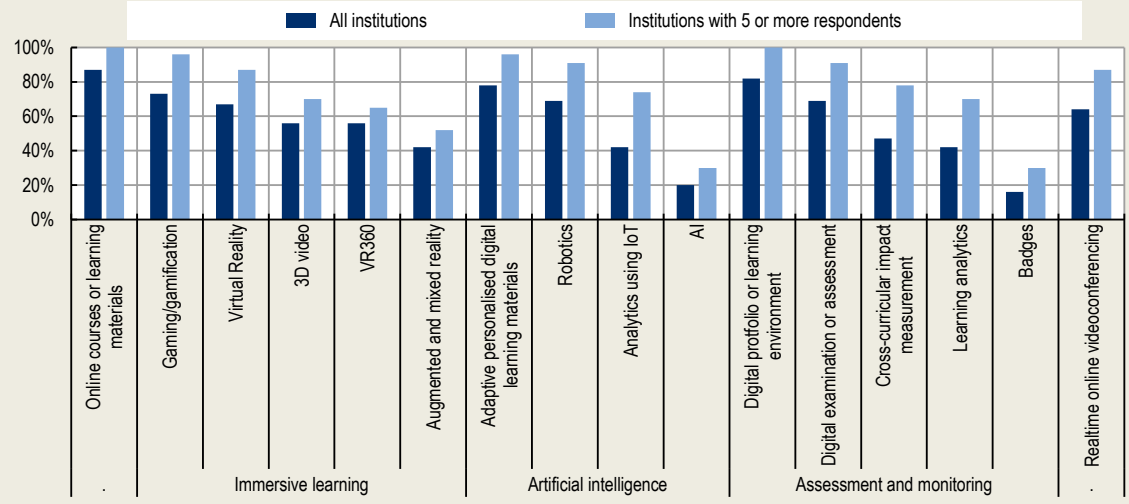
The use of technology and innovation for apprenticeship teaching and training is growing in Scotland but more could be done to fully take advantage of the benefits described above. The Enterprise and Skills Strategic Board sub-group recommended supporting the expanded use of technology in apprenticeships, at least for off-the-job training, within the context of the COVID-19 pandemic (ESSB, 2020[25]). A key first step would be to assess the status of technology use in Scottish apprenticeships and identify which parts of the system could make more and better use of it. For example, the Netherlands undertook a survey to identify how different technologies are used for different training objectives as well as the barriers to the use of innovative technology in apprenticeships (Box 3.6)

Box 3.6. The Netherlands: Assessing technology use and barriers in VET schools

In the Netherlands, the use of digital tools and innovative technologies for teaching is widespread among VET institutions. According to a recent survey (2019), around half of the programmes used online courses, digital portfolios or digital learning materials and environments (DLM/E) and adaptive personalised DLM/E, but few institutions, programmes or teachers used AI, digital badges[1] gamification and VR. The main barriers to the use of innovative technology were vocational teachers' lack of ICT skills, time and ownership, and institutions' lack of vision and objectives. This survey was run with 307 individuals in 53 VET institutions, representing 83% of all Dutch upper secondary VET institutions.

Figure 3.1. Many Dutch VET institutions use innovative digital tools and technologies

Share of institutions using a specific type of digital tool or technology



Note: "All institutions" refers to the 53 participating VET institutions (i.e. 83% of all Dutch VET institutions). Restricting the sample to those institutions that have at least 5 respondents in the survey reduces the number of institutions covered to 23.
1. A digital badge is an online-based visual representation that uses detailed metadata to signify learners' specific achievements and credentials in a variety of subjects across K-12 classrooms, higher education, and workplace learning (Muilenburg and Berge, 2016[26]).
Source: ECBO (2019[27]), *Onderwijsinnovaties met moderne ICT in het mbo*, https://ecbo.nl/wp-content/uploads/sites/3/Rapport-Onderwijsinnovaties-met-moderne-ICT.pdf.

The European Commission's SELFIE (Self-reflection on Effective Learning by Fostering the Use of Innovative Educational Technologies)[1] is a free online tool designed to help education and learning providers in Europe and beyond embed digital technology into teaching, learning and assessment. SELFIE

anonymously gathers the views of students, teachers, in-company trainers and school leaders on how technology is used in their school. Their input can be used by schools to formulate an action plan and set priorities to implement changes to support teaching, learning and student assessment (Hippe, Brolpito and Broek, 2021[28]).

The results from such an assessment can be used to develop an innovation plan for the apprenticeship system. Implementing innovation requires strong leadership within training institutions, well-trained vocational teachers and trainers, strong co-ordination with employers and technology-solution developers, and of course adequate financial resources (OECD, 2021[5]). The example of the Netherlands (Box 3.6) shows that technology use in apprenticeships depends on the capacity of employers and training providers to put it to effective use. Ultimately, the use of technology in apprenticeships is only possible if training employers and providers are both interested and have the capacity, resources and tools to implement the innovation (see Section 2.3).

Enabling vocational teachers and trainers to make the most of technology

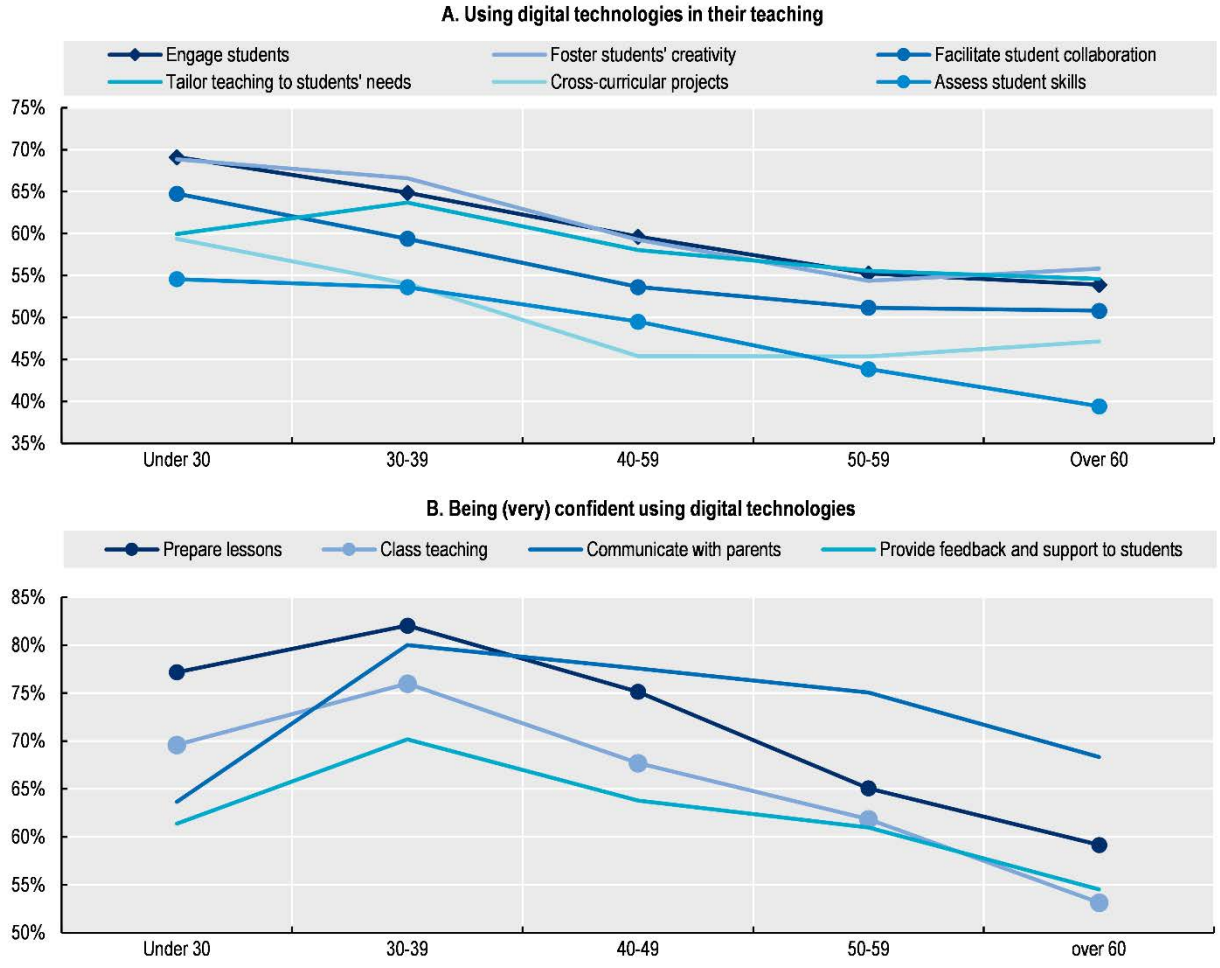
Vocational teachers and in-company trainers play a role in finding the right balance between in-person teaching and remote, online, or other use of technology (OECD, 2021[4]). They need to carefully balance the pros and cons of technology use and its effectiveness, but also the costs and benefits of using technology versus traditional methods. Training providers and employer may require additional support to be able to make informed decisions.

The extent to which teachers and in-company trainers will effectively integrate new technology into their activities depends strongly on their digital and pedagogical skills. However, the evidence from OECD countries is that a significant share of VET teachers do not use digital technologies for teaching or do not feel confident in doing so. Around one in four VET teachers using the SELFIE tool in OECD countries do not feel confident using digital technologies in classroom teaching, or when providing feedback to their students. Confidence using technology is lower among older VET teachers: around 82% of VET teachers aged 30 to 39 feel confident preparing lessons using digital technology, and 76% of them feel confident using technology in class teaching, but those figures fall to 59% and 53%, respectively, for teachers over 60 (OECD, 2021[5]). Likewise, younger vocational teachers are more likely to use digital resources than their older peers (Figure 3.2). For instance, almost 70% of teachers under the age of 30 use digital technology as part of their teaching to engage their students or to foster their creativity, compared with only slightly more than 50% of those over 60 (OECD, 2021[5]).

Teachers and trainers in apprenticeship programmes can make more effective use of innovative technologies in the delivery of apprenticeships if they have the interest and capacity to do so and the right resources and tools. Therefore, teachers and trainers should be supported, and able to participate in professional development in this area (e.g., data and teacher tracking system can offer teacher feedback for self-regulation). It is important to ensure that older teachers and trainers do not get left behind in this transition.

Figure 3.2. Older VET teachers use digital technologies less and are less confident in using them

Share (%) of upper secondary VET teachers using SELFIE survey (by age), OECD countries with available data



Note: All percentages refer to the share of high responses (i.e. 4 and 5 on a 5-point-scale). Participation in SELFIE is anonymous and voluntary, thus the data are not representative, see disclaimer in the source.

Source: OECD (2021[5]), *OECD Reviews of Vocational Education and Training*, https://dx.doi.org/10.1787/59d4fbb1-en (using data extracted from the SELFIE database in the period October 2018-December 2020).

Recommendations and implementation for Using innovation and technology to further expand and promote apprenticeships

3.1. Using innovation to expand and promote apprenticeships

To expand and promote apprenticeships, Scotland should take further steps to make the most of the opportunities offered by technology and innovative approaches.

- **Make better use of labour market intelligence** using automated data analytics and forecasts to align apprenticeship provision with labour market demand. Smarter use of matching platforms could help connect potential apprentices and employers and reduce search and matching costs. Scotland is doing well in these areas but could do more to help employers and learning providers to easily access and understand the results of skills intelligence and use them in their skills planning and training provision. These data should be also used to better inform apprentices and employers about the benefits of and need for apprenticeships.
- **Develop statistical profiling and modelling techniques** in the apprenticeship system to help identify and reach out to potential apprentices and employers. The use of such techniques is currently limited but is likely to become more prominent with the increasing availability of big data, combined with new machine learning techniques. Scotland could consider investing in this area, building on its work monitoring those completing their apprenticeships (see Section 3.2).
- **Help employers to evaluate their skills and training system** and the need to provide apprenticeships, building on existing technology such as business diagnostic tools. Such diagnostic tools would need to be developed in collaboration with relevant experts to ensure their relevance and effectiveness.

Based on an assessment of which approaches are most likely to increase accessibility for both employers and apprentices, improve quality, and address physical and resource challenges, the sector will need support to put technology to effective use.

- **Promote the benefits of using technology in apprenticeships**, including online, VR/AR and simulators, learner tracking systems and apprenticeship management systems to all relevant stakeholders. Implementing innovation requires strong leadership within training institutions, well-trained vocational teachers and trainers, strong co-ordination with employers, and adequate financial resources and quality assurance mechanisms.
- **Set appropriate guidelines for learning providers and in-company trainers** on the right balance between in-person teaching and remote, online or other use of technology that takes the place of human interaction. These guidelines should be supported by research and reviewed and updated based on analysis of learner performance and progression.
- **Provide professional development opportunities to teachers and trainers** to support them in making effective use of technology in their practice. Particular attention should be paid to ensuring that older teachers and trainers do not get left behind in this transition. This will require strategic guidance and practical support (see Section 2.3).

3.2. Innovating assessment and monitoring of performance and outcomes

Assessment in apprenticeships – and in technical education and training more broadly – can be complex for learning providers, employers and assessors, especially when it involves authentic work tasks, synoptic assessment and grading (Field, 2021[29]). Technology can provide more time- and cost-effective ways of assessing practical skills, and can help streamline the process.

Similarly, technology can improve the monitoring of quality and outcomes in the apprenticeship system, by providing more accurate, timely and detailed information on the labour market outcomes of apprentices. Monitoring can be more rigorously and effectively conducted using advanced analytical approaches and technologies that facilitate data collection and analysis. This information can help to make the apprenticeship system more responsive (Chapter 2) and inclusive (Chapter 4).

3.2.1. Using innovative approaches for the assessment of apprenticeships

Using technology to facilitate apprenticeship assessment

Assessment in apprenticeships in OECD countries often involves evaluation of both theoretical knowledge and practical and technical skills. Assessment of practice-oriented and employability skills in an authentic working environment is often not straightforward, due in part to material and equipment costs (Kis and Windisch, 2018[30]). In addition, certification and qualification processes may involve collecting many pieces of evidence about the competences achieved, which can be administratively burdensome and complex as standards and frameworks evolve. This is particularly the case when different stakeholders are involved in assessing and providing evidence at different phases of an apprenticeship.

Technology can create innovative, cost-effective and predictable ways to assess practical skills and collect the necessary evidence. Digital and smart technology is increasingly being used in the assessment of education and training outcomes, including in apprenticeships, and in compiling e-portfolios of skills. For example:

- Multi-functional e-platforms that facilitate apprenticeship processes including assessment and certification, can reduce administration and communication costs and facilitate communication and data collection, as in the case of Norway (Box 3.7). Mobile logbooks allow apprentices to record and demonstrate their learning and training progress, including details such as hours worked, tasks performed and equipment used. Likewise, (self-) assessment platforms can be used to assess and broaden apprentices' competences and prepare them for summative assessments or examinations (ILO, 2020[23]). As hinted in Box 3.5, apprenticeship providers in Scotland also use e-portfolios or equivalent online platforms to undertake these tasks.
- Online exam tools or online assessment platforms can reduce the work of assessors by creating exam questions to test competence-oriented tasks and compile them into an overall exam. Germany is developing a prototype for such a tool (Winther, 2021[31]) (Box 3.7).
- Smart technologies and smart data analysis techniques enable assessments to be broadened to take in skills that cannot be easily measured by conventional tests. For example, game-based tests can measure higher-order skills (e.g. creativity) or emotional and behavioural skills (e.g. collaboration, behavioural strategy), and analyse eye-tracking data and audio recordings, and process natural language and information such as time-on-task (OECD, 2021[4]). In Scotland, the Thales group already uses online game-based assessment when recruiting apprentices.
- Blockchain technology can open new avenues for credentialing in apprenticeships as a form of "verification infrastructure". It enables claims about an individual or institution, including their characteristics and qualifications, to be verified instantly and with a very high level of certainty. This helps eliminate diploma and other record fraud; facilitates the movement of learners and workers between training institutions, workplaces and jurisdictions; and empowers individuals by giving them increased control over their own data. Many blockchain initiatives are underway across the world, which may transform how apprenticeship systems – as well as entire skills systems – manage degrees and qualifications (OECD, 2021[4]). Several European countries are advancing in this area, including Scotland (see Box 3.5). Micro-credentials such as digital badges are becoming increasingly common. Several sector bodies in Scotland offer modularised training courses and micro-credentials to certify professional skills acquired in those courses (e.g. Scottish Social

Services Council), which may be suitable for integration into apprenticeship courses, assessments and certification. There is also work being undertaken by QAA Scotland via a sector-wide project entitled "Understanding Micro-credentials and Small Qualifications in Scotland" to explore and understand the potential of micro credentials and digital badging (QAA Scotland, 2021[32]).

Maximising the use of technology in assessment

Despite its potential, the use of technology for assessments is relatively uncommon compared to aspects of apprenticeships. For example, only 56% of VET teachers using the SELFIE tool in OECD countries use digital technologies for assessment purposes (Figure 3.2) (OECD, 2021[5]). Evidence is scarce in Scotland, but while online assessment has already been used sporadically, there is room to explore more advanced uses of technology-enabled assessment and certification. For example, the Federation for Industry Sector Skills and Standards (FISS) in the United Kingdom manages an apprenticeship certification system to reduce the cost and bureaucracy associated with certification. This kind of process could be integrated with an apprenticeship management system to better link the learning process and outcome assessment. Caution is needed when expanding these kinds of innovative approaches. For example, it is important to be transparent about how accurate technological systems are at measuring, diagnosing or assessing and to consider data protection requirements. At the same time, the limits of technologies should be fairly measured against the limits of human beings performing similar tasks.

Close collaboration between employers, trainers and assessors – as well as strategic support from government – is a fundamental step prior to making any decision about implement technology solutions for assessment.

Box 3.7. Examples of technology and innovation in vocational skills assessments and certification

Apprentice learning progress management systems

Online logbooks can help track apprentices' progress in real time through tools such as an interactive dashboard. One example, log.work, has an integrated messaging platform allowing real time collaboration to enable easy communication between apprentices, work placement supervisors and assessors. The logbooks can also be customised to suit a specific qualification structure. Dashboards function for apprenticeship management offer digital portfolios (or e-portfolios) that store documents; collect the evidence needed for assessment; and track apprentices' knowledge, skills, behaviours and off-the-job hours. Apprentices can keep their logbook up to date from their mobile devices or computers and can add photographic evidence of completed work. Employers can minimise time spent managing apprentices and manage all apprentice placements from one screen. Assessors can easily sort log entries by relevant unit and use a simple rating system. It can also inform about on-the-job and off-the-job training and facilitate the information exchange between training providers and employers, and update the individual learner plan upon progress.

Germany: technology-based assessment in vocational training (ASCOT)

The ASCOT (Technology-based Assessment of Skills and Competences in Vocational Education and Training) research initiative was launched by the Federal Ministry of Education and Research in 2011. It aimed to develop valid methods for the technology-based assessment of vocational skills and competences at the end of VET. The initiative involved several co-operative projects between experts in the fields of science and practice. It focused on five occupations: 1) motor vehicle mechatronics technician; 2) electronics technician for automation technology; 3) industrial clerk; 4) elderly care; and 5) medical assistant. The projects developed assessment instruments based on real-life situations. For instance, apprentices in mechatronics had to diagnose engine defects in computer-based simulations.

Apprentices training to be medical assistants were confronted with a virtual doctor's office simulating real-life scenarios and interactions with patients.

The ASCOT instruments proved highly suitable for the assessment of large areas of occupational competence such as technical and professional competences, occupation-specific social and communication skills, and occupationally relevant literacy and numeracy skills. The instruments also increased the objectivity of assessments, improved the test motivation of examinees thanks to the use of multimedia and interactive content, and were more efficient than traditional assessment instruments. This could offer both time and cost savings in the long term. Since 2018, the follow-up initiative ASCOT+ has been developing digital measuring instruments for professional and cross-professional competences in three professional fields and testing them as teaching and learning media and in examinations. This development took place in close co-operation with social partners, the relevant authorities, bodies that develop examinations, companies and vocational schools.

Norway: OLKWEB, an e-platform

In Norway, apprentices are able to complete their training requirements, provide documents and access government assistance through specialised e-platforms. One popular system known as OLKWEB has been optimised for use by training offices, who are able to follow up on their apprentices and generate reports that document the apprentice's activities and outputs. Learning providers are able to perform a number of key functions, including:

- Access the contacts and details of member companies.
- Analyse and monitor the apprentice's progress through curriculum goals provided through traditional means or through the use of films, images and mobile apps.
- Access details of grants and general accounting.

Apprentices are also able to interact with each other through the system, and can use the interface to record meetings and receive information. The employer is also able to monitor the apprentice's progress in off-the-job training. In the extremely rural area of Nordland, the customised apprentice interface allows apprentices to fulfil their training requirements without travelling vast distances. E-platforms also remove administrative burdens and allows young people to complete their apprenticeship requirements flexibly.

Italy: Learning support system (Atlas of Work and Qualifications)

Italy's learning support system, Atlas of Work and Qualifications, helps in the planning of training offers and the evaluation of offers in relation to labour market skills needs. It is a support tool for employability and lifelong learning services and can be used for the analysis of the organisational and productive evolution of a sector; planning support training; assessment; the recognition of educational credits; the Identification, Validation and Certification (IVC) processes acquired in non-formal and informal learning contexts; and job orientation, including profiling services and skills assessment. It was developed in collaboration with employers and trade unions, bilateral representatives, professional associations, sectoral experts and stakeholders in the work-learning system.

Source: Cedefop (2021[33]), Italy: guidelines for the certification of competences, www.cedefop.europa.eu/en/news-and-press/news/italy-guidelines-certification-competences?src=email&freq=weekly; INAPP (2019[34]), Atlas del lavoro e delle qualificazioni, https://atlantelavoro.inapp.org; BMBF (2021[35]), ASCOT, https://www.ascot-vet.net/ascot/de/ascot-projekte/ascot-projekte_node.html;jsessionid=169A2384E7D2E2A2733580B40B471F25.live092; Ștefănică et al (2016[36]), Technical and Vocational Education and Training: Issues, Concerns and Prospects, Competence-based Vocational and Professional Education; OECD (2017[14]), Engaging Employers in Apprenticeship Opportunities: Making It Happen Locally, https://dx.doi.org/10.1787/9789264266681-en.

3.2.2. Using data to monitor the outcomes of apprenticeships

Scotland has made a significant progress in using data to monitor both the education and labour market outcomes of apprentices, and costs and benefits to employers. The Education and Skills Impact Framework (ESIF) initiative was implemented in 2019, building on SDS's Apprenticeship Long Term Outcome (ALTO) Framework, which followed the 2016 OECD recommendations for apprenticeship evaluation (Bajgar and Criscuolo, 2016[37]). ESIF will provide estimates of the economic and social impact of investment in post-school education and skills for individuals, employers and the public purse (Box 3.8).

