



# Graduate Apprenticeships: Developing Scotland's Future Workforce

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*This report was commissioned by SAAB from the Edge Foundation. It examines the current policy position of Graduate Apprenticeships (GAs), the future of the labour market and international examples of degree-level work-based learning. Based on a series of interviews and focus groups, it reflects on the successes of the GA programme and highlights five key opportunities to further strengthen and grow this provision.*

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## Foreword – Paul Campbell



It is clear that Graduate Apprenticeships are valued by Scottish employers.

As Chair of the Scottish Apprenticeship Advisory Board (SAAB) Employer Engagement Group, I have talked to employers in detail about the benefits of Graduate Apprenticeships (GAs) since their launch in 2017. These are unique in that they combine a job with academic study towards a degree, thus enabling graduate apprentices to develop a range of skills necessary for the workplace. Being industry focused they ensure that graduate apprentices attain the right skills for the job and sector. They increase business productivity and help

support the development of talent pipelines for employers.

Members of the advisory board – made up of industry leaders and experts across various sectors and sizes of organisation – agree that the demand for degree-level, work-based learning will continue to grow. It has, therefore, become increasingly apparent that the value of GAs to businesses in Scotland should be captured and communicated, to help inform the future advice we give to Scottish Government, in our role as ‘the voice of industry’ on apprenticeships.

With this in mind, the SAAB Employer Engagement Group was delighted to commission the Edge Foundation – experts in learning and skills – to conduct this research. The overall aim is to produce a report looking at the current policy landscape, the future of work, international examples and what that means for the future of GAs.

The last two years and the impact of Covid-19 have been hugely disruptive on the global economy, as well as education, training and the workplace generally. As nations plan their long-term recovery, we want to ensure that the skills landscape in Scotland can underpin economic and social recovery, post-pandemic. SAAB is keen to understand the important role that apprenticeships can offer to support this and the future of work.

There are lessons to be learned from international comparisons and work to be done to shift the skills approach in Scotland to one which is demand-led and therefore fully reflective of the needs of industry.

Scotland's skills system has recently been refreshed, with more robust governance processes and a focus on employer-led apprenticeship development. Four years since launch, employers are keen to see the Graduate Apprenticeship programme grow in volume and in terms of sectors covered.

With these strong foundations to build upon, I am confident this report will support employers, policy makers and educators to be innovative around the future adaptations of Graduate Apprenticeships in a positive and constructive way.

### **Paul Campbell**

Chair of the Scottish Apprenticeship Advisory Board (SAAB) Employer Engagement Group

## Foreword – Dr Liz Cameron OBE



- The Scottish Chambers of Commerce Network represents more than 12,000 members and our message is clear - we want to protect and grow apprenticeships in Scotland as part of a rebalanced model that aligns investment with industry need.
- We outlined in our 2021 'Rally for Growth' business manifesto, our desire for a 'revolution in training', which supports individuals back into work and empowers workers to reskill/upskill at any stage of their career. Graduate Apprenticeships have a key role to play in this, but our system has to be ready for a shift towards a demand-led approach: supply driven by employers and a supporting system which provides certainty around funding for Graduate Apprenticeships are both required for this to happen.

This report outlines the ask from employers – that Graduate Apprenticeships are responsive to industry, with an expansion of degree level qualifications which mirror what employers and businesses need to thrive. This report recognises that Graduate Apprenticeships are at the forefront of skills in terms of Scotland's short-term recovery and beyond, and as the leading, entrepreneurial business network in Scotland, we welcome and fully support these findings.

**Dr Liz Cameron OBE**

Chief Executive, Scottish Chambers of Commerce

# Introduction

Amid the transition towards net-zero, the onset of the fourth industrial revolution (4IR) and the implications of Brexit and Covid-19, Scotland is adapting to changing priorities for sectors and regions across the economy and preparing its labour market for an adapting world of work.

Scotland's skills system will play an increasingly important role in driving economic growth, increasing productivity and responding to future skills needs. This is where Graduate Apprenticeships (GAs) have a particularly important role to play.

Introduced in 2017/2018, Scotland's Graduate Apprenticeship programme continues to grow in strength. Currently in its fourth year of delivery, the programme supports 3,500 graduate apprentices across 13 different frameworks, reflecting growing interest in and demand for the programme. There are many reasons for its growing popularity.

Firstly, GAs enable graduate apprentices to combine theory and practice, learning to use essential skills on the job. This responds to increasing calls from employers who value a broader blend of academic and technical skills, and candidates with essential skills such as problem-solving, communication, creativity and team working.