Prior to the initiative, Scotland published the Modern Apprenticeships (MA) Outcomes Reports (2012, 2016) based on telephone surveys of apprentices, which asked about outcomes such as skills, career progression and employment, and the MA Employer Survey 2015. These self-report studies can be unreliable measures of impact because respondents might have consciously or unconsciously adjusted their answers to what they expected the evaluator hoped to hear, and also because it is difficult for respondents to judge what the outcome would have been without participation (Bajgar and Criscuolo, 2016[37]) . In addition, the surveys contacted apprentices within six months of completing their training and so did not provide information on longer-term outcomes. The OECD recommendations advised that these surveys should instead provide information on the operation, costs and form of training provided (Box 3.8). More recent surveys, including the Apprenticeship Employer Survey (SDS, 2020[38]) and Modern Apprentice in Training (SDS, 2019[39]) are moving in this direction and continue to provide useful information.

The new ESIF evaluation results, which are based on administrative data linkages, are expected to provide additional and more robust insight than self-reported impacts, with a focus on longer term outcomes (up to seven years after completion of the apprenticeship). Scotland's next step should be to use these results to refine its apprenticeship instruments and continue to update the studies as new cohorts of apprenticeship data and other linked administrative data become available.

The ESIF also includes a cost-benefit analysis which could be used to benchmark against other countries. For example, in Germany, BIBB conducts a representative survey on the costs and benefits of apprenticeships every five years. The latest survey found that on average the net cost to companies was EUR 6 478 per apprentice for the 2017/18 training year (totalling EUR 8.4 billion), without considering savings from recruitment costs and other long-term benefits. Around 28% of trainees generate net income for employers during their training period while the remaining trainees were only worthwhile to employers in the medium or long term. Switzerland also produces cost-benefit analysis at the economy, programme and firm level, using intensive data inputs and monitoring mechanisms (SERI, 2020[40]). Korea also occasionally monitors the cost-benefit of apprenticeships, with the most recent results showing that the net present value for Korean society was estimated at approximately USD 2.3 billion for the period of 2016-20 (KRIVET, 2019[41]). Such analyses can help engage employers and learners in the apprenticeship system.

Box 3.8. Evaluation framework for apprenticeships in Scotland

SDS worked with the OECD to develop the evaluation framework and began to implement it through Apprenticeship Long Term Outcome (ALTO) Framework, which largely forms the basis of the post-school Education and Skills Impact Framework (ESIF).

2016 OECD recommendations for Modern Apprenticeship evaluation:

- **Monitoring inputs and outputs:** Input data include public funding contributions, SDS costs attributable to administering MAs, training and administrative costs paid by employers and the amount of time apprentices spend in training rather than in productive work. Output data include the number of MA starts, leavers and apprentices in training, and MA completion rates. Additional outputs which SDS should consider monitoring are apprenticeship duration and form of training (on-the-job, off-the-job and learning by doing). Reported statistics should be disaggregated by level, framework or framework group and key apprentice characteristics.
- **Evaluation of process and participant satisfaction:** Process evaluation could be based on a combination of interview- and survey-based evidence. The MA Employer Survey and MA Outcomes Survey should move away from the self-reporting of impacts and towards feedback on the operational aspects of MAs, information on the form of training and information on employers' administrative costs.
- **Evaluation of impact on individuals and employers**:
  - Individual-level evaluation should primarily rely on linked administrative and Office of National Statistics (ONS) data and investigate the effect on labour market and education outcomes. To provide the most robust results, it should compare individuals who complete MAs with two different control groups: those who never started an MA (never-starters); and who started but did not complete an MA (non-completers).
  - Employer-level evaluation should make use of existing firm data (e.g. the Inter-Departmental Business Register and the Annual Business Survey) which can be linked to records held by SDS. It should examine the effect of MAs on productivity. It is important to distinguish between the effect of apprentices during their training (which may be negative) and after the training is completed. Estimates should be strengthened by comparing firms employing apprentices to other firms with similar characteristics.
- **Cost-benefit analysis**: These should produce estimates of the value that MAs generate for the Scottish economy each year. The benefit should include employment and productivity increases due to MAs and, if feasible, indirect benefits of MAs such as reducing skill shortages in the economy. The cost should include the direct training costs paid by SDS and employers, the indirect costs due to time spent in training rather than productive work and administrative costs.

Source: Bajgar and Criscuolo (2016[37]), "OECD Evaluation Framework for Modern Apprenticeships in Scotland", https://doi.org/10.1787/59084781-en; Bajgar and Criscuolo (2018[42]), "Designing evaluation of Modern Apprenticeships in Scotland", https://doi.org/10.1007/978-3-319-78461-8_18.

ESIF measurement framework

Building upon the 2016 OECD recommendations and the subsequent ALTO framework, Scotland is working on ESIF to provide estimates of the economic and social impact of investment in education and skills for individuals, employers and the public purse. This is the first initiative to gather comprehensive, consistent evidence on impact and return on investment (ROI) in the post-school education and skills system in Scotland. This focuses on SCQF level 4 and above, including apprenticeships.

Table 3.1. Scottish Education and Skills Impact: Core Measurement Framework (post-school SCQF Level 5 and above)

	Monitoring inputs	Monitoring outputs	Use and views	Benefits	Short and long-term outcomes & impacts
Individuals	Starts, costs (wages forgone), time in training education and work	Completers Split by subject, level, and other characteristics	Motivation, prior destination/journey, reason for non-completion, satisfaction, recommendation	Career progression, personal development, skills utilisation, completion.	Destination 0-15 months after leaving. Well-being, long-term marginal employment and earnings, ROI and cost-benefit analysis
Employers	Training cost, wages, opportunity costs, materials, recruitment costs, payments to providers[1]	Employer volumes, penetration, size and sector[1]	Recruitment, satisfaction, recommendation. Involvement, reasons for non-completion[1]	Preparedness for work, reduced recruitment costs. Improved productivity, staff retention[1]	Productivity gain (at the end of the training and long-term), ROI, cost-benefit analysis[1]
Economy/ society-wide			Robust cost modelling for delivery Cost-benefit analysis	Economic, social, and health impact	ROI to Scottish Exchequer

1. MA only currently. Planned for GA.

Recommendations and implementation for innovating assessment and monitoring of performance and outcomes

3.2. Innovating assessment and monitoring of apprenticeships

Digital technology brings opportunities to facilitate apprenticeship assessments and certification. Scotland can take advantage of these opportunities to reduce the costs of communication, administration, and data collection borne by practitioners in the process of apprenticeship assessments:

- **Maximise the effective use of existing technology in assessment and certification**. These could include multi-functional e-platforms, and online assessment tools to test competence-oriented tasks or capture evidence of skilled performance as part of workplace learning. Mobile logbooks could help facilitate the monitoring of training and recording apprentices' progress, and blockchain technology could be used to validate qualifications. Micro-credentials facilitate not only flexible learning but also the certification of modularised qualifications. Apprenticeship certificates could be integrated into an apprenticeship management system that links learning processes and outcome assessments. When adopting such systems, close collaboration with relevant stakeholders is fundamental. The performance of the system, in particularly its cost-effectiveness, should be monitored in order to continuously improve the system and reduce costs and risks.

To improve its monitoring of the outcomes and performance of apprenticeships, Scotland should:

- **Refine apprenticeship instruments based on monitoring results**, including the forthcoming ESIF results, and continue to update the framework for future rounds.

3.3. Providing strategic guidance and practical support for innovation

Scotland has developed several strategies that could foster the digitalisation of the apprenticeship system, and the Scottish economy more broadly. These include the Education and Skills Review (including on

innovation) (Scottish Government, 2017[43]), Digital Strategy and Roadmap for Innovations in Industry, and Scotland's Artificial Intelligence Strategy (Digital Scotland, 2021[44]). Scotland is committed to promoting innovation across sectors, and this is expected to have a spillover effect on apprenticeships. In addition, Scotland's dual goal of economic growth and net zero emissions, gives it an interest in maximising the use of digital technology and ecological solutions at every corner.

Ensuring that the Scottish apprenticeship system is fully geared towards these economy-wide goals will require strategic guidance and practical support on applying its innovation strategies to the apprenticeship system. Guidelines and support for the actual implementation at the institutional level can will help actors in the apprenticeship system to adopt and effectively use rapidly advancing technology.

3.3.1. Providing guidance and assistance and encouraging partnerships for innovation

Supporting the adoption and use of technology

Given the opportunities that newly available technologies offer for innovation, learning providers and employers should be given guidance and assistance as well as incentives to integrate them into their training. This requires systemic efforts, including equipping learning providers with new devices and software, and teaching teachers and trainers how to use them in their practice, as well as substantial investment and prioritisation for doing so. OECD countries generally have a high level of access to devices, but practical support and guidance from educational institutions or national-level bodies is often missing.

Data from the SELFIE tool (discussed above) show that vocational teachers do not always get the support they need for using digital technologies in the classroom (Hippe, Pokropek and Costa, 2021[45]) (also see the Netherlands example in Box 3.6). For example, across OECD countries with available data, only 52% of vocational teachers using the SELFIE tool reported receiving support from their institutional leaders when trying out new ways of teaching with digital technology, and 45% said that their institutional leaders discuss their professional development needs with them for teaching with digital technology. Only 31% of the teachers agreed that they had time to explore how to improve their teaching with digital technology, and 51% that their institutional leaders support them in sharing experiences within their institution about teaching with digital technology.

A survey of staff in Dutch VET schools (Box 3.6) showed that the most important enabling factors for the successful adoption of digital technology in teaching and learning were having a strategic vision and goals for digital technology adoption (ECBO, 2019[27]). A well-designed strategy for the digital transformation of training institutions, including training companies, starts with an assessment of the current use of technology, the support measures available and any identified challenges. This can be done using a tool like Switzerland's Digi-Check (Box 3.9). Digital transformation plans and guidance should have concrete goals and targets for the implementation of new technologies. Many VET providers do not carry out systematic reviews of progress on the use of digital technology: only 37% of vocational teachers in OECD countries using the SELFIE tool agreed that progress in teaching and learning with digital technology is reviewed in their school (OECD, 2021[5]).

On-site technical support in the use of technology as well as relevant professional development will also facilitate developing the practice of VET teachers and trainers. In Scotland, apprenticeship providers and SDS (and the SFC with its new responsibilities on Graduate and Foundation Apprenticeships) should ensure that VET teachers and trainers have sufficient time and resources to experiment, reflect, learn and implement new technology in their teaching and training. One way of achieving this could be by encouraging stakeholder partnerships for the development and use of technology and innovation in apprenticeships, as explored below.

Box 3.9. Switzerland: tools to foster digital transformation in vocational education and training

Switzerland: Digi-Check

Digi-Check is a tailor-made assessment for the management and staff in VET institutions to use to self-assess the need for digital transformation, such as the design of media-based teaching or the digital skills of teachers and learners. Led by the Swiss Federal Institute for Vocational Education and Training, The assessment takes place through one-day workshops and coaching, with the following objectives:

- Taking stock of digitalisation in the vocational school, from a strategic, organisational and pedagogical point of view.
- Determining the potential for improvement.
- Determining the potential for change in teaching (teaching and learning process, didactic scenarios, and use of digital media).
- Defining measures for the further development of teachers' digital skills: how should teachers be prepared and supported to use digital media in their lessons?
- Getting an overview of other developments in digitisation.

Source: OECD (2021[5]), *Teachers and Leaders in Vocational Education and Training*, https://dx.doi.org/10.1787/59d4fbb1-en.

Developing the use of technology and innovation through stakeholder partnerships

Training providers, employers and apprentices can play a key role in ensuring that new technologies are relevant for the apprenticeship system. In recent years, the education technology (EdTech) market has grown, and many EdTech companies have started producing applications tailored to the need of vocational teachers, trainers and learners, including apprenticeship management systems, simulators and VR/AR. VET teachers, trainers and industry experts are often involved in the design of new applications, making a significant contribution towards developing materials that are relevant and easy to use in vocational training (OECD, 2021[5]). Several countries encourage such collaborations by establishing formal partnerships between the VET sector, industry, EdTech companies and research and development institutions to foster innovation and the use of technology in VET (Box 3.10).

Financial resources and guidance are often provided to help support the establishment of these partnerships. Since 2012, the Innovation Centre Programme in Scotland has encouraged researchers and businesses to forge new collaborations across sectors, with some of the initiatives involving vocational training. Box 3.10 also provides international examples of such support initiatives: Germany's smart learning factories in VET schools, funded by regional governments, and Denmark's Knowledge Centres in VET funded by the Danish government.

Another example is Scotland's Digital Skills Partnership (2017-20), funded by SDS and the SFC. The partnership connected industry with colleges and universities, with the goal of addressing the rapidly growing and changing skills needs of the digital economy. The partnership offered a range of events to help college and university lecturers teaching computing skills to connect with industry employers. The partnership also trialled a collaborative software development project which enabled college and university teachers and students to work together on live industry projects in real workplaces, using industry tools.

Building on these positive experiences, Scotland could further encourage EdTech companies to co-create digital tools and materials with vocational teachers, students and employers that are relevant, affordable, scalable, inter-operational and easy to use in apprenticeships. Unless these important stakeholders are part of the design and use of those tools and materials, the technology is unlikely to be effective for learning and training (OECD, 2021[4]).

Box 3.10. International examples: Supporting the acceleration of innovation in apprenticeships

Germany: Smart learning factories in VET schools (Baden-Württemberg State)

Preparing for future changes in industrial manufacturing, driven by Industry 4.0 and the Internet of Things, Baden-Württemberg (BW) in Germany established smart learning factories in VET schools, with support from the district government.

In the learning factory, original Industry 4.0 components were installed such as manufacturing execution system computers, Quick Response (QR) code scanners, marking lasers and collaborative robots. Its basic laboratory includes workstations where students work in pairs on training modules. Students can program training modules with programmable logic controllers. They can analyse the functionality of each individual component and evaluate their suitability for Industry 4.0 manufacturing processes. All training modules are mounted on mobile units that can be connected to the IT network, the power supply and the pneumatic system at each of the stationary workstations. The learning factory encourages collaboration with industry and training for teachers and trainers. For example, a learning factory team collaborated with a company to produce model cars by using automation, using real industrial components. Teachers and industry professionals have access to the learning factory facilities and receive training on how it works.

The Netherlands: A funding scheme for innovation in education and training

The Dutch Ministry of Education, Culture and Science has set up the Teachers Development Fund (*LerarenOntwikkelFonds*). The fund provides teachers, including upper secondary vocational teachers with a budget and guidance to implement their own project for innovation in their school. Teachers are at the heart of managing this funding scheme: they assess project applications, coach and guide teachers, examine the results of the projects, and organise learning and network meetings.

Denmark: Knowledge Centres to promote and facilitate technology use in VET

Denmark has several initiatives to foster the use of technology in VET. The Danish Ministry of Education funded ten Knowledge Centres (KCs) in areas including automation and robotics, IT, welfare technology, and process technology. The KC for IT promotes the use of digital technology in VET. The centre provides professional development opportunities for teachers in VET, including theoretical and practical elements to support teaching and learning, and has also established networks of pedagogical staff and leaders to share their knowledge, creating new solutions to common challenges.

The KC for Automation and Robot Technology promotes innovation in VET using advanced technology such as universal robots, collaborative robots or VR applications for VET teaching. Each centre works with more than a dozen VET schools in the areas of industrial automation, mechanics, electronics, welding, data and communication, and education. The centres provide VET teachers with teaching material, such as teaching tutorials or short courses on Industry 4.0, VR equipment and robots. The centres provide demonstrations and face-to-face technical support to teachers and students on how to use robots in the workplace and lend VR headsets and/or robots to VET teachers.

Source: Lernfabrik Bietigheim-Bissingen (2020[46]), Programmiert auf Lernerfolg!, www.lernfabrik-bietigheim.de/anlage/; (OECD, 2021[5]).: About LOF, https://www.lerarenontwikkelfonds.nl/over-lof; OECD (2021[5]), *Teachers and Leaders in Vocational Education and Training*, https://dx.doi.org/10.1787/59d4fbb1-en.

3.3. Strategic guidance and practical support for innovation

In order to further expand and strengthen apprenticeships by using technology and innovation, Scotland should provide strategic guidance and practical support in the development, adoption and use of technology in apprenticeships. In particular:

- **Do more to translate existing national-level strategies into practical guidance and assistance at institutional levels** (local authorities, training institutions and companies etc.). This could include: planning and investment to equip learning providers with new devices and software, training teachers and trainers how to use them in their practice, and assessing needs and identifying barriers to implementing the use of technology in apprenticeship provision. SAAB can play a key role here in providing this practical guidance and assistance, which individual providers could then expand in more detail.
- **Encourage learning providers, together with employers, to develop plans to use technology to improve and innovate apprenticeships**. These should start with an assessment of the current use of technology and related challenges. VET institutions and national-level skills bodies should ensure that VET teachers and trainers have sufficient time and resources to experiment, reflect, learn and implement new technology in their teaching and training. SDS can further support and strengthen the monitoring of this element, for example by including it in the quality assurance assessment.
- **Encourage collaboration among VET sector, EdTech companies, training employers and research institutions** to co-create digital tools and materials that are relevant, affordable, scalable, inter-operational and easy to use within apprenticeships. Scotland could build on existing partnerships or establish new ones specifically for the use of technology and innovation for apprenticeships.

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Note

[1] It was developed based on the European Commission Framework for Digitally-Competent Educational Organisations (DigCompOrg). The tool was developed with a team of experts from schools, education ministries and research institutes across Europe.

4 Making apprenticeships work for all in Scotland

This chapter explores key challenges and policy responses to making the apprenticeship system more inclusive and equitable in Scotland (United Kingdom). The chapter examines strategies to ensure inclusion and equity are at the heart of policy making. It also looks at how the apprenticeship system can be more accessible and relevant for experienced adults and for those with aspirations for further learning.

The importance of inclusiveness in the apprenticeship system

Apprenticeships can foster lifelong learning by providing accessible and relevant training opportunities for all. This includes adults, who may risk being left with outdated skills in a fast-changing labour market, and in some cases without the learning capacity that allows them to adapt. However, apprenticeship systems are not necessarily equipped to adapt to changing skill needs and a more diversified pool of potential learners. They need to be organised in ways that strengthen existing efforts to support the needs of a diversity of learners – from displaced workers who urgently need retraining to learners with disabilities.

This means that Scotland should put inclusiveness at the heart of its apprenticeship policy. Equity and inclusion should be addressed as a dimension of all policies, in support of specific targeted initiatives, such as the Apprenticeship Equality Action Plan currently pursued by Skills Development Scotland (SDS, 2019[1]). Equity and inclusion will also serve to diversify apprenticeships to reach under-represented learner groups, sectors and education levels. Scotland can harness the flexibility built into its apprenticeship system to ensure that learners with different personal characteristics, skills and work experience have access to apprenticeship programmes that are tailored to their needs. Moreover, Scotland should adapt its apprenticeships to provide adults with better routes to upskill or reskill, including building pathways that give direct access to apprenticeship qualifications.

4.1. Mainstreaming inclusion and equity

Governments need to pay close attention to issues of equity and inclusion in all aspects of the labour market and training ecosystem to ensure that those who want to invest in their skills, including the most vulnerable, can do so. It follows that inclusion and equity should be mainstream issues in apprenticeship governance, so that all policies are examined from this perspective. For example, ensuring the funding principles for both higher education and apprenticeships are consistent would serve equity, while measures to do more to acknowledge prior learning would help those who lack formal qualifications and migrants.

The Scottish Government is mainstreaming its “fair work” agenda, including publishing its Fair Work First guidance in 2021. This guidance supports employers and public sector partners to implement practices that support staff well-being, enable a good work-life balance, and create a more diverse and inclusive workforce. The Fair Work tool for employers also enables organisations to self-assess their working practices against the Fair Work dimensions. Digital Scotland also put forward an agenda to diversify the digital skills pool by working with industry to improve the diversity of those studying digital technology in apprenticeships as well as school, further and higher education. This included reaching more women, workers with disabilities, those from minority ethnic backgrounds, and neurodivergent people (Digital Scotland, 2021[2]).

Strategic guidance and data collection are important for achieving such equality objectives. SDS has a systematic equity strategy, and routinely collects data on apprenticeship participation by under-represented groups, according to gender, ethnic minority status and disability as well as residence. Scotland’s Apprenticeship Equality Action Plan sets out gender, ethnicity and disability targets for 2021. While the disability target has already been achieved, and progress is being made in terms of ethnicity, progress on the gender target – to reduce to 60% the percentage of MA frameworks where the share of males is 75% or over – has been slow (Field, 2020[3]).

While Scotland’s efforts in this area have been generally positive, there are some broader equity aspects that cross the boundaries of responsibility between different government agencies and should be addressed in a holistic way. One of these relates to funding; as discussed below, apprentices – especially older adults – benefit from a much smaller government education and training subsidy than students entering higher education.

4.1.1. Making apprenticeships work for different groups

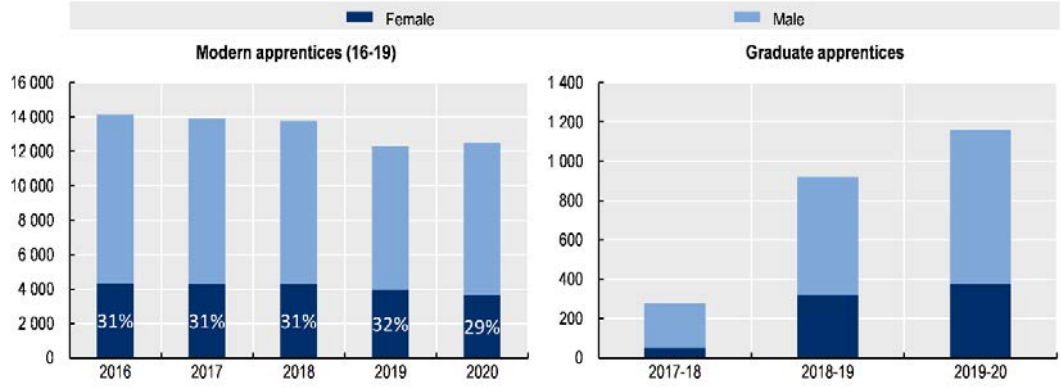
Challenge: Inequalities in society are reflected in apprenticeships

Apprenticeships and other vocational training opportunities can benefit groups traditionally under-represented in certain sectors of the labour market or higher education system. By combining learning and earning, apprenticeships allow people to enter the labour market but still develop their skills. Policy makers in many countries have used this unique aspect of apprenticeships to diversify the workforce, alleviate poverty and social disparity, help youth in their transition from school to work, and upskill or reskill workers.