Secondly, GAs offer an opportunity for individuals to retrain and upskill. This is also of benefit to employers, as GAs are becoming increasingly popular among older adults in existing employment, strengthening the talent development within an organisation, increasing productivity and strengthening workforce sustainability. Not only this, but GAs also develop "pivotal" talent - supporting a workforce to pivot and adapt their learning and training needs as the requirement of the jobs change. This will become even more important in an increasingly changing world of work.

Thirdly, GAs offer a flexible and experiential learning experience. This is opening up opportunities to individuals from a range of different backgrounds, including older adults and those from under-represented groups. By catering for different learning styles, GAs can play an important role in supporting an increasingly diverse workforce.

While academic education is often favoured as a popular route, vocational education and training (VET) provides an opportunity for individuals to develop work-ready skills in a practical setting. As employers seek candidates with more 'work ready' skills, we may see attitudes shift towards vocational training and work-based learning which will play an increasingly critical role in preparing Scotland's labour market for the transformations ahead. GAs will remain an important part of Scotland's skills system and there is clearly much to celebrate in the programme. This report examines the important current role of GAs in Scotland's skills system, explores the future skills landscape and international examples, before looking into opportunities to further strengthen the GA programme, building on the existing strong base.

## A summary of key quotes and opportunities

### Key quotes from employers:

I think there is always going to be a place for purely academic degrees for some types of role, but the majority of what industry needs is what a Graduate Apprenticeship will deliver.

When people are talking about their options, I am certainly seeing people now talking about graduate level apprenticeships as a first choice... I hope in five years' time this will become even more so.

Some research shows typically it takes 43 weeks for a graduate to get up to speed in a business after they leave University. Having [graduate apprentices] who are working with you and learning at the same time, the transition is much quicker – you have people who are ready to perform straight away when they come through that.

The Aspiration is for increased volume and strong parity of esteem with traditional degree courses... young people do Foundation Apprenticeships in school, they may do Modern Apprenticeships and progress their relationship with their employer. It's a win for both the wider economy and the employer

The strongest thing that Graduate Apprenticeships do is deliver the skills faster. At the end of a four or five year Master's degree you get to the practical stuff and then it is another couple of years before usefulness arrives.

### Key opportunities to consolidate and grow Graduate Apprenticeships:

#### **Increase Flexibility:**

Build a more flexible system to support the delivery of Graduate Apprenticeships.

#### **Upskill Urgently:**

Introduce an agile funding system led by employer demand

#### **Demonstrate Commitment:**

Provide certainty and clarity of provision

#### **Futureproof Opportunities:**

Develop more diverse future frameworks

#### **Drive Demand:**

Increase awareness of the GA programme

# 1. The Current Policy Position

In Scotland, like most post-industrial nations, labour markets have been changing rapidly with the onset of the fourth industrial revolution, increasing megatrends such as automation and globalisation, a greening economy, and implications from Brexit. Meanwhile, as set out in more detail in Chapter 2, Covid-19 has emerged as a new shock to the economy. Over the first half of 2020, Scotland's GDP fell by 21.4% (Scottish Government, 2020); meanwhile, Scotland's unemployment rate currently sits at 4.3% with young people particularly impacted (SDS, 2021). While implications from Covid-19 are yet to fully transpire and be understood, we will likely witness changing priorities for sectors and regions across Scotland, alongside an acceleration in trends such as digitalisation, changing workplace practices and new forms of work.

To prepare for this changing world of work, Scottish Government have placed an emphasis on 'meta-skills', recognising the importance of human capabilities such as self-management, resilience and problem solving - skills which cannot be easily replaced by machines and are more readily developed in work-based learning environments (SDS, 2019). We explore Scotland's skills landscape and the future of work in more detail in Chapter 2.

This is where Scotland's work-based apprenticeships system plays a key role and over the last decade Scotland has strengthened the foundations, supply, and reach of the apprenticeship system. Apprenticeship numbers have increased, new forms of apprenticeships including Graduate Apprenticeships (GAs) and Foundation Apprenticeships (FAs) have been established, co-ordination across governance has been enhanced and a review of apprenticeship qualifications initiated.

The Scottish Government has made a firm commitment to increase productivity, inclusive growth and fair work, with an ambition to rank in the top quartile for productivity against key trading partners in the Organisation for Economic Cooperation and Development (OECD). To meet this ambition, Skills Development Scotland (SDS) has a key role in helping to ensure that the demand for skills from businesses and wider industry is met by a suitably skilled, work-ready labour force. The development of work-based learning pathways such as GAs therefore plays a critical role in meeting employer demand for skills, improving workforce sustainability, providing flexible and experiential opportunities for individuals to upskill and reskill, to support the Scottish Government's ambition for higher productivity and inclusive growth.

## Benefits of Graduate Apprenticeships

Key features of Graduate Apprenticeship	Benefits to Graduate Apprentices	Benefits to Employers and wider Society
Built on industry and professional standards	Become productive sooner	Links directly to employer requirements
Flexible entry and exit points	Suits different learning styles	Responds to real-time changes in skills needs
Apprentice is employed for duration of apprenticeship	Earn professional accreditation	Reduced recruitment costs for employers
Open to all employers and their full-time employees	Upskill or reskill while in paid employment	A flexible, more productive and innovative workforce
Valued and sought after by industry	Develop broad skillsets to adapt to the changing world of work	Strengthens talent development pipelines



### Background to Graduate Apprenticeships

Graduate Apprenticeships (GAs) were launched in 2017/18, informed by similar programmes in other countries, some of which we explore further in Chapter 3.

Designed in collaboration between employers, universities, SDS and the Scottish Funding Council (SFC), GAs are industry recognised and accredited, available from diploma qualification up to Master's level, with a unique blend of work-based employment and higher-level learning. Industry accreditation is particularly beneficial to graduate apprentices as it provides them with respected qualifications to progress professionally within their occupation. The programme also offers flexible entry and exit points, offering 'recognition of prior learning' (RPL) to take into account previous qualifications, skills and experiences. This offers an attractive option for new and existing employees, enabling those with relevant prior experience to complete the qualification more quickly.

When people are talking about their options, I am certainly seeing people now talking about graduate level apprenticeships as a first choice... I hope in five years' time this will become even more so (Employer).

Since the inception of GAs in 2017/18, the level of uptake has grown rapidly, reflecting the important role that GAs play in Scotland's skills provision. Now in its fourth year of delivery, GAs have expanded rapidly to provide more than 3,500 places. In academic year 2020/21, 1,158 individuals started a GA, working for 500 employers, with 13 Higher Education Institutions offering GAs as part of their curriculum. GAs have also expanded into 13 different frameworks where there is a pressing need for skilled individuals - this includes technical fields such as ICT, digital, engineering, cyber security but also broader areas such as accounting and business management (SDS, 2021).

### Who are Graduate Apprenticeships for?

GAs are designed for existing employees or individuals who want to go straight into work, enabling participants to acquire the workplace skills, industry accreditation and academic learning to progress as professionals in the workplace. A key strength of the programme is its openness to individuals of all ages (the only requirement is to be 16 or over), which supports the growing recognition of lifelong learning and adult training and retraining that is beginning to resonate across the UK.

Latest figures from the 2020/21 GA cohort saw dominant uptake among 25-34-year-olds (SDS, 2021), highlighting the appeal of GAs to those who may not have had the opportunity to study at degree level when they were younger, and the popularity of work-based learning as a means for up-skilling later in life. In a future labour market that will increasingly require frequent changes of jobs and activities, GAs offer a valuable opportunity for graduate apprentices to continuously develop, maintain and upgrade skills through learning and training at all ages (OECD, 2018).

### How are graduate apprentices and employers engaged with the programme?

GAs have been designed in consultation with employers and learning providers, and in response to perceived current and future skills needs in Scotland.

For graduate apprentices, this provides an opportunity to develop skills that are sought by employers, through a blend of academic study and contextualised work-based learning. Figures from the Learner Survey (2019) indicate high levels of satisfaction, with 83% of learners satisfied, citing the quality and standard of learning, and mentoring as particularly valuable components (SDS, 2021).

Having [graduate apprentices] who are working with you and learning at the same time, the transition is much quicker – you have people who are ready to perform straight away when they come through that (Employer).

Meanwhile, employer engagement with GAs continues to grow, with employers playing a key role in supporting the curriculum, delivery, and assessment in addition to providing a workplace mentor and accommodating time for academic study. Since its first year of delivery the number of GA employers has increased by around 260% (from 141 employers to 500 employers between 2017 to 2020/21) (SDS, 2021). Feedback also indicates positive responses here, with 100% of employers who responded to a recent survey willing to take on another GA in the future, citing workforce sustainability, increased productivity, talent development, and improved service delivery as key benefits.