However, many countries, including Scotland, struggle to achieve equal opportunities for people with extra difficulties or those who face discrimination due to entrenched social perspectives. Minority ethnic groups are under-represented: although they account for 6% of 16-19 year-olds in Scotland, they represent only 2% of MAs. Gender differences also remain, and often reflect broader challenges related to occupational segregation. The share of women in Modern Apprenticeships (MA) has not grown in recent years, although they have made significant progress in Graduate Apprenticeships (Figure 4.1). Among MAs some sectors (administration, hospitality/tourism, health/social care) and higher levels (Levels 8-10) had a relatively large and growing share of female learners (SDS, 2021[4]; SDS, 2022[5]). Similarly, only 22.1% of pupils undertaking a Foundation Apprenticeship in a science, technology, engineering or mathematics (STEM) subject in 2019-21 (SDS, 2020[6]) and only 24.5% of those studying a STEM FA at Scottish Credit and Qualifications Framework (SCQF) Level 6 in 2020 were female (SDS, 2021[7]). Such gender imbalances are not unique to the apprenticeship system, and one of the goals of Scotland's 2017 STEM Education and Training Strategy is to reduce the gender gap in STEM education and training – recognising that gender imbalances in participation in STEM courses are evident across the education and training system, with girls being underrepresented in STEM subjects at school and two thirds of STEM learners at college being male (Scottish Government, 2017[8]).

Figure 4.1. The share of female Graduate Apprentices has grown, but not of Modern Apprentices

Number of Modern and Graduate Apprentices

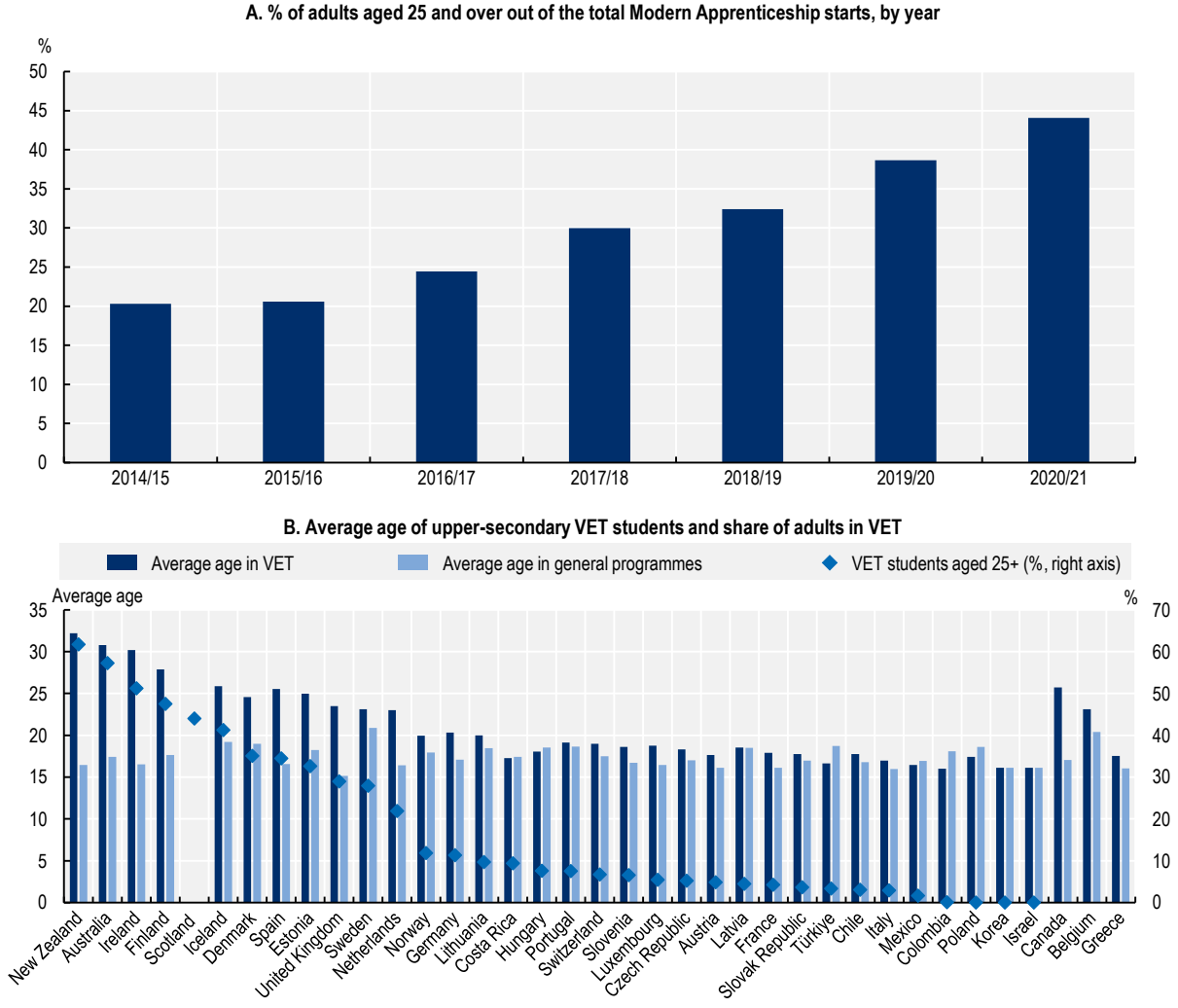


Source: SDS (2021[4]), Graduate Apprenticeships at SCQF Levels 8-11, https://www.skillsdevelopmentscotland.co.uk/media/48126/ga-report-2021_25821.pdf.

The rapid evolution in labour market demand, and changes in the use of technology, also means that workers who were once sought after in the labour market may now find themselves without appropriate qualifications. The need to pay more attention to adult learning to tackle this issue is well-recognised in Scotland – most recently in Scotland's Future Skills Action Plan (Scottish Government, 2019[9]). This is

reflected in the growing share of adults (aged 25 and over) starting apprenticeships (Figure 4.2), although this also reflects the declining share of under 20s in the population (see Annex A) and increasing demand from employers, including apprenticeship levy payers, who are using apprenticeships to upskill their existing workforce. Recent data show that adults in Scotland have higher achievement rates of apprenticeships (80% for apprentices aged 25 and over, compared to 74% for 16-19 year-olds and 77% for 20-24 year-olds) (SDS, 2020[10]).

Figure 4.2. Apprenticeships increasingly attract adult learners in Scotland



Note: Upper secondary education is at ISCED Level 3, which is equivalent to SCQF 5-7 Levels. See Box A.2 in Annex A for more details. VET refers to both apprenticeships and school-based VET programmes designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. General education are programmes designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher level, typically school- or college-based (OECD, 2017[11]).
Source: Panel A from SDS; Panel B OECD (2021[12]), Education at a Glance 2021: OECD Indicators, https://doi.org/10.1787/b35a14e5-en.

Regional disparities in apprenticeship participation also remain. Most council areas have made progress in both increasing participation in apprenticeships and in reducing the share of the working-age population (16-64 year-olds) with low or no qualifications. In some council areas, participation in apprenticeships has

risen faster than the improvement in overall qualification levels, which could merit further analysis to identify the reasons behind it (Figure 4.3).

Figure 4.3. Not all council areas have made progress in both apprenticeships and overall qualifications

Percentage point difference between 2013 and 2019 in apprenticeship starts and overall qualification level, by council area



Note: Progress in apprenticeship refers to the difference between 2019 and 2013 in percentage of MA starts relative to the working-age population (16-64 years) in each council area. Progress in overall qualification refers to the difference between 2019 and 2013 in the share of the working-age population with medium or high levels of qualifications (i.e. above SCQF level 4 /ISCED Level 2) in each council area.
Source: SDS; Scottish Government (2021[13]), Adults (16-64 years) with low or no qualifications, https://statistics.gov.scot/resource?uri=http%3A%2F%2Fstatistics.gov.scot%2Fdata%2Fadults-16-64-years-with-low-or-no-qualifications; ONS (2021[14]), Estimates of the population for the UK, England and Wales, Scotland and Northern Ireland, https://www.ons.gov.uk/peoplepopulationandcommunity/populationandmigration/populationestimates/datasets/populationestimatesforukenglandandwalesscotlandandnorthernireland.

Providing targeted incentives and support for different groups of apprentices

Many initiatives are already in place in Scotland to enable different groups to take advantage of the benefits of apprenticeships and make them work for different groups. For example, Scotland provides subsidies for employers to take on apprentices from under-represented groups, including those with a disability, from ethnic minority groups, with care responsibilities or living in remote areas (SDS, 2021[15]). Scotland is also playing a leading role in understanding how apprenticeships can be made more attractive to learners with different learning challenges and in providing them with appropriate support. The country is also paying attention to the importance of achieving gender parity (both the need to attract more women to apprenticeships and also considering employment conditions such as gender wage parity), and providing opportunities for migrants and neurodivergent individuals (SDS, 2020[16]). The Scottish Apprenticeship Advisory Board (SAAB) is strongly involved in this agenda through the SAAB Employer Equalities Group (see Box 2.6 in Chapter 2). SDS also provides an Equality Toolkit for training providers and employers (SDS, 2016[17]).

To ensure that apprenticeships work for different groups, it is important to develop targeted support mechanisms such as pre-apprenticeships and special apprenticeship schemes. Scotland has already taken steps on this through Level 4 and 5 work-based learning programmes, which can lead to apprenticeships. These mechanisms can help low-performing students or early school leavers and disadvantaged young people to address basic skill challenges and motivate them to take up an apprenticeship. The mechanisms could also be extended to low-skilled workers and jobseekers, but they would need to be adapted to those groups' particular needs.

Motivational and behavioural understanding and support are also important. The Apprenticeship Wellbeing Survey (AWS) asked 2 000 Modern Apprentices who had left their apprenticeship around 1-2 years before about their satisfaction and well-being. While the survey found that MAs report higher levels of well-being than the general population, it also found that the unemployed and those from a minority ethnic background tend to report lower level of satisfaction, and that female apprentices report higher level of anxiety (SDS, 2019[18]). This demonstrates the need for more tailored and targeted approaches for these groups in apprenticeships, alongside broader society-wide efforts to improve their well-being. To tackle gender bias and improve the balance of participation in school subjects, Education Scotland has in place a dedicated team of education professionals who deliver the Improving Gender Balance in Education programme. The aim is to help change perceptions about STEM and challenge assumptions about who does what jobs.

Apprenticeships are not just for the young, and many countries have experience with adult apprentices. In Scotland the proportion of apprentices over the age of 24 has been rising (Figure 4.2). Adult apprentices are often incumbent workers, where both employer and employee have seen an opportunity for upskilling through an apprenticeship programme. Unlike younger learners, adults may not be willing to accept the low wages of an apprentice and already have some of the skills delivered by the apprenticeship programme. Therefore, special measures may be needed to encourage adult apprenticeships, often involving both financial and non-financial incentives (Box 4.1). Switzerland, for example, has extended state funding to 50% of the costs of the preparation courses used in support of professional examinations, a primary means of upskilling workers (Swiss Confederation, 2019[14]). Recognition of prior learning is one way to encourage older workers by enabling them to participate in accelerated apprenticeships, and many countries, including Scotland, have sought to develop ways to recognise such learning (see Section 4.2).

Box 4.1. Denmark: Incentives for adult apprenticeship

Tailored programmes for adult apprentices

Following a 2014-15 reform of the apprenticeship system, Denmark introduced a programme for those aged 25 and above (EUV). Adults enrol in apprenticeship programmes on special terms; most can shorten the total training period through recognition of prior learning. A special adult apprentice salary (*voksenlærlingeløn*) has been introduced to reduce the financial burden for low-qualified adults enrolling in apprenticeship. The salaries differ according to their employment status. Some adult apprentices are also entitled to grants from the State Education Fund instead of salaries. Teachers working with adults are required to understand and acknowledge the previous work experience and prior education that the adult learners bring into the classroom.

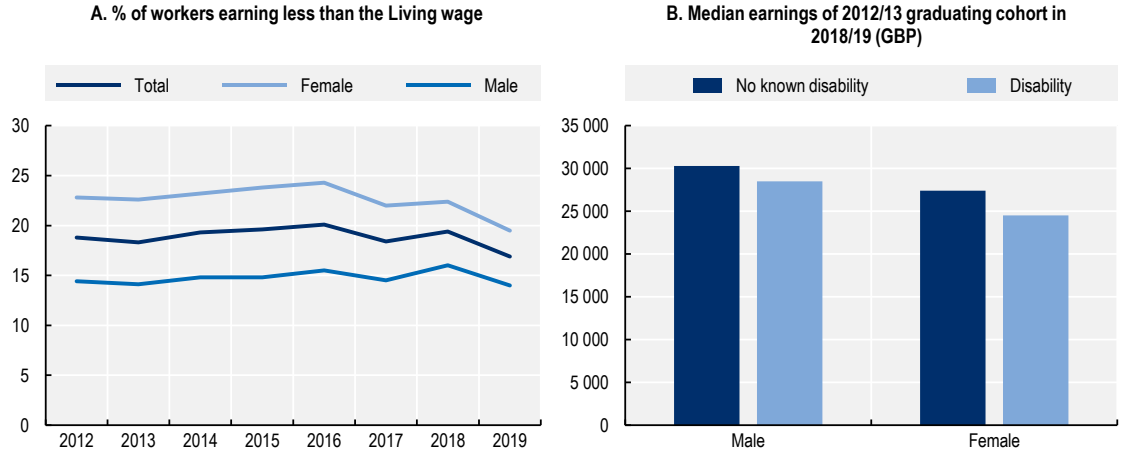
Employed adults may enrol by signing an apprenticeship contract with their employer and the learning programme is tailored to their needs. In some cases (when the learner has more than two years of relevant work experience), the learner needs training at the vocational school to gain a vocational certificate. Employed adults are paid an apprenticeship salary and the employer is reimbursed for the periods when the employee is at the vocational school.

Source: Cedefop (2019[19]), Apprenticeship for Adults: Results of an Explorative Study, http://data.europa.eu/doi/10.2801/24300.

Teachers and trainers are an important motivator and model for learners. Therefore, encouraging the recruitment of teachers and trainers from minority backgrounds can help encourage students with similar background to engage in apprenticeship. For example, Education Scotland is working with the Scottish Association of Minority Ethnic Educators (SAMEE) to provide coaching and mentoring support for minority ethnic colleagues. Similar approaches can be applied to vocational teachers and trainers.

Improving working conditions, transforming workplaces and improving gender balance across sectors and occupations could help diversify both apprenticeships and the workforce. This includes tackling wage disparities for different groups (Figure 4.4). Scotland published a recruitment toolkit designed to support employers in recruiting more people from minority ethnic backgrounds as part of its efforts to improve outcomes for minority ethnic people moving into, staying in and progressing in employment. Scotland will also review the actions within its Fairer Scotland for Women: Gender Pay Gap Action Plan to ensure that these actions are fit for purpose and will help to support Scotland's economic recovery through the pandemic and beyond (Scottish Government, 2020[20]).

Figure 4.4. Wage disparities persist for women and disabled workers



Note: Panel B refers to median total earnings of graduates by disability and sex five years after graduation in 2018/19 tax year. Hours worked are not taken into account.
Source: Scottish Government (2021[21]) National Performance Framework, https://nationalperformance.gov.scot/measuring-progress; UK Department for Education (2021[22]), Official Statistics - Graduate outcomes (LEO): subject by provider 2018 to 2019, https://www.gov.uk/government/statistics/graduate-outcomes-leo-subject-by-provider-2018-to-2019.

Joining up existing policies to overcome barriers to apprenticeships

Synergies could be found by linking existing policy packages with support for learners to participate in apprenticeships. For example, around 270 000 people in Scotland (and 3 million people across the United Kingdom) are estimated to combine working with caring responsibilities (Carer Positive, 2021[23]).[1] This can present serious time and resource constraints for workers seeking to undertake additional training. Research undertaken by SDS examined the challenges young carers face when trying to access apprenticeship opportunities, including the unpredictability of their caring responsibilities and the impact on their workplace concentration and mental well-being (SDS, 2018[24]).

In this context, the Young Carers Package (and also child care support) could be combined with support for apprenticeships in order to provide support for caregivers while also enabling them to advance their careers. Similarly, the Young Carer Grant – which has had a positive impact on the ability of young carers to take part in opportunities that are the norm for their non-caring peers – could be given a more explicit

connection with apprenticeships (Scottish Government, 2021[25]). Creating synergies and connections between such policy packages could increase the attractiveness and visibility of apprenticeships while also addressing the policies' primary aims. Employers will also need to be supported to ensure that they are able to meet the needs of apprentices with care responsibilities.

4.1.2. Making the apprenticeship system more inclusive through equitable funding arrangements

Challenge: The funding system offers less support for apprenticeships than other forms of education

Scotland has a generous skills funding system for higher education (HE), especially for young people, but relatively less so for apprenticeships, especially for older adults. A four-year degree at a Scottish university will cost the government around GBP 36 000 (based on the fees charged to EU and UK non-Scottish students). In contrast, *no* Modern Apprenticeship involves a government contribution of more than GBP 10 000, and the vast majority cost the government less than GBP 5 000 (SDS, 2019[26]). Learning providers receive lower funding contributions for older apprentices, leaving employers to make up the shortfall, potentially reducing the number of apprenticeships available. Graduate Apprenticeships (GA) and Foundation Apprenticeships (FA) are different, because they are fully funded by the Scottish Funding Council.

The fact that government funding for training is often more generous for young people than for adults is not unique to Scotland and is common in OECD countries. This reflects the principle of state-funded initial education for all, the prioritisation of youth within limited budgets, and an expectation that adult education and training should primarily be supported by individuals or their employers. However, this last point may have to be rethought given a decline in employer-supported training (see Annex A), just when it may be needed most. Some countries are already changing course. Switzerland, for example, has extended state funding to 50% of the costs of the preparation courses used in support of professional examinations, a primary means of upskilling adult qualified apprentices (Swiss Confederation, 2019[27]).

The scale and mix of apprenticeship funding and provision needs to be considered in the whole context of post-school education and training, and where apprenticeships sit within that wider system. Some types of apprenticeships compete with HE. For example, in the first half of 2019-20, 30% of Modern Apprenticeship starts were at SCQF Level 7-8, the same as a Higher National Certificate (HNC, Level 7) or a Higher National Diploma (HND, Level 8), and a further 40% were at Level 6, just below HNC/HND level. In other words, 70% of MA starts were at International Standard Classification of Education (ISCED) Levels 3 and 5 (SDS, 2019[7]) (see Annex A). Such competition is healthy because it allows students and employers to opt for the most suitable forms of provision, but it requires a level playing field.

The COVID-19 pandemic has added further pressure on the system by reducing employers' capacity to offer apprenticeships – this is a typical phenomenon in times of economic crisis (Brunello, 2009[28]). Many young people in Scotland may therefore make the rational choice to take up a fully funded HE place over finding an apprenticeship. Indeed in 2021, the number of apprenticeships has fallen while applicants to Scottish universities are at record levels (UCAS, 2021[29]), particularly among youth from Scotland's most deprived areas. Combined with other factors, such as parental preferences for academic learning, or a lack of knowledge among schools about apprenticeship opportunities, the current funding imbalance between HE and apprenticeship funding may be driving more students into academic degrees than is currently appropriate. It could also contribute to growing skill gaps as workers who may otherwise seek to retrain or upskill to meet labour market demand are unable to do so due to a lack of financial and other incentives. Scotland already stands out for its high levels of HE participation (Box 4.2).

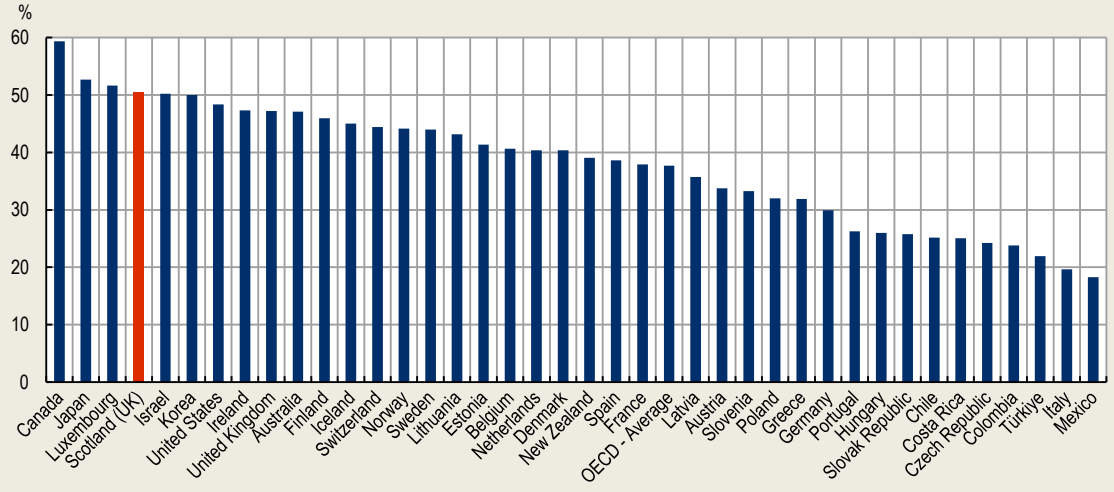
Box 4.2. Scotland has a very high level of participation in tertiary education

Scotland currently has some of the highest levels of participation in higher education in the world – with 50% of 25-64 year-olds educated to tertiary level, more than any other EU country in 2019. This has increased from 47% in 2018. The trend appears to be accelerating, with applicants to Scottish universities reaching a record high in 2021 (UCAS, 2021[29]).

Scotland has fairly average results by European standards in the Programme for International Student Assessment (PISA), which measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges. This raises questions about whether all those entering higher education in Scotland have the foundation or basic skills they need. Evidence also suggests that graduates' skills are not being well utilised: a Higher Education Statistics Agency survey found that 28% of first-degree leavers were entering "non-professional" roles (Field, 2020[3]). In 2018, 35% of businesses had at least one employee with higher skills or qualifications than needed – an estimated 225 000 employees (Scottish Enterprise, 2021[30]).

Figure 4.5. Scotland has some of the highest levels of participation in tertiary education

Share of population aged 25-64 with tertiary education (ISCED levels 5-8), 2019



Note: Tertiary education (ISCED 5-8) is equivalent to SCQF 8-12. See Box A.2 in Annex A for more details.
Source: OECD (2021[31]), Datawarehouse, https://dx.doi.org/10.1787/data-00900-en. Scotland data are from Eurostat Population by educational attainment level, sex and NUTS 2 regions (%) [edat_lfse_04].

In contrast, other European countries that also have free or heavily subsidised higher education, also provide relatively generous support for apprenticeships to employers (Box 4.3). In most European countries the off-the-job element of an apprenticeship is funded fully by government through direct provision in public vocational education and training providers.

Box 4.3. Examples from Europe: Government funding support for apprenticeships

Government funding of apprenticeships in European countries usually involves some form of direct funding for the off-the-job training component of apprenticeships, and sometimes grants or tax subsidies for employers taking on apprentices. In some countries, levies on employers play a role in the funding.

The countries highlighted here are broadly comparable with Scotland in that higher education is largely funded by government for EU students. In these countries, annual tuition fees in higher education for EU full-time students are either zero or modest (less than EUR 1 000), except in the case of Ireland, where a student contribution of EUR 3 000 is required from students, although around 40% of students have this contribution paid by government on a means-tested basis.

- In **Belgium Flanders,** government fully funds all the off-the-job education and training of apprentices. Employers pay apprentices' wages, but these are also subsidised by government as are their national insurance payments. To encourage employers to take apprentices, they receive a grant of EUR 500 for the first and second year of an apprenticeship and EUR 750 for the third year.
- **In Denmark,** government funds all off-the-job education training for apprentices, which goes to training institutions. Its budget for this was around EUR 750 million in 2016. Employers do not contribute. An employer levy of around EUR 380 per employee per year provides a fund which covers the wages of apprentices while they are undertaking off-the-job training. Employers who take on additional apprentices in key occupational sectors receive government bonuses.
- **In Finland**, government directly funds all off-the-job training of apprentices. In addition, the government provides allowances for apprentices during the times when they are undertaking off-the-job training and so are not being paid by employers. Employers may also receive "training compensation" grants to support their provision of on-the-job training to employees.
- **In France,** government directly funds off-the-job training of apprentices through a budget of EUR 1.57 billion (in 2014). In addition, an apprenticeship tax on employers' payrolls yielded EUR 914 million in 2014, some of which is used to fund off-the-job training. Employers do not contribute to off-the-job training costs. Employers are encouraged to take apprentices through a tax credit while the government bears the cost of an apprentice's social charges (equivalent to national insurance).
- **In Germany,** government directly funds all off-the-job education and training of apprentices through expenditure of EUR 2.5 billion annually (in 2016). Employers do not contribute. Apprentices may also receive some government financial support if they live away from their parents.
- **In Ireland,** off-the-job training of apprentices is funded directly by government and through the national training fund, supported through a levy on employers. Employers do not contribute.

Source: Cedefop (2020[32]), Database on financing apprenticeships in the EU; European Commission (2018[33]), National Student Fee and Support Systems in European Higher Education Systems - 2018/19, https://eacea.ec.europa.eu/national-policies/eurydice/sites/eurydice/files/fee_support_2018_19_report_en.pdf.

Providing fully-funded off-the-job training for consistency with higher education funding

The partial subsidy approach to the funding of MAs is an anomaly in the Scottish skills system. It is inconsistent with (Field, 2020[3]):

- The Scottish approach of full subsidy for higher education, which distorts provision in favour of higher education and is inequitable.
- The approach of most other leading apprenticeship countries, in which off-the-job education and training is provided and funded by government, and often augmented by additional financial incentives for employers.
- The approach to Foundation or Graduate Apprenticeships, both of which involve government paying the full costs of off-the-job training.
- The reality that the SDS contribution represents all the funds available for the off-the-job training of Modern Apprentices aged 16-19.

Aside from the obvious difference in total funding distributed, this disparity creates issues around equity. For example, most Modern Apprentices do not enjoy the same socio-economic circumstances as those who benefit from higher education (Field, 2020[3]). And while apprentices do not pay for the off-the-job training themselves, potential apprentices lose out if the costs of off-the-job training deter employers from offering apprenticeships in the first place, or if off-the-job training is underfunded because employers are reluctant to provide adequate funding (Field, 2020[3]). To create a situation where school leavers and adult learners have equitable access to education, training, and labour market opportunities, funding for Modern Apprentices will need to be at least as generous as that for higher education.

To address this challenge, Scotland should entitle all apprentices to appropriate off-the-job training fully funded by the Scottish government. This means fully funding off-the-job training for older apprentices, allowing the system to do more to support adult upskilling and reskilling, a key element in a resilient skills system. In a demand-led system (as suggested in Chapter 2), an apprenticeship agreement between an employer and a potential apprentice would automatically lead to an entitlement for that apprentice to receive government-funded off-the-job education and training. In response, SDS would deliver (through learning providers) and without fees, the off-the-job training portion of the apprenticeship in the chosen field. The scale and mix of provision would therefore be determined by the choices made by employers and potential apprentices in the labour market (subject to any specific policy incentives that the government might choose). This approach would encourage more high-level apprenticeships and help to tackle specific skills shortages.

Fully funded MAs could also help tackle a skills gap at SCQF Levels 6-8, which, as noted above, currently accounts for 70% of MA provision. The Institute for Public Policy Research have argued that there is a significant skills gap at this level, with existing provision inadequate to meet the scale of current and likely future demand, across a range of sectors (Gunson, Hatfield and McGeoghegan, 2016[34]). While some of this demand is currently being met through HNCs and HNDs, these programmes involve a limited amount of work-based learning and may therefore not meet many employers' needs. This suggests the need for some overall rebalancing through more apprenticeships at SCQF Levels 7 and 8 that draw on the best qualities of HNCs and HNDs. Irrespective of how this is pursued, the funding approach to HNCs, HNDs and apprenticeships at this level should be the same.

Because employers would no longer be obliged to fund any off-the-job training for apprentices under this reform, it might therefore be reasonable to link it to increased expectations on them to deliver high quality work-based training to apprentices (see Chapter 2). The net impact on public expenditure would need to be carefully assessed through a pilot, but might be close to zero, if there is enough demand for apprenticeships to lead to a shift in participation away from more expensive higher education.

There are efforts underway which could address the funding imbalance between HE and apprenticeships. The Enterprise and Skills Review in Scotland proposes an integrated approach to skills provision, co-ordinating the work of SDS and the Scottish Funding Council (SFC). This commits SDS, the SFC and the Scottish government to an implementation plan that will align planning, commissioning and evaluation. Similarly, the SFCs Review has recommended that the SFC build capacity and a more systematic approach to the way they collectively plan coherent tertiary education and skills provision and investment,

so that it responds better to the current and future needs of learners and employers and broader economic and social drivers, while promoting fair access and equalities, and the journey to a net zero carbon future. Administrative machinery is being developed to deliver this commitment and to ensure that the needs of learners, employers and the economy are central. Part of that process should be to move towards common funding principles. This would allow employers and students to choose between higher education and apprenticeship based on their needs, capacity and interests rather than because of funding. In practice, given the firm commitment of the Scottish government to free higher education for students living in Scotland, this should mean adopting the same principle in relation to the off-the-job component of apprenticeship, including for older students, and creating a culture of promoting, recognising and facilitating apprenticeships as a worthwhile education and training pathway.

Recommendations and implementation for mainstreaming inclusion and equity

4.1. Mainstreaming inclusion and equity

In order to facilitate the participation of a wider group of learners with different backgrounds in the apprenticeship system, Scotland should mainstream inclusion and equity not only in the apprenticeship system but also in the wider skills system and the society:

- **Ensure that the full range of apprenticeship opportunities are accessible to all** and provide supportive measures for those facing additional barriers to participation. Scotland can also explore potential synergies by linking existing policy packages with support for learners to participate in apprenticeships. Examples include using young carer packages, childcare support or individual training accounts for apprentices in need; encouraging the recruitment of teachers and trainers from minority backgrounds; and improving working conditions and transforming workplaces, all of which have potential to contribute to diversifying apprenticeships.

To ensure that MAs provide training opportunities on a level playing field with other types of education:

- **Pilot the provision of fully funded off-the-job training for Modern Apprentices of all ages**, without any employer contributions or cap on numbers. This proposal should be developed and implemented incrementally and carefully, starting with a pilot in selected apprenticeship frameworks to evaluate the potential costs and impact. The government should provide a budget to support the pilot exercise and develop a methodology to assess the reasonable cost of providing the off-the-job training (and assessment) for apprenticeship frameworks. This should determine the payments by SDS to learning providers. This “reasonable cost” approach would be linked to clearer minimum expectations on off-the-job training and the length of apprenticeships, as proposed in Chapter 2.
- **Evaluate the pilot studies to determine how the total number of apprenticeships increases** as the result of the increased funding available for older apprentices. It should also examine how the age, regional and equity mix of apprenticeship changes. Employers and apprentices should be surveyed to explore their experience. The full funding scheme could then be rolled out to all sectors, based on the results of the pilot. Adjustments may be needed to rebalance participation from higher education to apprenticeships.

4.2. Developing a direct route to apprenticeship assessments and qualifications

Challenge: Recognising existing skills within the apprenticeship system

Many adults entering vocational programmes already possess valuable but uncertified knowledge and skills, often acquired informally through work experience. Recognising and certifying these skills helps to make the labour market work better, allowing individuals to obtain work that uses and rewards their skills, while also helping employers to recruit more efficiently, and allocate workers to more appropriate jobs. Moreover, the potential of recognition encourages individuals to develop their skills during their working life. Recognition of prior learning (RPL) also has equity benefits, granting recognition to the skills of those with limited formal education or qualifications, including migrants (Kis and Windisch, 2018[35]). RPL for workers who are experienced and highly skilled yet lack qualifications can help them accelerate the attainment of the qualifications they need to demonstrate their skills to employers.

While the formal recognition of existing skills improves transparency and benefits both individual workers and other labour market actors, the implementation of such recognition faces obstacles. These include complex assessment procedures, resistance from education providers, and weak support from employers (CEDEFOP and European Commission, 2017[36]).

Many leading apprenticeship countries offer accelerated apprenticeships options, sometimes only for older adults (Box 4.4). In Scotland, apprentices may already use RPL for accelerated programmes although because few frameworks formally specify a required programme length (see Section 2.3 in Chapter 2), the principle of accelerated apprenticeship works slightly differently. RPL is strongly encouraged within the SCQF; the SCQF handbook sets out a series of guiding RPL principles (SCQF, n.d.[37]) linked to the acquisition of credit points in the SCQF framework. While this is only guidance, it may influence at least some large employers. The National Health Service (NHS) in Scotland, in collaboration with Education for Scotland offers guidance for its employees regarding RPL (NHS Education for Scotland, 2019[38]). In apprenticeships, the principle is that an initial skills assessment should allow programmes to be accelerated through RPL. All learning providers are required to have an RPL policy, under which they should assess new apprentices and grant credit for prior learning, leading to accelerated completion. Individual apprenticeship frameworks define ceilings for how much RPL is possible (SDS, 2019[39]). To support learners, employers, educators and advisors, an online SCQF RPL Tool gives tailored information, guidance and signposting about RPL based on a set of questions about users' learning backgrounds and the kind of recognition they are looking for.

As discussed above, the share of adult starting Modern Apprenticeships has increased since 2015 (Figure 4.2, Panel B), but there are no detailed data on whether they already possessed relevant skills to be recognised before they started. However, it could be presumed that many of them will already have relevant skills, because some will have been incumbent workers when they started their apprenticeship, and others were previously working in a closely related field. RPL has allowed over 10% of new entrants to Graduate Apprenticeships to directly enter the second or third year of the programme (SDS, 2019[40]); in comparison, however, 25% of apprentices over the age of 25 in Switzerland were able to graduate from shortened programmes due to RPL in 2020 (Box 4.4).

Accelerated completion of apprenticeship suits the needs of those who already have a modest proportion of the skills required for their target qualification. For example, young people who completed a FA can in some cases get credit when moving on to an MA or GA. Sometimes such flexibility can also be used to accommodate those who are simply fast learners rather than because of prior learning. However, although Scotland makes extensive use of RPL, it offers no options for direct access to an assessment leading to the same qualification as that obtained through apprenticeship. This is a significant gap in provision, which bears particularly on adults who already have a significant proportion of the skills required for their target qualification. In Scotland, where there is a strong case for the system to improve its capacity to serve adults, provision of this type is needed.

Box 4.4. International examples: Accelerated completion of apprenticeship in recognition of prior learning

In **Australia,** apprentices may receive course credits for skills they already have and prior work experience, reducing training duration. Apprenticeships are "competency-based", so that if an apprentice can demonstrate that they have acquired the required skill level, they may progress to the next stage of their training. Competence is assessed both by training providers and employers.

In **Denmark** those aged over 24 may complete an apprenticeship through two alternative pathways following initial competence assessments (which last between half a day and ten days). Those with at least two years of relevant experience are exempted from the basic course (which includes school-based vocational training) and follow a shortened main course (which normally combines school-based and work-based training) and do not need on-the-job training. Those with some relevant work experience or prior education and training may follow a shortened basic course (up to 20 weeks), a shortened main course and up to two years of on-the-job training.

In **Germany**, reductions in programme length may be granted to those with prior qualifications or adults aged 21 and above. Those with a secondary qualification can obtain a reduction of 6 months, while those with a general upper secondary school qualification, or those over 21 and already holding a vocational qualification, can reduce it by up to 12 months. An apprentice may take the final qualifying examination earlier than usual if both the training firm and the vocational school attest to the strength of their performance.

In **Switzerland**, the duration of an apprenticeship may be reduced for those with prior qualifications (e.g. general upper secondary qualification, vocational qualification) or skills that allow them to acquire the targeted skillset faster (e.g. work experience with validated learning outcomes). Typically, durations may be reduced by one or two years. In 2020, among apprentices over the age of 25, around 25% of graduations involved reduced programme durations.

In **the United States**, registered apprenticeship programmes range from one to six years, with the majority taking four years. Some programmes are competence based; others are time based. In competence-based schemes, apprentices may complete faster or take extra time to develop the required competences, though these schemes still have to comply with certain requirements regarding time spent on each major process.

Source: Kis and Windisch (2018[35]), "Making skills transparent: Recognising vocational skills acquired through work-based learning", https://dx.doi.org/10.1787/5830c400-en.

Providing a direct route to apprenticeship qualifications

Direct access to a final apprenticeship assessment and qualification has benefits. Although programmes can be shortened for experienced workers, as discussed above, no apprenticeship programme would be suitable for those who already have most of the required occupational skillset, as little of the programme would be relevant or necessary. This may increasingly be the case for young people who have obtained skills through self-taught materials, online courses or other informal channels, particularly in emerging technology subjects. Therefore, Scotland should follow the example of other countries and establish direct routes for certification currently realised through apprenticeship. Such routes would not be apprenticeship programmes, but would require previous relevant work experience.

The feasibility of this approach has been well demonstrated in many other countries. Several strong apprenticeship systems in Europe offer a direct route to the same qualifications that can be gained through an apprenticeship, usually through a free-standing assessment or examination (Box 4.5). This is usually

augmented by other prior learning requirements, most commonly that the candidate has been working in a relevant field for a period of time – for example five years in Switzerland. This helps to ensure that possession of the qualification is backed by relevant work-based learning. Candidates may pursue some form of tailored preparation for the assessment, to fill in any gaps in their occupational knowledge and skills. In Norway one-third of those qualifying as journeypersons, an apprenticeship qualification, go through a direct route, while two-thirds follow a regular apprenticeship programme.

The direct route would also effectively serve migrants. Adult migrants often have most of the skills required for a target occupation as a result of previous experience or qualifications, but in Scotland the occupation may involve slightly different requirements from those they are used to and their qualifications may not be recognised. The needs of such migrants will be most effectively met through a direct route to an assessment, supported by some tailored training to cover any gaps in their skillset. Having a direct route to assessment could therefore help to attract and make the best use of foreign talent and contribute to tackling skill shortages.

Box 4.5. International examples: Direct access for adults to final apprenticeship examinations

In **Austria**, individuals aged 18 or over with relevant experience may directly apply for the final apprenticeship examination without enrolling as an apprentice. This route accounted for 15% of apprenticeship qualifications awarded in 2012.

In **Germany**, individuals may take an "external examination" (*Externenprüfung*), taking the final assessment of regular apprenticeship programmes without completing the programme itself. Access is limited to those who have worked in the target occupation at least for one and a half times as long as the duration of the apprenticeship, and who have been performing skilled tasks in their job. Candidates may prepare for the assessment by following preparatory courses. In 2009, candidates who took the external examination accounted for about 6% of successful apprenticeship final examination candidates.

In **Norway**, it is possible to take the trade or journeyman's examination without an apprenticeship. The candidate must demonstrate comprehensive competence in the field. The candidate must have work experience in the field equal to the length of the apprenticeship plus 25% (usually meaning five years in total) and must pass a theoretical exam. About one-third of journeyman certificates were awarded on the basis of experience-based certification in 2015/16.

In **Switzerland,** adults with relevant work experience may access the final qualifying examination for apprenticeships and obtain a federal vocational diploma or certificate. Five years of work experience are required, and in most cases, this includes of minimum of several years – usually three – in the targeted occupation. Cantons provide advice to applicants about how to prepare for the examination. In some occupations, preparatory courses for adults are available. In all occupations, adults may pursue additional training by attending vocational schools or intercompany training centres.

Source: Kis and Windisch (2018[35]), "Making skills transparent: Recognising vocational skills acquired through work-based learning", https://dx.doi.org/10.1787/5830c400-en.

4.2. Developing a direct route to apprenticeship qualifications

For experienced adult workers, Scotland should establish direct access routes to the qualifications currently realised through apprenticeship. This would follow the model of other countries and fill a gap in provision. Such routes would not be apprenticeship programmes, but would require previous relevant work experience. An assessment procedure would be defined for such individuals, assessment bodies identified, and funding arrangements addressed.

Implementation could be pursued through the Standards and Frameworks Group (SFG) of the SAAB, and would involve several steps:

- **Clearly define the direct access route in relation to the parallel apprenticeship programme** leading to the same qualification. At present, each apprenticeship framework sets out a context in which different Scottish Qualifications Authority (SQA) or other qualifications are obtained, so this approach would need to be modified to define a single qualification associated with an occupational standard. That qualification would then be obtained either through an apprenticeship, or a direct access route. Such an arrangement would most naturally be pursued through the SFG, in consultation between SDS and the SQA (awarding body).
- **Set the amount of work experience required**. The mastery of an occupational skillset requires development through practice under professional guidance. This principle underpins apprenticeship so any direct route to a qualification would need to reflect this point. Following the example of other countries, a substantial amount of relevant work experience should be a required precondition for access to a final assessment. The assessment itself should also include the practical demonstration of skills, as well as knowledge.
- **Designate a responsible body to administer the assessments**. The responsible body should also ensure the eligibility of each candidate and provide a system to fund the assessments. Assessments could be undertaken by the learning providers that also deliver the linked apprenticeship in the target occupational field. Quality assurance oversight would be necessary.

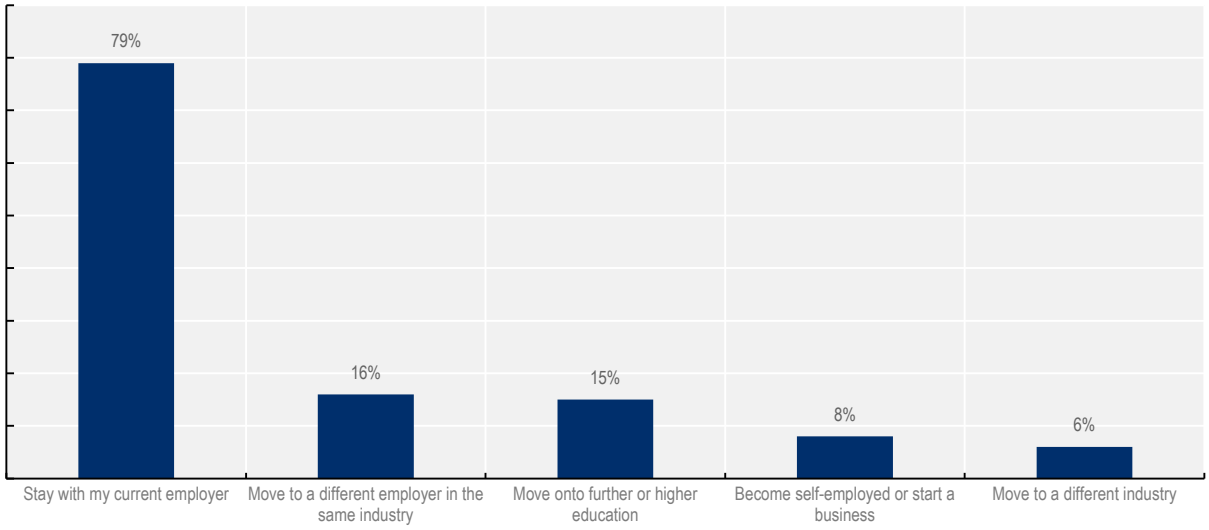
4.3. Developing further learning opportunities for qualified apprentices

Challenge: Apprenticeships in Scotland need to offer opportunities for progression

Apprenticeships are not just a pathway into employment; they can also provide a gateway to further learning. Figure 4.6 shows how current apprentices in Scotland see their future: four out of five expect to stay with their current employer, but some anticipate going on to further learning (15%). Further disaggregation shows that older apprentices are less likely to expect to continue with more education or training, with only half as many over-25s (9%) as younger apprentices expecting to do so. Female apprentices lean more towards further learning, but less towards self-employment or starting a business – only half as many female apprentices expected to follow this latter route compared to their male counterparts (SDS, 2019[41]).

Figure 4.6. A significant share of apprentices expect to move on to further education in Scotland

Share of apprentices



Note: Apprentices were asked what they expected to do on completion of their apprenticeship. Multiple responses were permitted.
Source: Field (2020[3]), Strengthening Skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf.

This interest in further learning suggests that apprentices need progression opportunities. Changes in the labour market are also increasing the demand for higher-level technical and vocational skills in Scotland (at SCQF Levels 9-12, i.e. ISCED 6-8). Many OECD countries are experiencing similar trends and they are responding in different ways, for example (Field, 2020[3]):

- **A separate tier of higher education institutions** focused on technical and professional programmes mostly at ISCED Level 6 (equivalent to SCQF Level 9-10) and above. These include "universities of applied science" in the German-speaking countries, the Netherlands, Finland and elsewhere. Over recent decades this sector has demonstrated rapid growth.
- **Special "professional bachelor" programmes at ISCED Level 6.** In France, for example, such programmes have expanded rapidly in recent years, and by 2015 represented about one-third of all bachelor's programmes.
- **Two year full-time vocational programmes** (usually equivalent to SCQF Level 8/ISCED Level 5), that can often be a stepping stone to a bachelor's degree programmes. These are found in many OECD countries – for example the *Diplôme Universitaire de Technologie* (DUT) qualification in France, and the associate degree in the United States. The Scottish version is the HND.
- **Building substantial elements of work-based learning into higher-level technical and professional programmes**.
- **Higher-level apprenticeships, including at ISCED Level 6**, typically developed in collaboration with universities – for example in the dual university programmes in Germany (Box 4.6). These are the international equivalent of Graduate Apprenticeships in Scotland.

Box 4.6. Example from Germany: Dual university programmes

In Germany, dual university programmes combine a university course with employer-based practical training, employment or work experience. Students must also sign a contract with an employer, and the curriculum is closely connected to a target occupation. They take different forms:

- **Programmes that combine a course of university study with training in a recognised occupation**. Students obtain both a vocational qualification and a university degree. Participants must normally have a general university entrance qualification and an employment contract.
- **Programmes aimed at those who have already pursued vocational or professional training and/or have professional experience**. These offer further professional development by combining a course of study with work experience relevant to the course. Students may enrol without a general university entrance qualification. The amount of time the student spends in the classroom and at the place of work is agreed in a contract between the institution, the student and the employer.
- **Programmes with a work experience component, combining a course of study with extended practical phases with an employer**. Students obtain a university degree but not a recognised vocational qualification. As a rule, this programme normally requires students to have a general university entrance qualification.

Source: Higher Education Compass, German Rectors' Conference (2017[42]), "Dual programmes - Studying and work experience", www.hochschulkompass.de/en/degree-programmes/all-about-studying-in-germany/formsof-study/dual-work-study-programmes.html.