Also, Scotland's new industry-led development model brings together employers, apprentices, trade unions and industry representatives to gain understanding of both current and future work needs. This cross-collaboration ensures that GAs are aligned to the realities of work and supported by strong standards. As a result, graduate apprentices develop relevant work-based skills and employers are supplied with a skilled and productive workforce.

As the programme continues to grow, recommendations to improve GAs indicate that increased collaboration, communication and joint planning (with more mediation between employers and university) and a greater balance between work and study time for graduate apprentices, would further strengthen the programme (SDS, 2020).

## Funding

GAs, unlike Modern Apprenticeships, are fully funded by Scottish Government. Now that European Social Funding is ending in 2021/22, funding arrangements for GAs are due to be led through the Scottish Funding Council (SFC) allocation process (Skills Development Scotland, 2021).

However, unlike England's market-based approach, Scotland currently retains a more planned systems-based approach, which gives Scottish Government and the SFC greater ability to inform and 'steer' institutional priorities and negotiate with providers. However, the current funding system is also understood to be complex, with the majority of initial decision making determined by SDS and training providers, while employers and apprentices are included later in the process (OECD, 2020).

This raises questions over whether the scale and mix of provision is agile enough to respond to a rapidly changing labour market. There may be merit in considering whether the system should be reformed towards a demand-led model, in which government responds to employer need, matched to the supply of apprentices. Within a more agile system, it would be employers and apprentices who would determine the scale and mix of provision, rather than government and training providers, thus allowing the system to respond more quickly to labour market transformation over the coming years.

### Future direction of travel

As Scotland adapts and responds to the changing world of work, the development of new and transferable meta-skills will be key to Scotland's progress and transformation. This was highlighted in the OECD's recent review of Scotland's 'Curriculum for Excellence' which provides recommendations on how Scotland can continue to prepare individuals for the kind of knowledge, skills and attitudes needed to progress into the world of work (Scottish Government, 2021).

Programmes such as GAs will continue to play an important role in Scotland's skills system, and there is opportunity to build on the current strengths of the GA programme for further expansion. For individuals, this might mean providing opportunities to upskill and reskill, increasing job prospects and enabling progression opportunities within industry. For employers it could mean continuing to improve and diversify the talent pool, business productivity and the filling of key skills gaps.

The challenge for the future will be to ensure a consistent and growing supply of high- quality placements to meet demand. SDS and SFC must also work closely with employers and learning providers to continue to raise the profile and quality of GAs, and to consider the expansion of GAs into further apprenticeship frameworks. There may also be merit in considering how best to adapt the funding system so that it responds quickly and effectively to follow future demand and transformations in the world of work.

In the next chapter, we look at how the future of work is changing and what this might mean for ways in which programmes like GAs need to continue to evolve and adapt.

## 2. The Future of Work

It is not an overstatement to say that the world has experienced immense changes over the last few decades, and notably over the last few years, in terms of the jobs we do and how we do them. This has been driven significantly by a digital revolution, automation, climate change and a global pandemic. These changes can present a threat to existing jobs and sectors but can also be drivers of innovation, providing workers with new job opportunities and innovative ways to carry out roles and responsibilities. The implications of these changes have exacerbated the scale of skills shortages across the UK, and will continue to do so, with many employers unable to find candidates with the skills they need. The UK skills mismatch was highlighted by the Industrial Strategy Council's (2019) report which estimates that by 2030 seven million additional workers could be under-skilled for their job requirements - this would currently constitute about 20% of the labour market.

It is crucial that we understand the issues affecting the labour market, and the extent of any skills shortages, to ensure we best prepare the current and future workforce for the workplace, some of which means anticipating and preparing people for jobs that don't yet exist. Edge Foundation convenes experts and researchers in the area of skills shortages and the future of work, publishing regular Skills Shortages Bulletins in order to explore the latest thinking across key sectors of the economy. Here we will discuss some of these key drivers of change that are affecting, and will continue to affect, the world of work, which will include discussing the implications of these specifically in the context of Scotland.