While Scotland already has higher-level apprenticeship programmes that graduates from lower-level programmes could use to progress, greater clarity is needed over the qualifications architecture of mid- to high-level apprenticeship qualifications. For example, it is possible to take multiple unrelated forms of vocationally oriented qualification at SCQF Level 7 and 8: Modern Apprenticeships (Levels 7-8), and the Scottish HNC (Level 7) and HND (Level 8). Currently the various roles of apprenticeships and the HNC and HND are unclear – whether they are alternative routes to the same occupation, or routes to different occupations, backed by some rationale (other than historical accident) for the division of labour.

Establishing a higher-level qualification such as master craftsperson

For apprenticeships to be attractive to able young people and experienced adults, they need to open up the possibility of future learning opportunities. Scotland has addressed the increasing demand for higher level technical qualifications (from both the student and employer side), through the encouragement of higher-level apprenticeships and, most recently, through the launch of Graduate Apprenticeships. Scotland is already well positioned to deliver tertiary-level vocational qualifications for qualified apprentices. This means offering options for transition to higher education, but also pathways to higher-level technical qualifications within a professional field (Field, 2020[3]).

Some skilled workers want and need further specialist training in their occupational field, rather than more general higher education. The development of higher-level professional qualifications to which those completing apprenticeships may aspire can help develop a skills system that embraces lifelong learning (Field, 2020[3]).The existence of such higher-level occupational programmes reinforces initial training with a career structure. In the German-speaking countries in Europe, this is partly addressed through the *Meister*, or "master craftsperson" qualification. This allows qualified apprentices, often with work experience, to acquire higher-level professional skills, learn how to run their own small business, and develop the skills to train apprentices themselves. Typically, such qualifications are acquired through a

free-standing examination, following preparation courses which are optional and can be tailored to the existing skills of the candidate (Table 4.1).

Making a *Meister* qualification available as a higher-level qualification to those with initial apprenticeship helps to professionalise apprenticeship in several ways. First, it provides a career structure, and an aspiration for those pursuing an apprenticeship. Second, it trains experienced practitioners so that they, in turn, have the skills to train up the next generation of apprentices. Third, it provides a framework in which practitioners' developing technical skills can be recognised and certificated, while also updating their technical knowledge. Fourth, it offers flexible provision for working adults, since it takes the form of an examination, with preparation for that examination being optional and tailored to individual needs. These are powerful advantages and this model has much to offer, but would need to be modified to fit the Scottish environment. It is no surprise that Wales is actively pursuing the introduction of these qualifications (Welsh Government, 2017[43]). The Welsh Government also cites as a factor its wish to take advantage of the experience and mentoring potential of older workers.

Table 4.1. Master craftsperson qualifications in Austria, Germany and Switzerland

	Austria	Germany	Switzerland
Examination	*Meisterpruefung* (Master craftsperson examination)	*Meisterpruefung* (Master craftsperson Examination)	*Hoehere Fachpruefung* (Federal professional examination - level 2)
Objectives	To acquire specialist + managerial knowledge to run one's own handicraft business, to be entitled to train apprentices	To acquire specialist + managerial knowledge to run one's own handicraft business, to be entitled to train apprentices	- To acquire specialist + managerial knowledge to run one's own handicraft business, to be entitled to train apprentices - To certify required competencies in legally regulated areas (e.g. electrician, tank inspector) - To facilitate promotion; even university graduates use the exam to prove specialist qualifications
Regulation	Austrian Chamber of Commerce	Federal Ministry of Economics and Technology	State Secretariat for Education, Research and Innovation (SERI). Professional organisations submit their exam rules to the SERI for approval. The development of new exams takes 1-2 years
Fields of study	Trade, Construction, Technology	Trade, Construction, Technology	Trade, Construction, Technology, Commerce, Service, Security
Pre-requisites	Completion of the apprenticeship exam Candidates must be over 18	Completion of the apprenticeship exam	A Federal PET Certificate or qualification. The professional organisations define the entry requirements
Preparation	Preparation courses offered by the Institutes of Economic Promotion and Chambers of Commerce	The Chambers of Crafts and Commerce offer non-obligatory preparatory courses	Preparatory courses, pursued by most candidates, are offered by public and private training centres
Examination	Includes 1. practical; 2. oral; 3. written 4. instructor examination; 5. entrepreneur examination	Includes practical and theoretical components specific to the trade and economic and legal knowledge, pedagogical skills the same in all trades	The exam characteristics depend on the professional field
Finance	The *Meister* exam fees were EUR 2 329 in 2010	The *Meister* exam fee is EUR 2 000-2 500	The exam is subsidised by the Confederation, preparatory courses by the Cantons. 50% of employers support exam preparation.

Source: Field (2020[3]), Strengthening Skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf.

4.3. Establishing master craftsperson qualifications

Scotland could support qualified apprentices to acquire higher level professional skills, learn how to run their own small business, and develop skills in training further apprentices, by developing master craftsperson qualifications.

Implementation could be explored through the following steps:

- **Pilot the initiative in one or two occupations** where there is strong employer support for a higher-level master craftsperson qualification. Such a qualification would need to be developed with close employer engagement, and ideally an employer lead, following the model of other countries.
- **Liaise closely with the Welsh Government**, as it is pursuing the development of these qualifications in a context which is not dissimilar to Scotland.
- **Develop a funding model for the examinations**. As with other elements in the Scottish skills system, it would need to take account of the fact that potentially competing qualifications in the higher education system are free of tuition fees. One model would be to directly fund the examinations but invite individuals to contribute to the cost of preparatory courses.
- **Add additional fields to the master craftsperson offer** in light of careful evaluations of the pilots from the perspective of individuals, employers and government.

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Note

[1] As the population is ageing and working longer, caring for an elderly population will increasingly affect those in and out of work. Employers will need to recognise this as part of workforce management – losing staff with care responsibilities can result in a loss of skills, knowledge and experience for the employer as well as leading to increased recruitment and training costs.

Annex A. Apprenticeships and the Scottish labour market

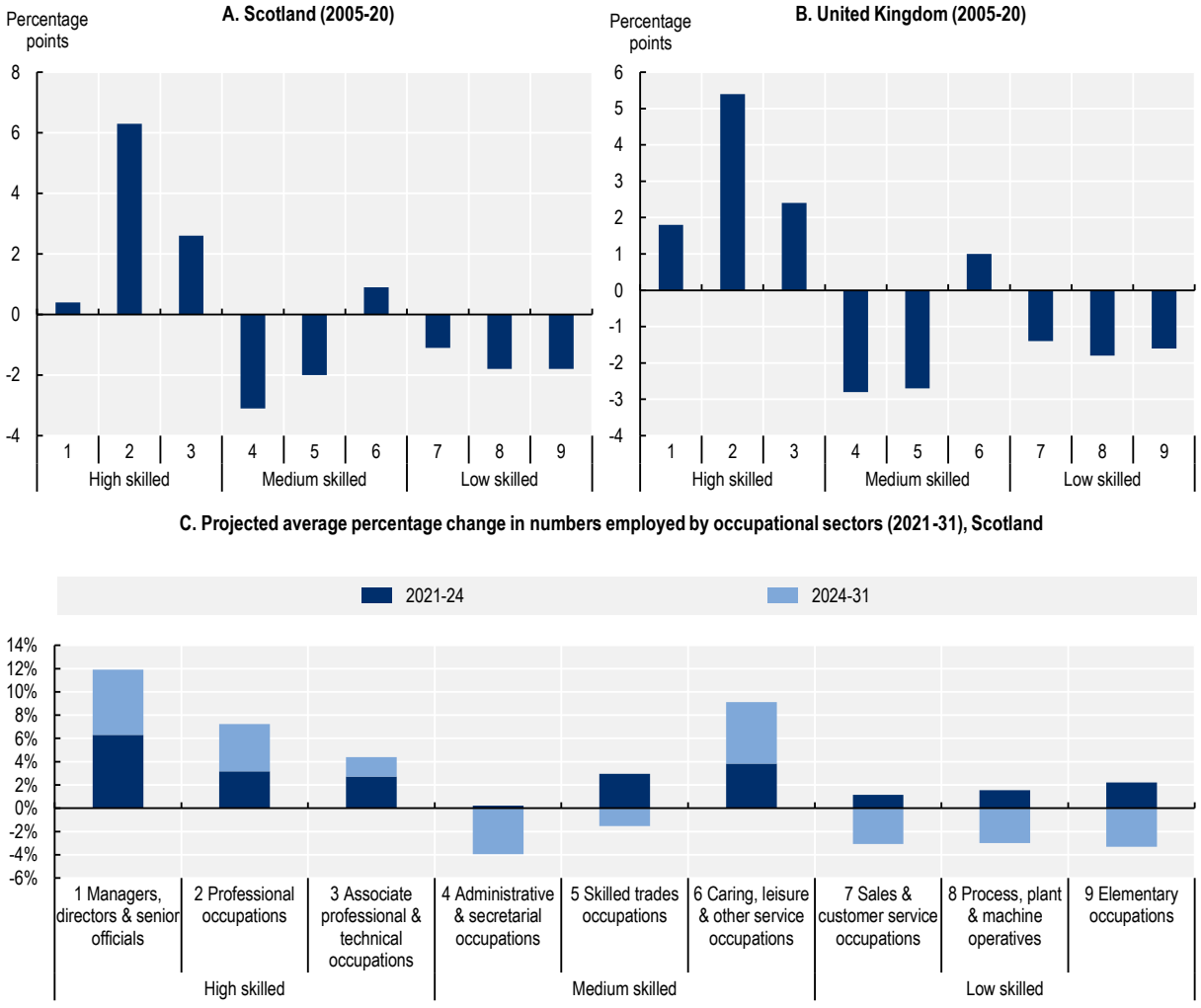
Scotland's skills challenges and labour market

Current and projected skill needs

Digitalisation, automation, ageing populations, the transition to a low-carbon economy and the COVID-19 pandemic are having a major impact on the labour market skills needed across OECD countries, and therefore also on the role of apprenticeships and the skills that need to be formed through apprenticeships (OECD, 2020[1]).

Like other OECD countries, Scotland (United Kingdom) has experienced changing demand for skills in recent decades. For example, the share of high-skilled jobs increased by 9.3 percentage points between 2005 and 2020 (Rogers and Richmond, 2015[2]; Scottish Government, 2021[3]) (Figure A A.1). This is in line with OECD trends, where the relative importance of high-skilled employment increased in recent decades (OECD, 2017[4]). According to Oxford Economics (2021[5])), employment in high-skilled occupations accounted for almost half of Scotland's total employment (48%) in 2021 and this share is projected to remain stable in the next decade. Nearly all sectors of industry have a serious shortage of skills at these higher levels (Thomas and Gunson, 2017[6]). At the same time, 46% of jobs in Scotland – or 1.2 million – are at high risk of automation up to 2030 and beyond (Thomas and Gunson, 2017[6]). Evidence from OECD countries shows that the jobs at highest risk of automation are routine jobs with low skill requirements and often low wages, while the lowest risk applies to a broader range of jobs from professionals to social workers (OECD, 2018[7]).

Figure A A.1. High-skilled employment is on the rise in Scotland

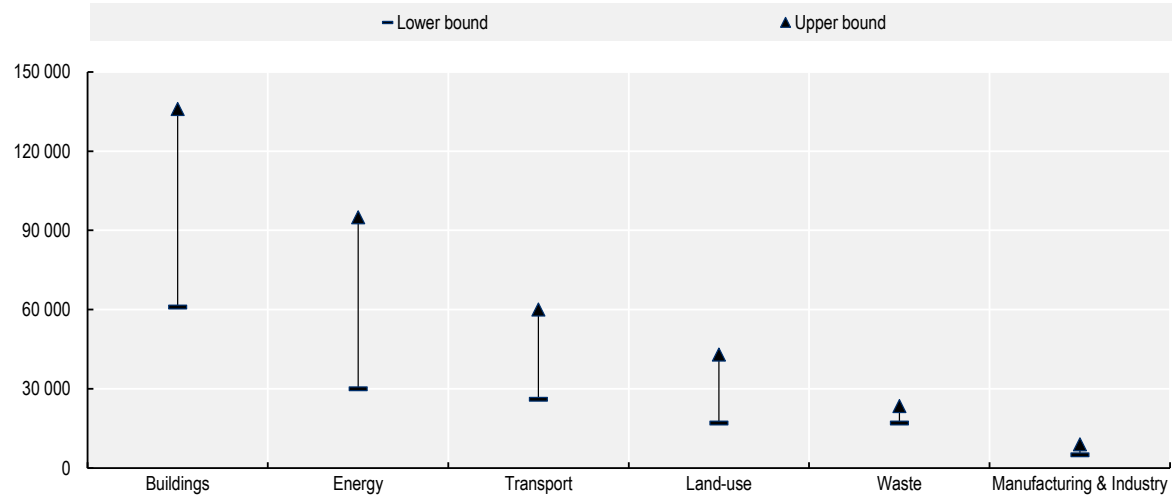


Note: The numbers on the horizontal axis of Panel A and B refer to the occupations named in Panel C.
Source: Panels A and B from ONS (2021[8]), Annual Population Survey (ONS Jan-Dec datasets), https://www.nomisweb.co.uk/home/release_group.asp?g=16; Panel C from Oxford Economics (2021[5]), Oxford Economics Forecast Data October 2021, https://www.oxfordeconomics.com.

Just as automation and digitalisation can lead to both job creation and losses, the green transition will also contribute to job growth in some sectors and occupations, and losses in others. Oil and gas, cattle farming, and aviation could lose jobs due to measures to reduce carbon emissions. Other sectors, such as those concentrating on renewable energy, including insulation measures, wind and solar power, will grow. Sectors involving responses to climate change, such as flood and water management, will also develop quickly. Scotland has legislated to address climate change by committing to becoming carbon net-zero by 2045 (Scottish government, n.d.[9]). The transition to a low carbon economy is expected to create jobs in major sectors like the building and energy sector – with the right policies and funding in place (Figure A A.2) All of these changes will create a further need for reskilling and upskilling.

Figure A A.2. Scotland is expected to see green job creation – with the right policies and funding in place

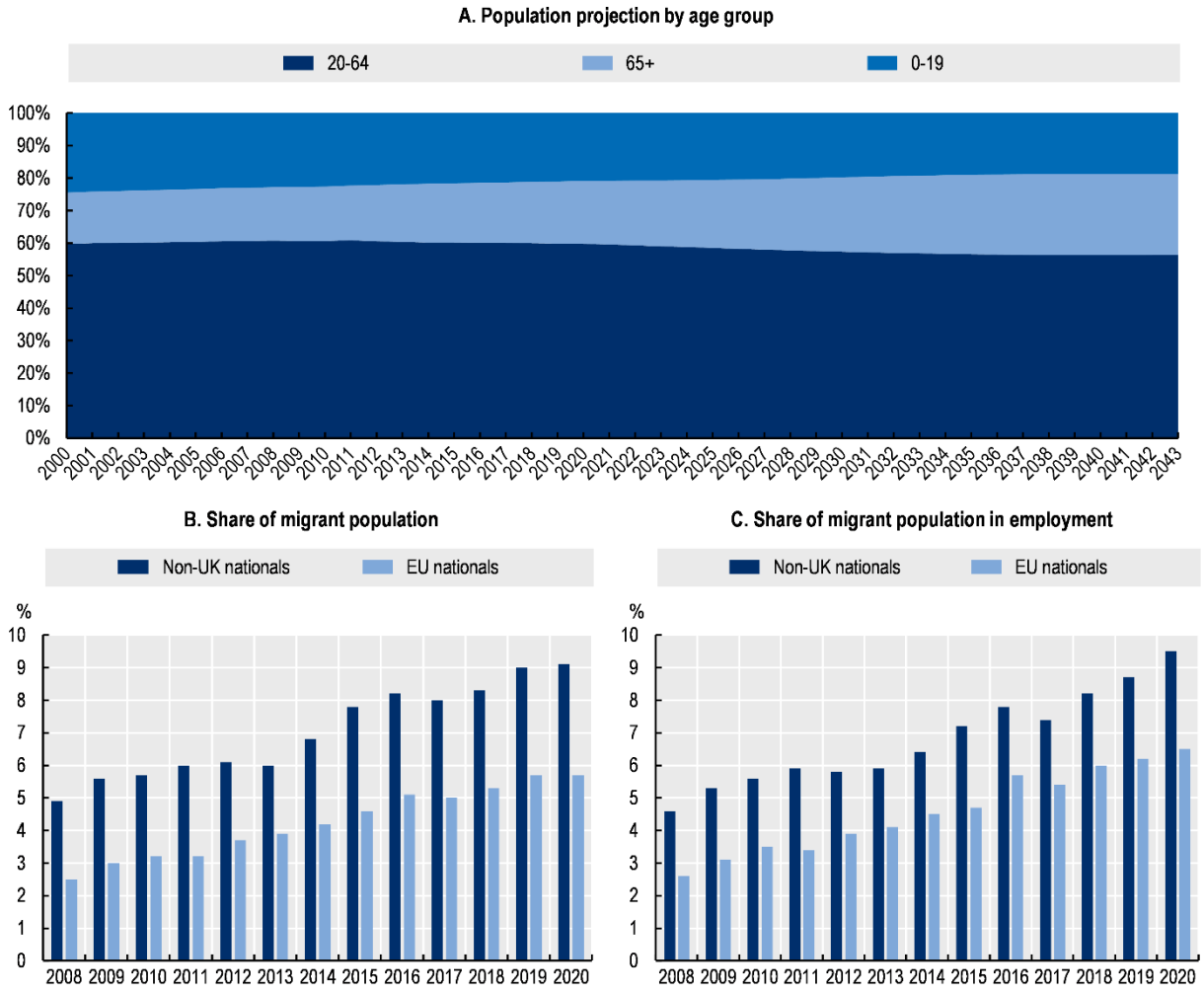
Range of estimated number of green job creations by sector



Source: Transition Economics' estimation in STUC (2021[10]), Green Jobs in Scotland, https://stuc.org.uk/files/Policy/STUC_Green_Jobs.pdf

At the same time, an ageing population is changing the demographic mix of the workforce in Scotland (Figure A A.3, Panel A). This will increase the need for upskilling and reskilling and will also change skill needs in the labour market related to changing consumption patterns – a trend that is widely shared across OECD countries (OECD, 2017[11]). Brexit could also have an impact on the population through changes in migration – Scotland has so far relied on a rising migrant population and workforce (Figure A A.3, Panel B and C). A recent estimate expects migration to be lower than 2019-20 levels (Scottish Fiscal Commission, 2021[12]).

Figure A A.3. Population ageing and uncertainty over migration are changing Scotland's workforce



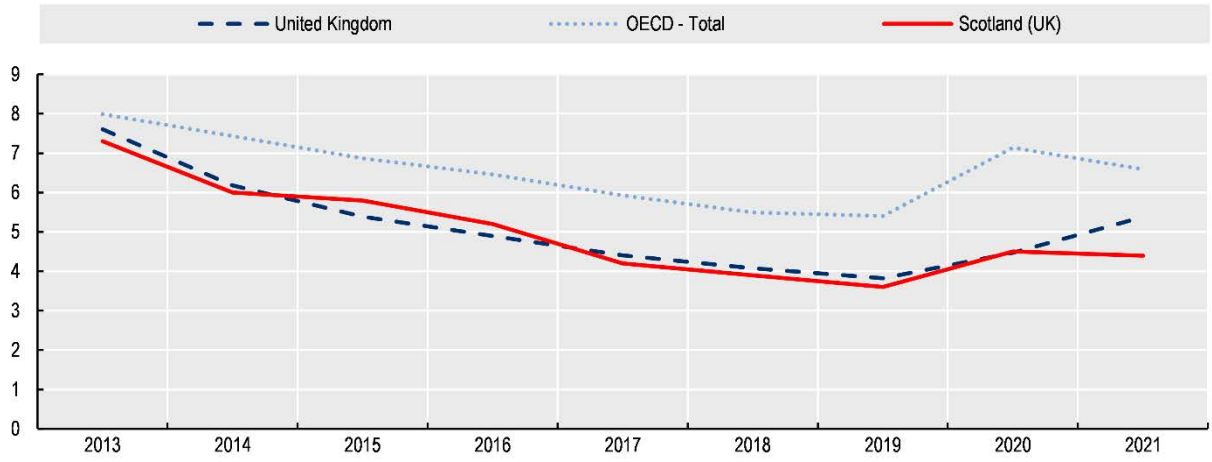
Note: The share of migrant population is estimated in June each year.
Source: NOMIS annual population survey – regional – nationality; (NRS, 2020[13]) https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/population/population-estimates/mid-year-population-estimates/population-estimates-time-series-data.

Labour market challenges

The Scottish labour market was performing well prior to the COVID-19 pandemic. In 2019, it recorded a historically low unemployment rate of 3.6% of the working-age population (16-64 year-olds). Scotland's unemployment rate is significantly lower than the OECD average yet shows a similar trend as in other OECD countries (Figure A A.4). However, the pandemic inflicted a sudden and massive shock. Nearly three-quarters of jobs in Scotland, or 30% of the eligible workforce, had been furloughed with government support, according to July 2020 figures. The unemployment rate (aged 16+) for May-July 2021 was 4.3%, having peaked at 4.9% a year before (ONS, 2021[14]).

Figure A A.4. Scotland had a historically low unemployment rate until the COVID-19 pandemic

Unemployment rates (%) of working-age population (16-64), by year

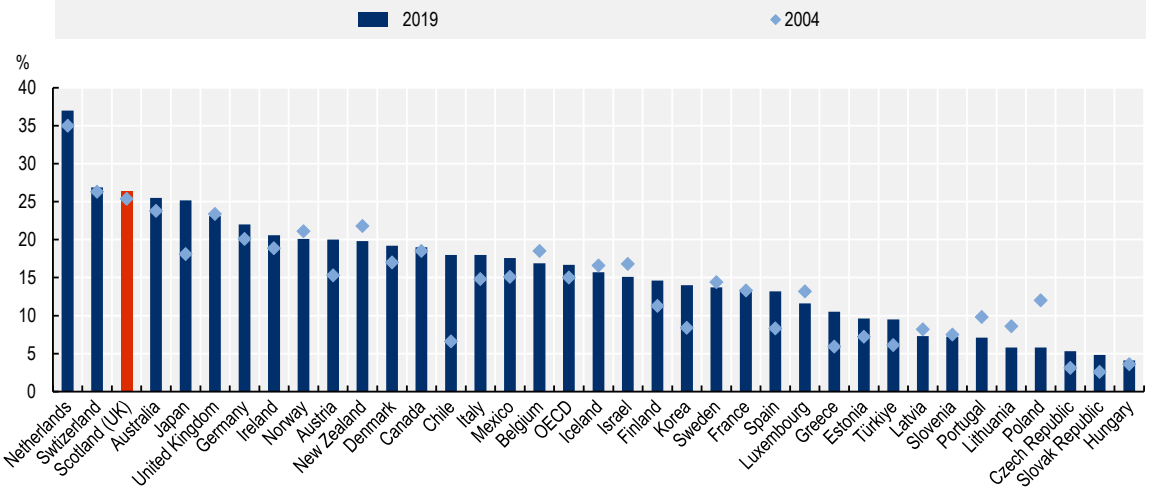


Note: Scotland data are based on Labour Force Survey: ILO unemployment rate. 2021-22 OECD data are based on OECD projections.
Source: OECD (2021[15]), "Data warehouse", OECD.Stat (database), https://doi.org/10.1787/data-00900-en. https://www.ons.gov.uk/employmentandlabourmarket/peoplenotinwork/unemployment/timeseries/ycnn/lms for the United Kingdom and Scotland. OECD (2021[16]), OECD Compendium of Productivity Indicators, https://doi.org/10.1787/f25cdb25-en.

Likewise, Scotland has a relatively high employment rate. It reached 75% of the working-age population in 2020, compared to 69% on average across OECD countries. However, a substantial share of workers are not in full-time employment. Part-time employment in Scotland (26%) is relatively high compared to other OECD countries, and as in most OECD countries, is also increasing (Figure A A.5). The number of part-time workers increased from 614 900 in the first quarter of 2005 to 714 000 in the first quarter of 2020 (Scottish Government, 2021[17]).

Figure A A.5. Part-time employment is relatively high in Scotland

Share of part-time employment in 2019 and 2004, by country

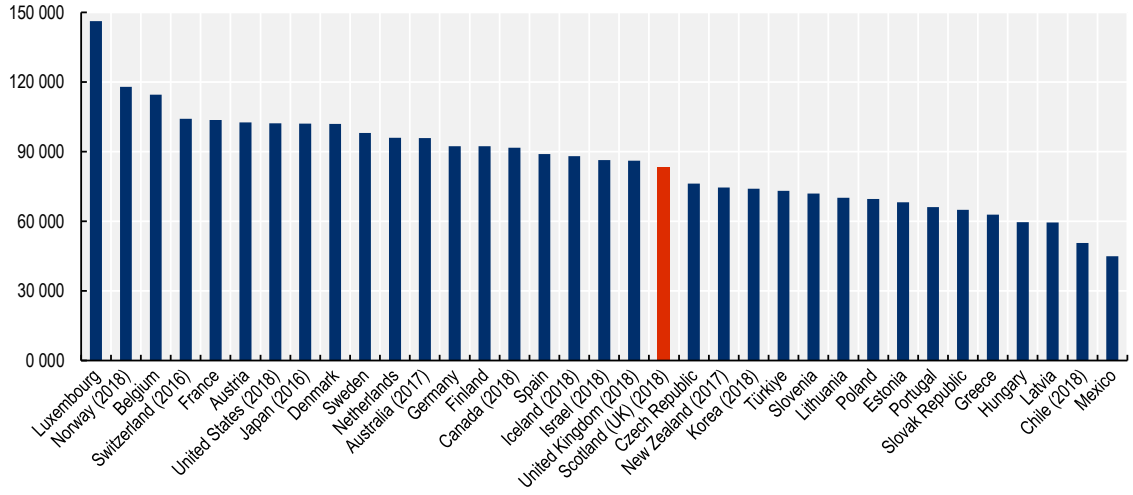


Note: Scotland data refer to Q4 of each year.
Source: Scottish Government (2021[17]), Statistics Scotland, https://statistics.gov.scot/; OECD (2021[18]), Employment – Part-time employment rate, data.oecd.org/emp/part-time-employment-rate.htm.

While Scotland is doing well in terms of employment, its labour productivity is relatively low, which implies the need to boost skills and training (OECD, 2017[19]; OECD, 2004[20]). Gross value added (GVA) per worker in the United Kingdom (USD 86 139 in 2018) is lower than leading apprenticeship countries such as Austria (102 554), Denmark (101 951), Germany (92 391), the Netherlands (96 008) in 2019 and Switzerland (104 190) in 2016 (Figure A A.6)

Figure A A.6. Scotland's productivity is relatively low, compared to leading apprenticeship countries

GVA per worker, USD current prices and current PPP, 2019 or latest year



Source: OECD (2021[15]), "Data warehouse", OECD.Stat (database), https://doi.org/10.1787/data-00900-en.

Trends in skill and training needs

As described above, several global trends such as the digital and green transition are changing skills needs in Scotland, and this has implications for the role that apprenticeships can play and their content.

Demand for higher-level skills, soft skills and basic skills will increase

As high-skilled employment is growing, higher-level vocational programmes are increasingly in demand (OECD, 2022[21]). Multiple factors are driving the demand for higher-level technical skills, at Scottish Credit and Qualifications Framework (SCQF) Level 7/ International Standard Classification of Education (ISCED) Level 4) and above, as opposed to traditional trades and crafts which are more often at upper secondary level (SCQF 5-6 or ISCED 3; see Table A A.1 for details of the ISCED and SCQF educational levels). Some expanding sectors, such as healthcare, make extensive use of skills at higher technical levels. In some contexts, higher-level vocational programmes are also a vehicle for skilled workers to increase their specialisation, or to acquire broader skills in management or running a small business.

One effect of digitalisation, automation and computerisation is to increase the relative importance of skills that are difficult to computerise – notably social and emotional skills – also called "21st century", or "interpersonal" skills. Scotland uses the terminology of "meta-skills" which are closely akin to these categories, although not identical. Scotland is now addressing meta-skills systematically (Skills Development Scotland and Centre for Workbased Learning, 2018[22]). While these skills have always been important, they are becoming one of the unique selling points of human workers, since the associated tasks cannot readily be undertaken by machines. A UK study shows the growing importance of

interpersonal skills, relative to physical and analytical skills (Adecco, 2017[23]). Meta-skills are challenging to identify and measure, but progress is being made on this front (Kankaras, 2019[24]).

Dynamic modern economies, and ambitious young people, now need and expect initial vocational training to provide pathways to further learning, and not merely the skills for a first or specific job. In Scotland, for example, the avenue from Modern Apprenticeship to higher education, including Graduate Apprenticeship, is a vital pathway. Such pathways depend heavily on the acquisition of foundation competences that will allow individuals to thrive in new learning contexts. These foundation competences include numeracy, literacy and, increasingly, digital competences, as well as traits such as adaptability and willingness to learn new skills. However, young people in Scotland score relatively poorly in foundation competences. In the 2018 Programme for International Student Assessment (PISA), Scotland's mean score for reading among 15-year-old students is at a similar level to England (United Kingdom), and below the top five performing countries. For mathematics, Scotland is below England and 17 other countries, and for science below England and 12 other countries (Scottish Government, 2019[25]). Therefore, efforts may be needed to motivate young people and boost their foundation skills, to encourage and enable them to take up an apprenticeship opportunity. Moreover, apprenticeship programmes may need to include remedial activities if learners are to be able to move on to other forms of further or higher education later on if they aspire to do so. Strengthening off-the-job learning and expanding Foundation Apprenticeships can help with this.

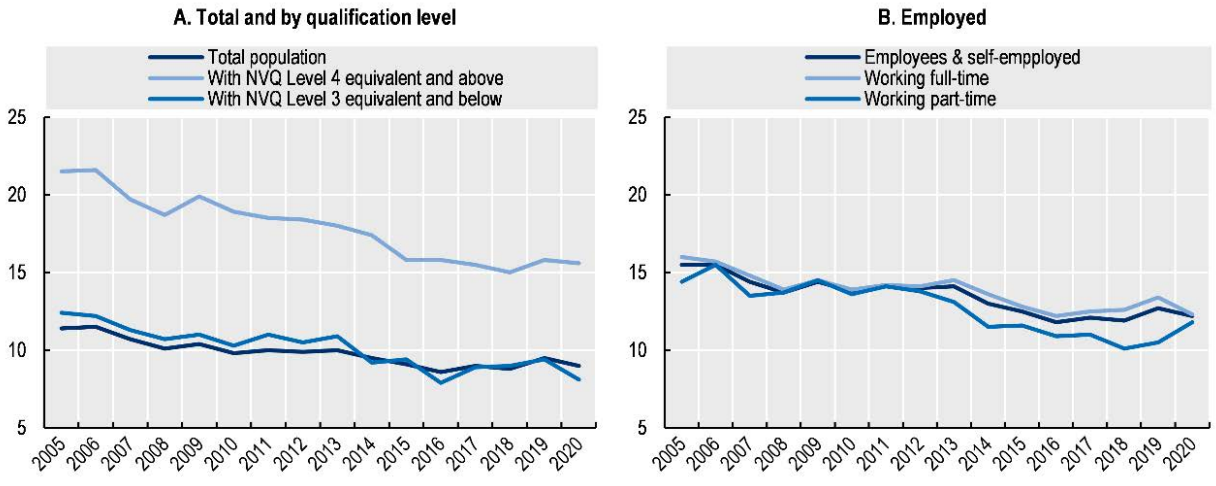
Employer support for training is on the decline

An important labour market trend that could have an impact on apprenticeship participation (and training participation more broadly) is the decline in employer support for training. Over the past 15 years, the share of individuals who received job-related training in Scotland fell from 12% in 2005 to 9% in 2020. For employed individuals the share fell from 16% to 12%. Those with lower qualifications receive significantly less training (Figure A A.7).

In particular, part-time workers have seen a larger fall in training, although their participation levels have been going up again since 2018. This requires attention because of Scotland's large number of part-time workers (see above). Other factors, such as growth in platform work and zero-hours contracts, mean that a growing number of workers lack an employer with a long-term interest in their skills development. Data from OECD countries show that workers in such non-standard forms of employment participate less in job-related training than those in more standard jobs (Figure A A.8). As zero-hours contracts are concentrated among the low skilled in the United Kingdom (OECD, 2017[26]), this represents a double challenge to increasing participation in training.

Figure A A.7. Scotland has seen a reduction in job-related training

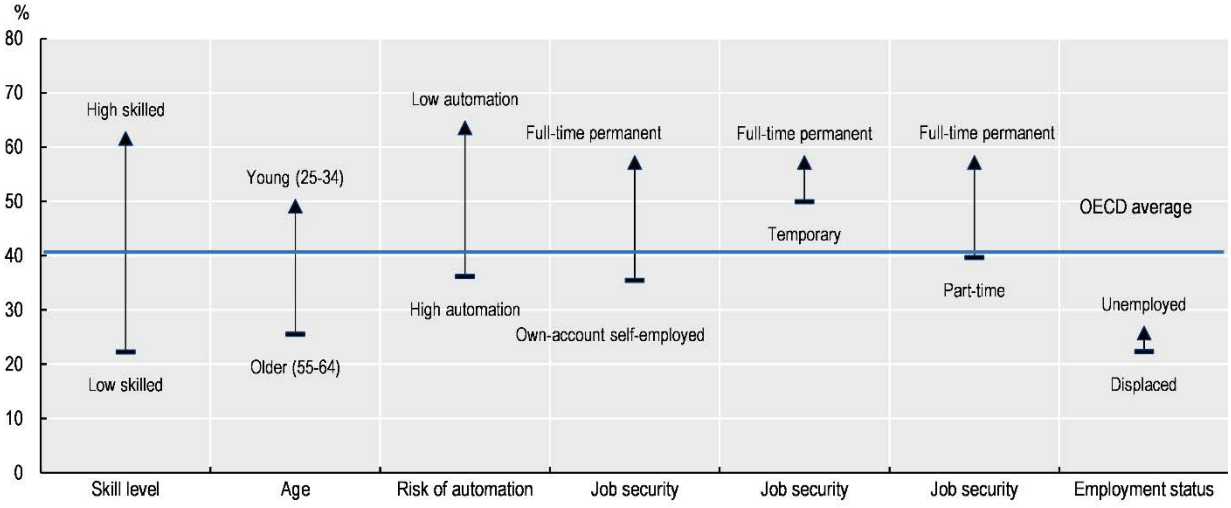
% of individuals who received job-related training in last 4 weeks (aged 16-64)



Note: Annual Population Survey (APS) responses are weighted to official population projections. As the current projections are 2018-based they are based on demographic trends that pre-date the COVID-19 pandemic.
Source: ONS (2021[8]), Annual Population Survey (APS), https://www.nomisweb.co.uk/home/release_group.asp?g=16.

Figure A A.8. Workers in non-standard forms of employment participate less in job-related training

Share (%) of adults (16-65) in each group that participated in training in last 12 months, 2012/15



Note: Share of adults who participated in formal or non-formal job-related training over the previous 12 months. Data refer to 2012 for most countries, except for Chile, Greece, Israel, Lithuania, New Zealand, Slovenia and Turkey where they refer to 2015. Low (high) skilled refers to adults who score at level 1 or below (levels 4 or 5) on the PIAAC literacy scale. High (low) automation refers to adults at high (low) risk of automation. Own-account workers are the self-employed without employees. Temporary refers to workers on fixed term or temporary work agency contracts. Part-time refers to adults who work less than 30 hours per week. Full-time permanent are adults in full-time jobs with an indefinite work contract. Unemployed refers to all unemployed who have not been dismissed for economic reasons in their last job; displaced refers to unemployed adults who have been dismissed for economic reasons in the last job. The OECD average (41%) refers to the unweighted average participation in job-related training among all adults among OECD countries participating in the Survey for Adult Skills (PIAAC).
Source: OECD (2019[27]), *OECD Employment Outlook 2019: The Future of Work*, https://doi.org/10.1787/9ee00155-en.

The apprenticeship system in Scotland

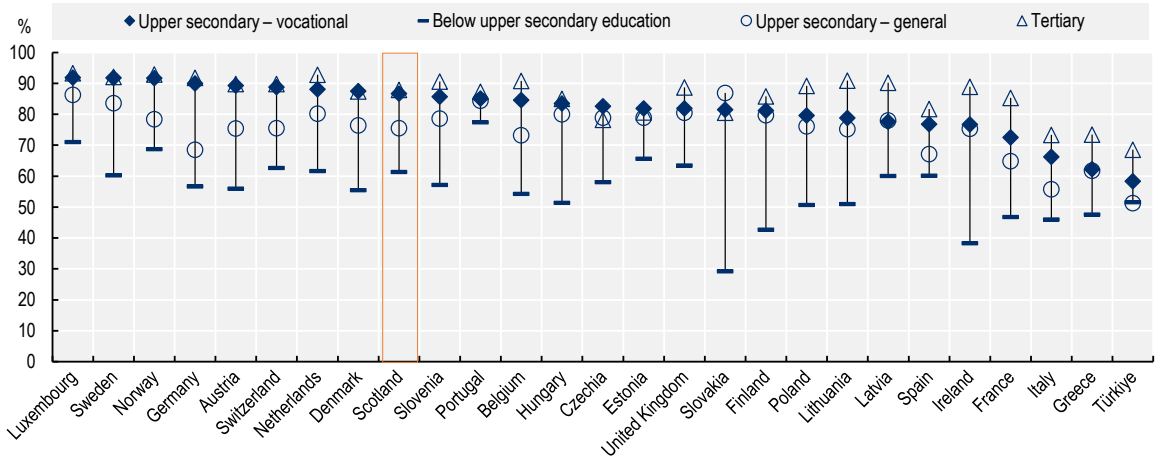
Changing skill needs and the decline in the availability of employer support for training mean the apprenticeship system will have to adapt, but it also has a key role in tackling these challenges. A changing labour market highlights the importance of apprenticeships, as they have the ability to develop the skills that employers are looking for, smooth the transition into the world of work for young people, and provide adults with lifelong learning opportunities (OECD, 2018[28]).

Apprenticeships and social progress

Vocational education and training (VET) involves programmes, including apprenticeships, designed to give learners the knowledge, skills and competences specific to a particular occupation, trade, or class of occupations or trades. The evidence suggest that they offer a good path into employment. As Figure A A.9 shows, young people (aged 15-34) in Scotland who completed upper secondary VET have better employment outcomes (87%) than their counterparts from general education programmes who did not continue to tertiary education (76%) and are even comparable to tertiary graduates (88%). Leading apprenticeship countries, including Austria, Denmark, Germany, the Netherlands, Norway and Switzerland have even better outcomes; VET systems in all these countries have strong work-based learning and industry connections.

Figure A A.9. Young people who completed upper secondary VET have good employment prospects

Employment rates of young people (15-34) not in education and training by educational attainment, 2019



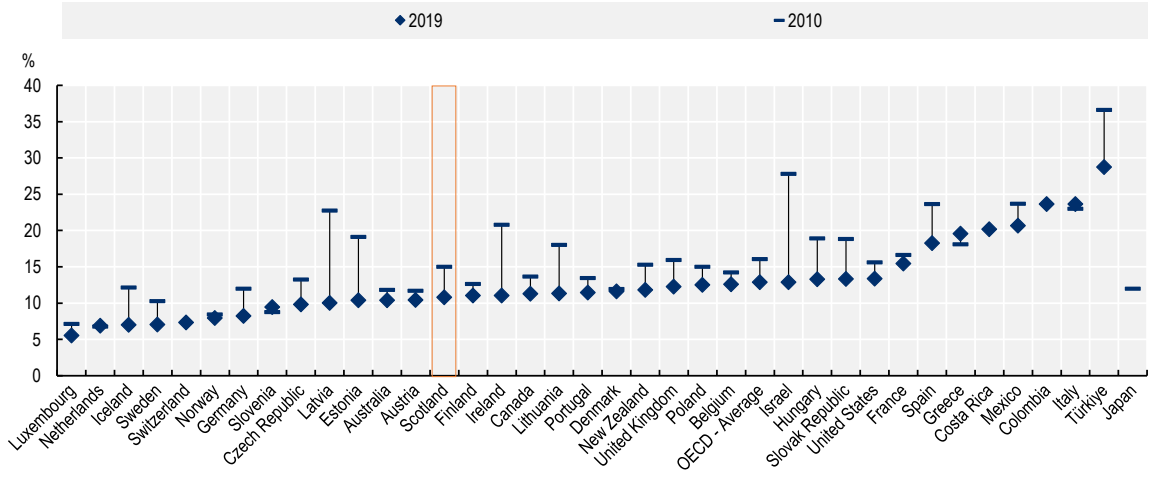
Note: Upper secondary education is at ISCED level 3, which is equivalent to SCQF 5-7 levels. See Box A A.1 for more details. VET refers both apprenticeships and school-based VET programmes designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. General education are programmes designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher level, typically school- or college-based (OECD, 2017[29]).
Source: Eurostat (2021[30]) Employment rates of young people not in education and training by sex, educational attainment level, years since completion of highest level of education and NUTS 2 regions (EDAT_LFSE_33), https://ec.europa.eu/eurostat.

Apprenticeships depend heavily on work-based learning, which is a particularly effective means of developing both hard skills using the latest industry tools and techniques, and interpersonal skills such as teamwork and negotiation, all in a real-word environment, under the guidance of an experienced

practitioner. Evidence from European countries shows that young adults with vocational qualification who gained work experience during their studies have higher employment rates than those who did not gain such experience (OECD, 2020[31]). Indeed, leading apprenticeship countries with strong work-based learning elements show lower levels of young people who are neither employed nor in education or training (NEET) (Figure A A.10) and higher levels of employment than most other OECD countries.

Figure A A.10. Scotland still has a higher NEET rate than some leading apprenticeship countries

Share of those aged 15-29 who are neither employed nor in education or training

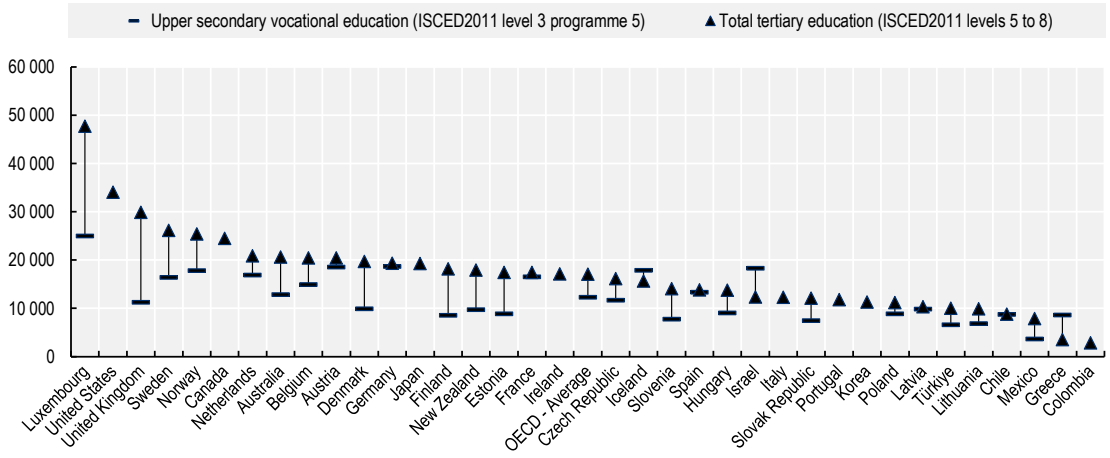


Note: Eurostat data exclude those in non-formal education from NEET (Scotland data) while OECD data count those in non-formal education as NEET. The difference between these two databases is on average 0.9 percentage points with a maximum of 3.4.
Source: OECD (2020[31]), Education at a Glance 2020: OECD Indicators, https://dx.doi.org/10.1787/69096873-en; Scotland from Eurostat (2021[32]) Young people neither in employment nor in education and training by sex and NUTS 2 regions (NEET rates) [edat_lfse_22], https://ec.europa.eu/eurostat.

Most countries spend substantially more on tertiary education institutions than on those providing upper secondary VET, despite their comparable employment outcomes for young adults in many countries. Although no separate data for Scotland are available, the United Kingdom stands out as having one of the greatest spending disparities between its VET and tertiary education systems. In 2018, the United Kingdom had the second largest gap between spending per student in upper secondary VET and tertiary education (after Luxembourg) among OECD countries with available data (Figure A A.11). Similarly, the United Kingdom has high spending on tertiary education relative to gross domestic product (GDP) per capita, while its spending on VET was only average (OECD, 2020[31]). While these figures only cover part of a country's total expenditure on VET, and employment rates are not the only relevant outcome measure, these data highlight the strong returns on investment that VET can have.

Figure A A.11. UK expenditure on VET is relatively low, but spending on tertiary education is high

Total expenditure on educational institutions per full-time equivalent student, USD purchasing power parity, 2018



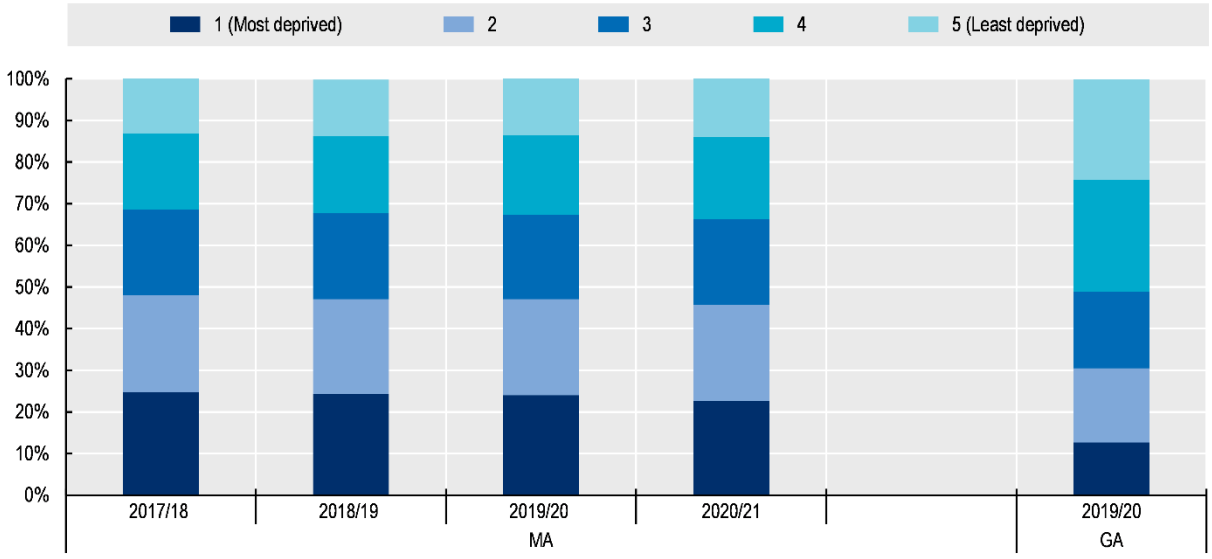
Note: This graph uses total expenditure on all educational institutions per full-time equivalent student in USD purchasing power parity in 2018. The expenditure do not include the expenditure on the work-based learning part.
Upper secondary education is at ISCED level 3, which is equivalent to SCQF 5-7 levels. See Box A A.1 for more details. VET refers both apprenticeships and school-based VET programmes designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade, or class of occupations or trades. General education are programmes designed to develop learners' general knowledge, skills and competencies, as well as literacy and numeracy skills, often to prepare participants for more advanced education programmes at the same or a higher level, typically school- or college-based (OECD, 2017[29]).
Source: OECD (2021[15]), Data warehouse, https://doi.org/10.1787/data-00900-en.

Apprenticeships are also beneficial for employers. They can often reduce recruitment and turnover costs and expand recruitment choices. Often, firms recoup all or most of their costs during the apprenticeship period although the benefits depend on the hours apprentices spend at work, the type of work involved, and the productivity level of each apprentice (Lerman, 2019[33]). In 2016, Switzerland estimated that Swiss companies involved in VET programmes enjoyed an average net benefit of CHF 3 170 per apprentice per year. These companies gained an additional benefit of about CHF 10 700 on average per apprentice if they hired the trained apprentice after completing the apprenticeship (SEFRI, 2019[34]). In addition, the high level of occupational mastery achieved by apprentices may also increase the pace of innovation and the ease of implementing new technologies (Lerman, 2019[33]).

Apprenticeships offer social benefits as well. By providing an alternative to general education or school-based vocational programmes, apprenticeships can be particularly attractive to those with limited interest in academic teaching and learning and/or in developing skills in a traditional classroom setting or have weaker academic skills. For instance, collaborative, experiential and contextualised learning is often used to teach vocational skills, and this may better suit certain students (OECD, 2021[35]) Moreover, by providing employment opportunities for migrants, VET is an essential integration tool: in Germany, migrants are more likely to continue working in the same firm where they did their apprenticeship than their native peers (Jeon, 2019[36]). Scotland also uses apprenticeships as an effective tool to support inclusion and pathways for all, particularly students from disadvantaged backgrounds. For example, almost 70% of Modern Apprenticeship starts are from the three lowest quintiles of the Scottish Index of Multiple Deprivation (SIMD) and the same holds for about 50% of Graduate Apprenticeship starts (Figure A A.12) (see below for a discussion on the difference between the different types of apprenticeship in Scotland).

Figure A A.12. Apprenticeships offer opportunities to students from more deprived backgrounds

Share of Modern Apprenticeship (MA) and Graduate Apprenticeship (GA) starts by quintile of the Scottish Index of Multiple Deprivation, by year



Source: SDS (2021[37]), Graduate Apprenticeships Early Activity and Progress 2019/20.

Types of apprenticeship

There are three forms of apprenticeships in Scotland, constituting the "apprenticeship family": Modern Apprenticeships (MAs), Foundation Apprenticeships (FAs) and Graduate Apprenticeships (GAs).

Modern Apprenticeships

Modern Apprenticeships are the "typical" apprenticeship in Scotland: industry-designed programmes which support employees to acquire certificated competences required to deliver their job role through work-based learning and/or off-the-job training (Kuczera, 2013[38]). MAs, introduced in 1994, extend across SCQF Levels 5-11 (ISCED 3-7). They are predominantly provided at levels 5 to 7, but also exist on levels 8/9 (referred to as technical apprenticeships) and 10+ (referred to as professional apprenticeships). They have a much wider range than many international comparators, where apprenticeships are usually found primarily at ISCED Level 3. The field of construction accounts for 23% in 2019/20 (27% in 2020/21) of MA starts, followed by sport, health and social care (20%), reflecting policy priorities, employer demand and contribution rates (Figure A A.13). Off-the-job training and assessments are delivered by learning providers contracted by Skills Development Scotland (SDS). MAs for those aged 16-24 are given priority for funding. Learning providers receive lower funding contributions for older apprentices, leaving employers to make up the shortfall. Despite this priority given to youth, the proportion of modern apprentices aged over 24 has increased from just 21% of starts in 2013/14 to 39% in 2019/20. In the same year, 22% of starts were for those aged 20-24 and 39% for those aged 16-19 (SDS, 2020[39]). These changes may also reflect the demographic changes in Scotland noted in the previous section (Figure A A.3). MAs have grown in recent years, at least until the arrival of COVID-19 (see Chapter 1). Most of the headline indicators for MAs are positive (Table A A.2).

Box A A.1. Comparing SCQF and ISCED

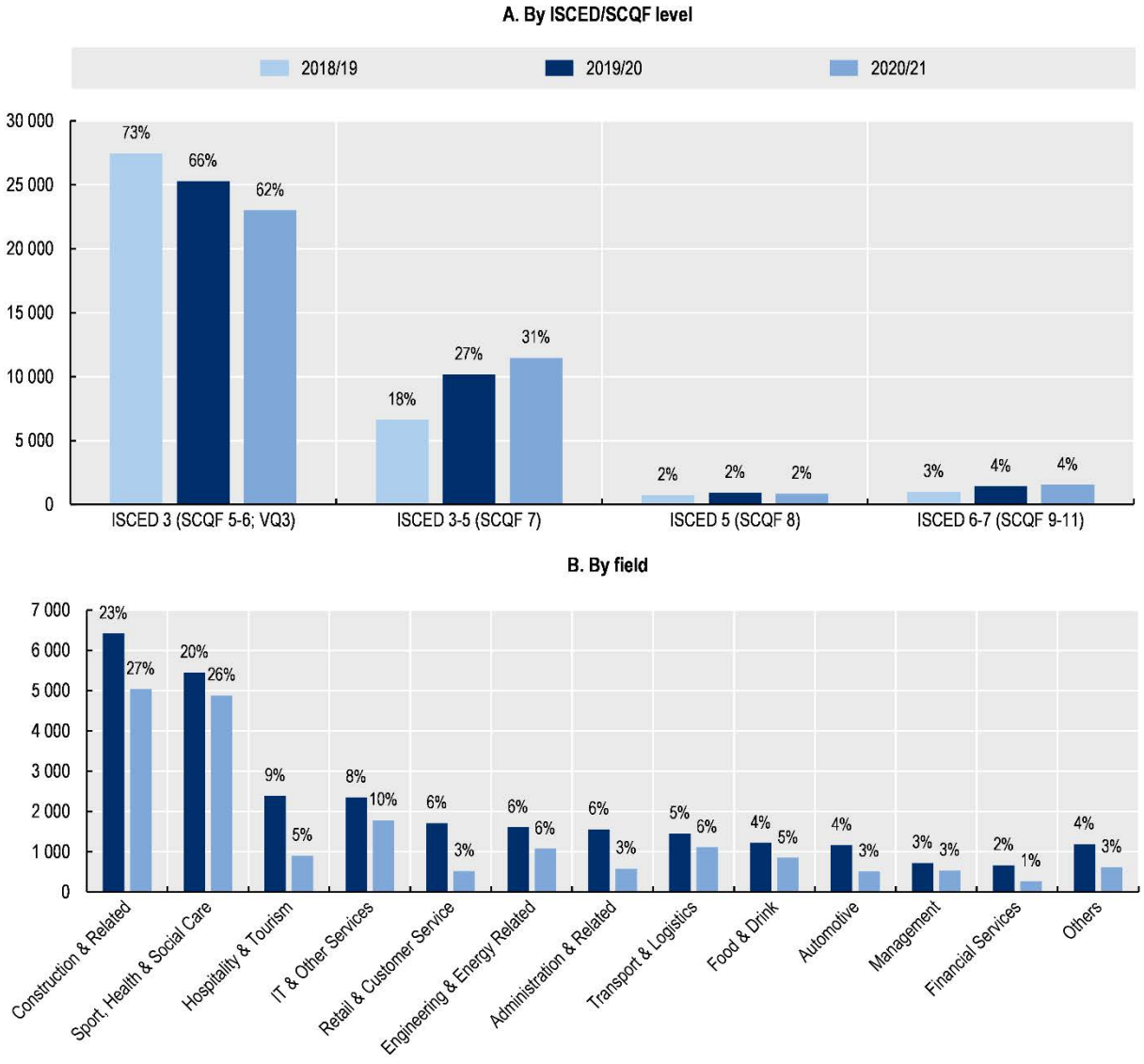
Apprenticeship programmes in Scotland exist on SCQF levels 5 to 11, which is broadly equivalent to ISCED levels 3 (upper-secondary education) to 7 (master's). Level 4 and 5 work-based learning covers ISCED levels 2 (lower-secondary) and 3. The table below maps the different programmes to their SCQF and ISCED levels.

Table A A.1. Mapping the Scottish Credit and Qualification Framework to ISCED

<table>
<tr><th>SCQF levels</th><th>National courses/ Higher education</th><th colspan="4">Apprenticeships courses & SVQ</th><th>ISCED levels</th></tr>
<tr><td>12</td><td>Doctorate</td><td></td><td></td><td></td><td></td><td>Level 8 (Doctorate or equivalent)</td></tr>
<tr><td>11</td><td>Master's degree</td><td></td><td rowspan="6">MA (undertake off-the-job training or on-the-job training or both depending upon the occupation): MA (SCQF Levels 5-7); Technical Apprenticeships (Levels 8/9); Professional Apprenticeships (Levels 10+)</td><td>GA</td><td></td><td>Level 7 (Master's or equivalent)</td></tr>
<tr><td>10</td><td>Honours degree</td><td></td><td></td><td></td><td rowspan="2">Level 6 (Bachelor's or equivalent)</td></tr>
<tr><td>9</td><td>Ordinary degree</td><td></td><td></td><td></td></tr>
<tr><td>8</td><td>Higher National Diploma (2 year)</td><td></td><td>(SCQF 8: Higher apprenticeship)</td><td></td><td>Level 5 (Short-cycle education programmes)</td></tr>
<tr><td>7</td><td>Higher National Certificate (1 year)/ (New) Advanced Higher / Baccalaureates</td><td></td><td></td><td>SVQ</td><td rowspan="4">Level 3 (Upper secondary education programmes)</td></tr>
<tr><td>6</td><td>(New) Higher / Skills for Work Higher</td><td>FA (apprentices are not employed, rather they complete the apprenticeship whilst at school)</td><td></td><td></td><td></td></tr>
<tr><td>5</td><td>National 5 (Intermediate 2) / Skills for Work National 5 (Credit Standard Grade)</td><td rowspan="2">Level 4 and 5 work-based learning</td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>National 4 (Intermediate 1) / Skills for Work National 4 (General Standard Grade)</td><td></td><td></td><td></td><td>Level 2 (Lower Secondary education programmes)</td></tr>
<tr><td>1-3</td><td>National 1-3 / Access 1-3/ Skills for Work National 3 (General Standard Grade)</td><td></td><td></td><td></td><td></td><td></td></tr>
</table>

Note: ISCED Level 4 (post-secondary non-tertiary) is not used in Scotland.
Source: Scottish Government (2015[40]), Scottish qualifications and equivalent UNESCO ISCED levels, https://www.gov.scot/publications/scottish-qualifications-unesco-isced-levels/; Cedefop (2019[41]), Cedefop European database on apprenticeship schemes, https://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/apprenticeship-schemes; https://scqf.org.uk/about-the-framework/interactive-framework.

Figure A A.13. Higher-level Modern Apprenticeships are becoming relatively more important



Source: SDS (2019[42]), Modern Apprenticeships 2018-19 full year report, https://www.skillsdevelopmentscotland.co.uk/media/48673/modern-apprenticeship-statistics-quarter-4-2018-19.pdf.

Table A A.2. Outcome indicators for Modern Apprenticeships

Indicator	Outcomes	Reference
Completion	78% of apprentices complete their programme.	(SDS, 2016[43])
Employment	90% of MA completers were in work six months after completion, compared to 63% of non-completers.	(SDS, 2016[43])
Quality	Four out of five rate the quality of training they receive as 8 or more out of 10; 96% would recommend their apprenticeship to others; 43% of learning providers were rated very good and 4% rated excellent in 2019-20 based on the Quality Assurance and Improvement Framework.	(SDS, 2019[42]) (SDS, 2020[44])
Productivity	Almost 90% of employers reported that completing an apprenticeship had significantly improved the MA's ability to do their job; over 80% of employers reported that MA's ability to work with others and communications skills improved over the course of the apprenticeship.	2020 survey of employers (SDS, 2020[45])
Well-being & career development	79% of MA completers reported a pay rise compared to 72% of non-completers; 84% of those in a MA for more than 12 months report a pay rise compared to 73% of those in a MA for less than 12 months.	(SDS, 2019[46])

Foundation Apprenticeships

Foundation Apprenticeships were introduced in 2014. They are a work-based option for students entering the senior phase of secondary school, primarily 16-17-year-olds. They are usually taken over two years, with the work placement usually undertaken in the second year. Typically, FAs involve students going to a workplace one whole day or a couple of afternoons a week for a programme delivered through a three-way partnership between the "home" school where the student is enrolled, employers, and a learning provider that delivers the off-the-job element of the programme. FAs lead to a SCQF Level 6 (ISCED 3) qualification, and are delivered alongside traditional school qualifications, such as Highers and Nationals, at the same level. During 2016-20, 9 550 FA places were taken up at SCQF Level 6 (Figure A A.14). FAs at SQCF Level 6 cover 12 frameworks (related to occupations; see below), with 30% of starts in the field of social service children and youth, followed by social services & healthcare (Figure A A.15).

In 2018, a pilot of work-based learning (WBL) at SCQF Level 4 and 5 was launched and became part of the FA initiative in 2020 (SDS, 2020[47]). These also aim to embed WBL into the senior phase of secondary school to offer an alternative to classroom-based learning, allowing employers to make a structured contribution to school learning through project-based learning with the employer. They are intended to offer a pathway to other work-based learning opportunities, including FAs at SCQF Level 6, and Modern and Graduate Apprenticeships (see Figure A A.14). The scheme is currently still in the pilot phase, and in 2020, 1 265 students pursued programmes in construction, hospitality, and automotive sectors in selected schools across Scotland (SDS, 2021[48]). The Level 4 and 5 pilots were evaluated during 2021 (SDS, 2021[48]) – initial evaluation shows that it has been successful in improving employability skills and work-readiness, as well as successfully developing the meta-skills of self-awareness, and social and innovation skills (Field, 2020[49]).

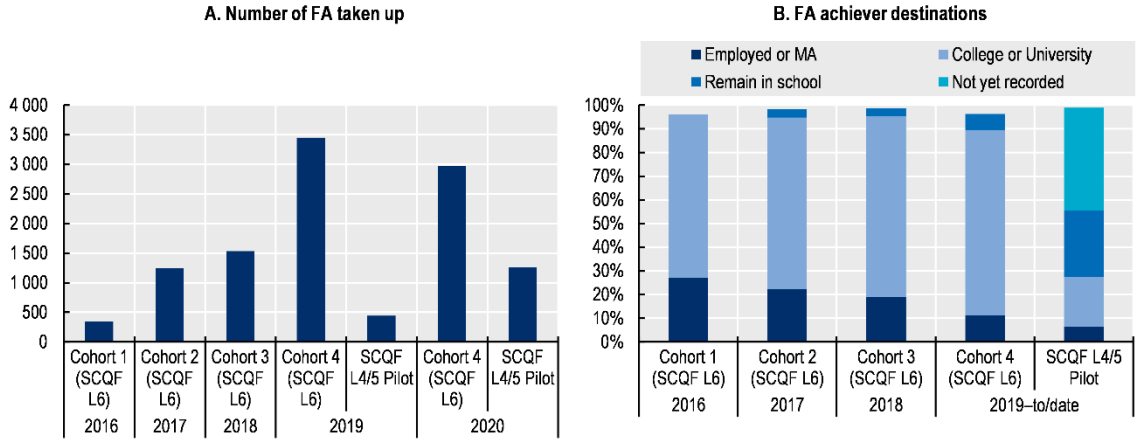
Graduate Apprenticeships

Scotland launched its tertiary level Graduate Apprenticeships in 2017/18. They are undertaken in co-operation with most universities in partnership with employers, and lead to a university degree. The programmes range from SCQF Level 8 to 11, but the overwhelming majority of students are at Levels 10 and 11. Students spend most of their four-year programmes with their employer, with different release schedules for education at the university. More than half of the higher education institutions in Scotland are already involved in the programmes. The programme has grown rapidly, so that in the third year of delivery in 2019/20 there were 1 160 starts on the programme (SDS, 2021[37]), with almost 1 400 funded full-time equivalent places being made available in 2021/22 (SFC, 2021[50]).

GAs have expanded rapidly to offer programmes in 13 different fields, mostly in technical fields including engineering, cybersecurity, and information technology, but also in accounting and business management (which appeared particularly attractive to older students). In 2019/20, 506 employers were engaged in the programme, up from 141 in 2017/18 and 346 in 2018/19 (SDS, 2021[37]). Of the GA students starting in

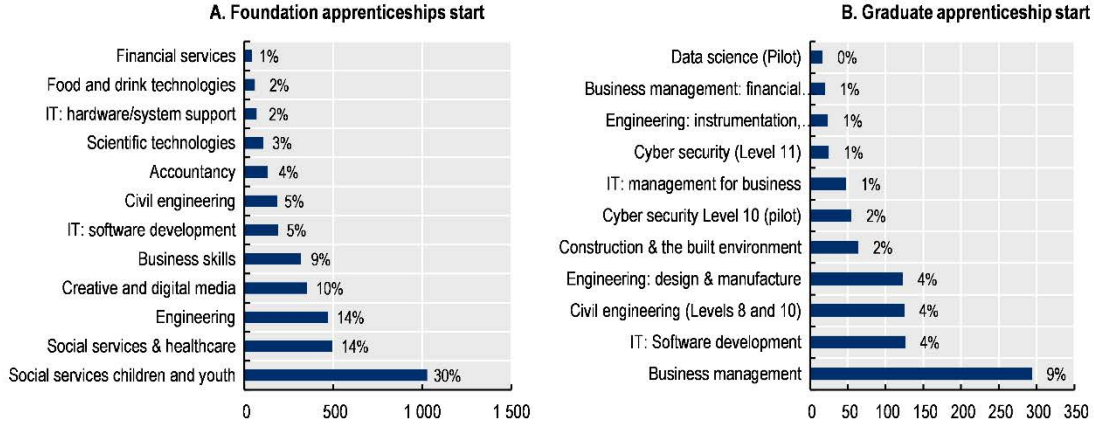
2018/19 two-thirds were male; half were over 24, and nearly 28% over 34. Just over 10% were allowed to enter the second or third year of the programme directly, in recognition of prior learning (SDS, 2021[37]).

Figure A A.14. Foundation Apprenticeship starts and destinations



Source: SDS (2021[48]), Foundation Apprenticeships Progress Report, https://www.skillsdevelopmentscotland.co.uk/media/47943/fa-progress-report-july-2021.pdf.

Figure A A.15. Foundation and Graduate Apprenticeship starts by field of study, in 2019/20 financial year (to April 2020)



Source: Field (2020[49]), Strengthening skills in Scotland, http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf; Kuczera (2013[38]), *A Skills Beyond School Commentary on Scotland*, https://www.oecd.org/education/skills-beyond-school/ASkillsBeyondSchoolCommentaryOnScotland.pdf.

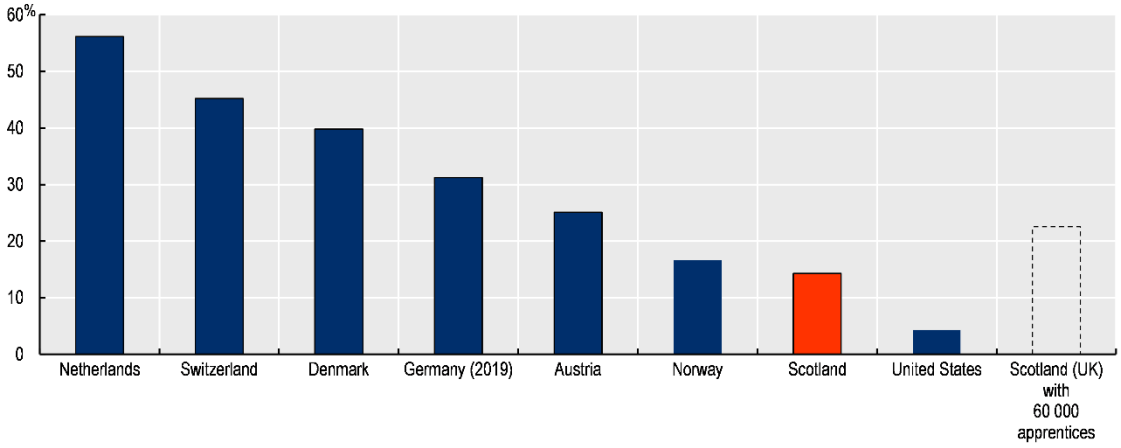
Trends in apprenticeship take up

Apprenticeship numbers have increased significantly in Scotland in recent years, except for the period of the COVID-19 pandemic. Between 2013/14 and 2019/20, MA and GA starts increased by 10% (see Chapter 1). Despite this recent growth, aided by a strong improvement strategy and the development of new types of apprenticeships, apprenticeships remain a small part of the overall skills system. Only about 6% of 16–19-year-olds were in apprenticeships between 2016 and 2020. Compared to leading apprenticeship countries such as in Austria, Germany and Switzerland, the number of apprenticeships is small in Scotland – for example, Switzerland has three times as many apprentices relative to its total workforce as Scotland (Figure A A.16). In contrast, Scotland has a large share of tertiary-educated 25-34-year-olds compared to most OECD countries. Although some of these tertiary-educated adults in Scotland will have completed a vocationally oriented tertiary programme like a GA, the numbers are still relatively small (see above).

Due to the pandemic, overall MA and GA starts were 33% lower in 2020/21 than the year before. An employer survey[1] found that 38% of employers in Scotland had to make apprentices redundant in 2020 (Open University, 2020[51]). During 2020/21, 936 Modern Apprentices were made redundant, up 538 from the year before. Of those, 342 MAs continued their apprenticeship with a different employer, and there were 285 approved applications to the Adopt an Apprentice programme enabling former MAs to complete their training (SDS, 2021[52]). In 2021, 55% of employers in Scotland reported they found it more difficult to recruit new hires, including apprentices, in the past six months than in the same period last year, with nearly two-thirds (63%) of Scottish businesses reporting a skills shortage and 59% having struggled due to the skills shortage (Open University, 2021). In light of the impact of the COVID-19 pandemic on different aspects of the economy, education and society, and young people being disproportionally affected, SDS has launched a national campaign encouraging employers to retain and recruit apprentices. The campaign aims to demonstrate that apprenticeships are a proven way for employers to develop talent and gain real business benefits and can be part of the solution to provide employers with the skills they need to adapt, sustain and strengthen their business (Scottish Government, 2020[53]).

Figure A A.16 Scotland's use of apprenticeships is still weak relative to the size of its workforce

Apprentices per thousand employed persons



Note: The data are based on the number of apprentices in 2020 in Austria; students at vocational institutions as of 1 October, 2020 in Denmark; apprentices participating in apprenticeship programmes on 31 December 2019 in Germany; apprenticeships at the upper secondary level in 2020 in Switzerland; MA in training in 2019/20 in Scotland.
Source: Employed population aged 15 and over from OECD (2021[54]), Labour market statistics (oecd.org) and NOMIS (2021[55]), LFS headline indicators for Scotland; Germany from BIBB (2021[56]), Datenreport 2021, https://www.bibb.de/datenreport/de/datenreport_2021.php. Austrian Chambers of Commerce (2020[57]), Apprentice statistics 2020, Austrian Chambers of Commerce, https://www.wko.at/service/zahlen-daten-fakten/daten-lehrlingsstatistik.html. Swiss Federal Statistical Office (2021[58]), Vocational education and training (VET) – Apprenticeships, https://www.bfs.admin.ch/bfs/en/home/statistics/education-science/pupils-students/upper-secondary/vocational-training-apprenticeships.html. US DoL (2020[59]) Registered Apprenticeship National Results Fiscal Year 2020 https://www.dol.gov/agencies/eta/apprenticeship/about/statistics/2020. Norwegian Directorate of Education (2021[60]), Apprenticeships - educational programme, https://www.udir.no/tall-og-forskning/statistikk/statistikk-fag-og-yrkesopplaring/antall-larlinger/larekontrakter-utdanningsprogram; Statistics Denmark (2021[61]), Database, https://www.statbank.dk

Apprenticeship governance and institutional set up

Standards and frameworks

The Scottish apprenticeship systems is underpinned by Standards and Frameworks.

- An apprenticeship standard is "an industry agreed set of knowledge, skills and behaviours identified as being necessary to the achievement of a given SCQF Level of education and professional competence and capable of being consistently assessed over time".
- A framework is "a structure that provides employers, employees and learning providers with guidance on the features and mandatory and optional components (e.g., qualification (s), design, recruitment, delivery, assessment, QA and experience) associated with a Scottish Apprenticeship within a given area of occupation and level. A framework will provide guidance on the expectations for procurement, delivery, awarding and review."

In 2019, SDS in conjunction with SAAB, developed a new approach to Apprenticeship development, intended to ensure that it was employer led and owned with direct engagement from all parts of industry. This direct engagement has been achieved using technical expert groups (TEGs) that include a variety of employers, trade unions, apprentices, and representatives of wider society.

The new development approach allows the requirements of a job to be better understood by gathering information from employees on the skills, knowledge, and behaviours an individual needs in a role across the layers of meta, generic, specific, and local skills. This information is then reviewed and updated via a

series of TEGs with a wider membership. SDS will continue to utilise Technical Expert Groups as the means of developing apprenticeship frameworks that reflect the needs of the labour market and to develop NOS as the underpinning standards.

Standards created in this way will allow the creation of clear pathways across different job functions and for current apprenticeships to be clustered into broad occupational groups that link to work based learning pathways from schools. What remains to be decided is the extent to which the new standards will appear in the form of a qualification regulated and supported by SQA and/or other qualification bodies, or as a free-standing standard.

Quality assurance and evaluation mechanisms

Four major stakeholders are involved in the quality assurance of apprenticeships: awarding bodies, SDS, SQA (as the accreditation body), Education Scotland and the Quality Assurance Agency (for GAs). Training providers must be approved by an awarding body to be eligible to contract with SDS for apprenticeships. SDS regularly undertakes monitoring through quality reviews of a sample of providers, employers and apprentices. It pays apprenticeship contribution instalments to training providers based on agreed milestones and the achievement of certificates. To support this process, SDS also offers providers continuing professional development on quality provision and assessment. The Apprenticeship Quality Assurance and Improvement Framework developed by SDS is based on a number of quality frameworks including the European Foundation for Quality Management and encompasses delivery, leadership, culture, outcomes and impact as well as employer involvement, innovation, diversity and equality aspects (SDS, 2021[62]). SQA (as the accreditation body) ensures the quality of qualification delivery by regulating approved awarding bodies and their accredited qualifications. Education Scotland also carries out independent reviews of Mas (off-the-job training) and FAs in major sectors. All these reviews and quality assurance mechanisms are aligned and complement each other, as are the results of the review.

Evaluations and pilots are widely used to enhance the performance of apprenticeships in Scotland. Regular statistics are published on apprenticeships, and there are surveys of employers and apprentices to explore their experience of the apprenticeship system and its outcomes, including labour market outcomes. While this is commendable, most of the evaluations appear to be directly undertaken in one way or another by SDS, which is also directly responsible for the initiatives (Field, 2020[49]). The latest audit by Audit Scotland was on MAs in 2012/13 (Audit Scotland, 2014[63]) and its recommendations have been implemented (Audit Scotland, 2018[64]). The framework for evaluating apprenticeships in Scotland has made much progress, as highlighted in Chapter 3 (see Box 3.9).

Governance, stakeholders and financing

Apprenticeship systems are run by multiple stakeholders with a shared responsibility for the development and management of the system. Such shared responsibility is critical to ensuring a dynamic apprenticeship system which serves the needs of the labour market and learners. The legislative framework that governs an apprenticeship system usually stipulates how the relevant stakeholders co-operate and divide their roles and responsibilities, but how they work in practice varies from country to country. As in many other countries, multiple stakeholders with a shared responsibility are involved in the apprenticeship system in Scotland (Table A A.3), but their roles and responsibilities are not defined in a legal framework. In Scotland, the supporting policy framework for apprenticeships is the Scottish Government's youth employment strategy started in 2014, Developing Scotland's Young Workforce (Commission for Developing Scotland's Young Workforce, 2014[65]; Cedefop, 2019[41]).

Table A A.3. Key apprenticeship stakeholders in Scotland

Stakeholder	Roles and responsibilities
Scottish Government (SG)	The Scottish Government sets policy, targets and budget for apprenticeships; agrees strategy; and provides skills agencies with guidance. The Directorate for Fair Work, Employability and Skills is responsible for producing a skilled workforce. For its role in education policy, see OECD (2021[66]).
UK Government	The UK Government sets the national minimum wage via the Low Pay Commission, an independent body that advises the government. The UK Government also raises funds through the Apprenticeships Levy, introduced in 2017, directly from large employers in the United Kingdom, including about 4 000 levy-paying employers in Scotland. The Scottish Government receives a per capita share of the levy receipts.
Skills Development Scotland (SDS)	SDS, the national skills agency, manages operational policies and funding in, and contracting for delivery of, Modern Apprenticeships and other skills areas such as career services, Partnership Action for Continuing Employment (PACE) or redundancy support, support for businesses, pre-employment training programmes, the Employability Fund and a range of other smaller programmes. SDS has a budget of about GBP 260 million. It supports and co-ordinates employers, notably SAAB, AAG and TEG as the secretariat supporting employer engagement in apprenticeships. It also develops an evidence base of skills and training needs, by providing labour market intelligence, and apprenticeship quality assurance frameworks. It undertakes many other tasks relevant to skills areas.
Scottish Funding Council (SFC)	The SFC have statutory responsibilities set out in legislation. The SFC's main responsibilities are to secure coherent provision by post-16 education fundable bodies (as a whole) of high quality further and higher education and the undertaking of research. In addition, the legislation requires the Council to have regard to skills needs, and issues affecting the economy in Scotland. SFC funds colleges and universities for teaching and research with a budget of about GBP 1.9 billion. It has been involved in apprenticeships since the Enterprise and Skills Review (2017). It also funds GAs and FAs (college based) from 2021/22.
Scottish Qualifications Authority (SQA) – Accreditation Body	SQA Accreditation quality assures qualifications offered in Scotland by approving awarding bodies and accrediting their qualifications. They do this by regulating awarding bodies and their qualifications against published regulatory requirements. They are the national accreditation body and have a regulatory role in MAs and FAs.
Scottish Qualifications Authority (SQA) – Awarding Body	SQA Awarding body is the national body responsible for developing, maintaining, and improving a framework of national, higher national and vocational qualifications. This includes those included in modern and foundation apprenticeships. These can be gained at Scotland's schools, colleges, employers and training providers. As with other Awarding bodies they develop and submit qualifications for accreditation to SQA accreditation.
Scottish Apprenticeship Advisory Board (SAAB)	Created following the "Developing the Young Workforce – Youth Employment Strategy", SAAB gives employers and industry a leading role in developing apprenticeships, ensuring that apprenticeships meet industry and economic needs and offer fair work, and job opportunities. It is responsible for providing advice and making recommendations to the SG on the guiding principles, operational policy, systems and structures supporting apprenticeships. It defined the principles of Scottish Apprenticeships, based on consultation with business and other organisations.
Apprenticeship Approvals Group (AAG)	The Modern Apprenticeship Group became the AAG in April 2020. The AAG aims to ensure that apprenticeships meet the needs of employers and provide high-quality learning opportunities to individuals. It is chaired by an employer and represented by sector-specific employers, trade unions, SDS, the Scottish Government and SQA. It reports to the Minister.
Technical Expert Groups (TEGs)	TEGs are advisory groups for occupational clusters and lead the design and development of apprenticeship standards and frameworks, providing the expertise to identify the skills and knowledge the workforce needs. They consist of representatives of employers, technical experts, professional bodies, awarding bodies, providers, trade unions, SDS, AAG and SQA.
Education Scotland (ES)	ES is a Scottish Government executive agency charged with supporting quality and improvement in Scottish education. ES is primarily responsible for school and early childhood education. Its role includes the evaluation of the quality of learning and teaching in Scottish schools and education services through inspection and reviews of Scottish education. It also has responsibility for providing support and resources for learning and teaching via the Education Scotland online service. Building upon and complementing SDS's current quality assurance arrangements that require all non-college training providers to demonstrate they are meeting SDS quality standards, ES carries out external reviews of MAs (Education Scotland, 2020[67]). In their reviews, ES assesses the performance of MA training components by industry sector, focusing on the contribution made by training providers and the quality of the training they deliver.
Employers	Employers are the key actor in apprenticeships. They are represented through SAAB, AAG and TEG as well as multiple employer and sectoral organisations (see Chapter 2 for more details) and are involved in the design and delivery of apprenticeships. Individual employers provide work placements, on-the-job training, in some cases also off-the-job training, and work with training providers. Employers use apprenticeships both for developing their existing workforce and finding and developing new employees.
Scottish Enterprise	Scottish Enterprise is Scotland's national economic development agency and a non-departmental public body of the Scottish Government. It supports companies and the Scottish Government's Economic Strategy. Highlands and Islands Enterprise and South of Scotland Enterprise Agency play a similar role.
Trade Union	Trade unions play a smaller role in Scotland's apprenticeship system than in some countries but they are represented in the apprenticeship governance structure including SAAB, and they actively promote apprenticeships on many occasions.

Stakeholder	Roles and responsibilities
Sector Skills Councils (SSCs)	SSCs/SSOs represent each sector, although their presence varies across sectors. They set apprenticeship standards and sector workforce data and feed labour market perspectives to apprenticeships and qualification structure. However, their roles and presence are diminishing in Scotland.
Centre for Work-based Learning	The Centre is a partnership between SDS, the University of Strathclyde, Heriot-Watt University and Robert Gordon University. Its vision is to establish the value of work-based learning in the Scottish education and training system.
Apprentices/learners	The core of the apprenticeship system. They may be classed as school students (FAs) or employees (MAs and GAs); they may already have been working for their employer before starting an apprenticeship or been taken on in that role. Current and former apprentices are also involved in the process of creating new apprenticeship standards.
Learning providers	This term covers independent training providers, further (higher) education colleges, higher education institutions, employers and schools offering or supporting apprenticeship training at different levels. Approved providers receive SDS and SFC funding for the delivery of the apprenticeship framework.
Awarding bodies (ABs)	ABs approve centres and work with them to ensure high quality delivery of qualifications and carry out activity designed to assure the quality of the qualifications awarded. Abs, such as EAL, CIOB, ICE and the SQA, develop, validate and assess qualifications, ensure quality education and training for the learners who are taking its qualifications, and award certificates to candidates who successfully complete the qualification.

Note: The above describes the current situation as of 2022 with regards to the design, development, assessment and certification of apprenticeships. However, work is ongoing to change and improve some aspects of this.
Source: Based on multiple sources including background reports; OECD interviews; FISSS (2021[68]), Modern Apprenticeship Online, https://modernapprenticeships.org/web/about; Cedefop (2019[41]), Cedefop European database on apprenticeship schemes, https://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/apprenticeship-schemes; Scottish Government (2019[69]), Skills Development Scotland – Guidance 2019-20, www.skillsdevelopmentscotland.co.uk/media/45837/letter-of-guidance-2019_20.pdf.

The financing of apprenticeships mirrors the governance arrangements. In Scotland, it is based on a co-financing model between employers and the government. Employers are supposed to cover the cost of in-company training, including the costs of supervision, equipment and apprentice wages. Apprenticeship wages are determined by the employer but must meet the UK-wide Apprenticeship National Minimum Wage (ANMW) and employers are encouraged to pay the living wage in accordance with Scotland's Fair Work policy and the UK National Minimum and Living Wage. All Modern and Graduate Apprentices must be legally employed in relation to Scottish employment law and the rights and responsibilities are the same as for any other employees and employers in Scotland. Foundation Apprenticeships are considered a form of schooling so Foundation Apprentices are not employed and do not get a wage as they are still in school.

On the government side, SDS pays a contribution towards Modern Apprenticeships, while Graduate Apprenticeships and Foundation Apprenticeships that have college delivery are fully funded by the SFC. SDS contracts with about 225 learning providers, who may subcontract some of the training to other providers. Of these 225, about 70% are independent training providers, 22% are employers and 8% are further education (FE) colleges (SDS, 2019[70]). The Scottish Government's letter of guidance to the SFC, the Programme for Government, and Spending Reviews set important context and will be looking for the right balance between flexibility and accountability for the significant investment of public funds as well as for value for money (SFC, 2020[71]).

Apprenticeship policies and funding

Apprenticeships should be designed and delivered in line with skills needs and skills policies. Scotland has already undertaken several measures to strengthen the fundamentals of its apprenticeship system. Table A A.4 lists apprenticeship programmes and their financing and Table A A.5 lists the major skills policy and other relevant policies that have aimed to make apprenticeships more relevant and stronger. In addition, Scotland's labour market strategy (developed well before the COVID-19 crisis) identifies in-work poverty, job quality, inequality of access to labour market opportunities as challenges, proposing to tackle these challenges through fair work and jobs, and investment in skills including apprenticeships (Scottish Government, 2016[72]). Co-ordination with other parts of the education and skills system has been addressed by the Enterprise and Skills Review (Scottish Government, 2017[73]).

Table A A.4. Apprenticeship programmes and their financing

Apprenticeship programmes and funding in 2020-21

Programme/policy	Description	Spending
MA	• See Modern Apprenticeships above.	GBP 61 million (Lower than starting budget GBP 80.7 million due to the pandemic)
GA	• See Graduate Apprenticeships above.	GBP 16.89 million
FA	• See Foundation Apprenticeships above.	GBP 14.57 million
Pathway Apprenticeships (part of Young Person's Guarantee)	• Provide a new route into the work-based learning for young people. Created for school-leavers up to the age of 18 who might be facing fewer options due to the economic impact of COVID-19. Around 1 200 opportunities were available in the first phase, offering 26 weeks of training with a GBP 100 weekly allowance. • Pathway Apprenticeships were contracted for starts up until March 2021.	GBP 0.78million
Adopt an Apprentice scheme	• Support for apprentices who have been made redundant as a result of the pandemic and allow recruit and retain apprentices (Scottish Government, 2020[53]).	GBP 0.65 million
Apprenticeship Employer Grant (discontinued)	• The grant aims to help increase the number of employers able to take on an apprentice or upskill an existing staff member. Announced in December 2020, recognising the challenging circumstances for employers as a result of coronavirus (COVID-19), and the impact on opportunities for young people. • The grant will provide: GBP 5 000 for employers taking on or upskilling a Modern Apprentice aged 16-24, and for those aged up to 29 years who are disabled, care leavers or from a minority ethnic background. GBP 3 500 for employers taking on or upskilling an apprentice aged over 25.	GBP 19.1 million

Source: Various sources provided by Skills Development Scotland.

Table A A.5. Strategic overview, policies and measurement frameworks that are relevant to apprenticeships

	Summary	Objective	Involved actors
National Strategy for Economic Transformation (forthcoming)	A new national strategy for delivering greater, greener and fairer prosperity for the coming 10 years.	Underway	Business leaders, academics and economists have been appointed to a new Advisory Council to help shape this strategy.
Scotland's Future Skills Action Plan (Scottish Government, 2019[74]).	Identify skills and labour market challenges and the role of the skills system in Scotland's labour market.	In response to challenges ahead, to build a strong skills system that can contribute to economic growth, inclusion and productivity.	Not specified.
Labour Market Strategy	Provided a framework for a strong labour market that drives inclusive, sustainable economic growth, characterised by growing, competitive businesses, high employment, a skilled population capable of meeting the needs of employers, and where fair work is central to improving the lives of individuals and their families.	To focus government and public services on creating a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.	

	Summary	Objective	Involved actors
Inclusive Growth and Fair Work Framework	Aims to achieve economic growth that is inclusive and combines increased prosperity with greater equality, creates opportunities for all, and distributes the benefits of increased prosperity fairly. This led Strategic Labour Market and Fair Work Frameworks.	Promoting fair work and good-quality jobs, promoting equality and tackling inequality, and closing the attainment gap.	
Young Person's Guarantee	GBP 70 million investment in youth employment, including the opportunity of a job, apprenticeship, further or higher education, training programme or volunteering.	Increasing youth employment by creating up to 18 000 training, job and apprenticeship opportunities for young people.	Skills agencies
Developing Scotland's Young Workforce (2014-21)	Scotland's youth employment strategy, which supports apprenticeships.	Meeting the target of reducing 2014 levels of and youth unemployment by 40% by 2021	Education Scotland, Convention of Scottish Local Authorities (COSLA), SDS
Skills 4.0 (2018)	Skills model for the future.	Meta-skill was identified: self-management, social intelligence and innovation. **Skills 2035 Vision** was developed as a roadmap for a skills and learning ecosystem.	SDS, Centre for Work-based Learning, Education Scotland
Skills Investment Plans	Tailored to sector and region, providing information on skills for skill investment, planning and alignment, including apprenticeships.	Informing skills challenges and opportunities, including labour market situation, trends in skills and qualification supply and employers' perspectives.	Skills Development Scotland
ESSB Strategic Plan; Enterprise and Skills Review (ESR)	The Scottish Government asked SFC and SDS to embed FA/GA into SFC's tertiary education funding approach, in a move away from the current SDS commissioning model for colleges and universities. Implement skills alignment model and a one system approach for learners and employers. Set the context for skills work.	Closer alignment of Scotland's Enterprise and Skills Agencies.	The Enterprise and Skills Strategic Board (ESSB) was established to oversee the work of the agencies, including, SDS and SFC. Its Strategic Plan outlines a series of actions.
Apprenticeship Long-Term Outcome Framework (2016) and Education and Skills Impact Framework (ESIF, since 2019) (See Chapter 3 for more detail)	ALTO aimed to underpin the future developments in the system by information which is robust and accurate. It has been since extended to involve long-term outcomes of not only MA, but also HE and FE, leading to the development of the ESIF.	ESIF is to provide estimates of the economic and social impact of investment in post-school education and skills at SCQF level 4, for individuals, employers and the public purse.	SDS, SFC, ESSB, Office for National Statistics
Strategy for Apprenticeship Standards and Frameworks	Sets out a plan to ensure that the standards and frameworks underpinning apprenticeships are responsive to future changes.	Create standards and frameworks which underpin the delivery of an apprenticeship family fit for the demands of Industry 4.0, ensuring their future relevance through deeper and wider engagement with employers and learners, and to design a flexible, responsive apprenticeship system.	SDS, Scottish Apprenticeship Advisory Board

	Summary	Objective	Involved actors
Climate Emergency Skills Action Plan 2020 and Net-Zero target	Supports the Climate Change Plan 2018-32. Guide apprenticeship focus and provision.	Set out a clear direction and priorities for the changes needed in the skills system.	SDS and SFC
Equality policies including gender pay action plan, disability	2015 Apprenticeship Equality Action Plan outlined Scotland's priorities for improving diversity and equality of opportunity in Scottish Apprenticeships.	Increase the employment rate for young disabled people to the population average. Reduce the gender disparity in MA frameworks. Increase the number of MA starts from black and minority ethnic communities to equal the population share. Increase positive destinations year-on-year for care leavers.	SDS

Source: SDS (2019[75]), Background report prepared by SDS for the OECD review (unpublished). Scottish Government (2021[76]), Enterprise and Skills Strategic Board, https://www.gov.scot/groups/enterprise-and-skills-strategic-board. Scottish Government (2016[72]), Scotland's Labour Market Strategy, https://www.gov.scot/publications/scotlands-labour-market-strategy. Scottish Government (2020[77]), Growing the economy, https://www.gov.scot/policies/economic-growth/inclusive-growth. SDS (2021[78]), Apprenticeship Equality Action Plan Final Report 2015-2021, https://www.skillsdevelopmentscotland.co.uk/media/48622/equality-action-plan-5-year-final-report-december-2021.pdf.

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Note

[1] A survey, commissioned by the Open University, of 1 000 senior business leaders in 2020, of which 200 are in Scotland. It was designed to be 50:50 split between SMEs (10-250 employees) and large enterprises (250+ employees).

OECD Reviews of Vocational Education and Training

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PRINT ISBN 978-92-64-62579-2
PDF ISBN 978-92-64-87904-1