### The Fourth Industrial Revolution

The emergence and rapid implementation of new technologies in areas from artificial intelligence to biotechnologies is heralding a Fourth Industrial Revolution (4IR) across our society. This moves beyond our earlier adoption of digital systems, which enabled new ways to create, process and share information. We are now using technology which integrates across the digital, biological and physical worlds, allowing things such as *'genome editing, new forms of machine intelligence, breakthrough materials and approaches to governance that rely on cryptographic methods such as the blockchain'* (Davis, 2016). Such technologies will, and have already, threatened certain occupations, such as a fall in sales occupations and routine roles in manufacturing and production. These tend to be roles that are traditionally low- and medium-skilled. For instance, the need for humans to do the job of harvesting crops may soon be a thing of the past as new robots are designed which are guided by sensors and 3D cameras and use machine learning (Kollewe, 2020). It has also been highlighted that many jobs at risk of automation are more likely to be held by women (ONS estimates 70.2% of the jobs at high risk of automation) and young people, with 15.7% of 18-24-year-olds employed in occupations at high risk (ONS, 2019). For Scotland, the decline of mid-level jobs has been observed over recent years, and is likely to continue, with projections that by 2024 skilled trades, administrative and secretarial positions, sales and customer service will all show a decline (UKCES, 2016).

At the same time, new occupations emerge to help us manage and support our new relationship with technology. Cognizant (2018) suggests what some of these new roles might look like over the next decade, from Data Trash Engineers who identify and clean data, feeding it into algorithms to create new insights, to Voice UX Designers, who can create the 'perfect voices' for our interactions with technologies.

However, there are many roles that tend *not* to be at high risk of automation, and these tend to be the jobs that have a strong emphasis on interpersonal skills. The World Economic Forum's The Future of Jobs Report (2016) highlights those roles least prone to automation include mental health and social workers, choreographers, physicians and surgeons, psychologists, and human resource managers. These roles highlight the aspects that

make us uniquely human – judgement and decision making, creativity and interpersonal skills - which, as yet, machines struggle to replace in the same way. This supports the growing literature which affirms that social skills in the labour market are of increasing importance (see Deming, 2015).

### Reaching net-zero emissions

In order to meet the Scottish Government's target of net-zero emissions by 2045, all sectors within society must reduce their greenhouse gas emissions. This means industry must adapt, and the workforce must be equipped with the skills and knowledge to support this. In Scotland, the sector that contributes the most greenhouse emissions is transport, followed by business, agriculture and energy supply. These sectors have huge potential to embrace renewable energy resources, energy efficiency and nature conservation. Beyond this, as more sectors transition to low-carbon models, every job has the potential to become 'green' - to have a direct, positive impact on the planet. For instance, homes across the country, as well as millions of businesses, need to make substantial changes in order for their premises and operations to produce next to no greenhouse emissions. This will create large demand across the construction and engineering sectors. It will also mean that many already working in these sectors, such as those in construction, will need to upskill to ensure their work is able to reduce its environmental impact, for example through acquiring the knowledge and skills needed for retrofitting, waste management and using renewable materials. Meanwhile, we also need scientific experts and decision-makers to ensure that our development is science-driven in a way that creates maximum benefit for the planet. The World Economic Forum (WEF) for example, have brought on board climate-science advisors to guide decisions about where and how to plant trees, and provide context on social issues and biodiversity (Edge, 2021).

Whilst we may increasingly see a loss of jobs across some sectors such as oil and gas, cattle farming and aviation, the potential loss of jobs in carbon-heavy sectors will to some extent be replaced with jobs that support a greener economy. In the energy sector for instance, the Institute for Public Policy Research (2020) suggests that in the UK more than 200,000 jobs could be created in energy efficiency by 2030, with 70,000 jobs in offshore wind alone by 2023. In terms of onshore renewable energy infrastructure – principally wind, solar and hydro – Thrive Renewables (2020) estimates that these could deliver 45,000 new jobs by 2035. With old roles lost and new ones in the making, there naturally lies opportunities for existing workers who are at risk of job loss to reskill *before* such jobs are lost in order to prepare for a just transition. Research has suggested that some skills are similar and even transferable as we move to greener sectors; indeed, case studies covering diversification from one industry to another suggest that such declining occupations have extremely valuable skills sets for new occupations, particularly in engineering and maintenance roles within renewable energy (Cedefop, 2018). Within these green sectors, workers will particularly be needed as technicians, experts, engineers, and others with advanced degrees, as well as marketing and administrative personnel.

### The global pandemic

From March 2020 many sectors and employers were temporarily or permanently shut down due to the Covid-19 pandemic, particularly those in the hospitality, entertainment, and tourism industries. Young people (16-24 years) have been disproportionately negatively affected by these closures, since the sectors impacted are those within which young people are most likely to work– in Scotland 71,000 young people work in retail and 50,000 in hospitality (PwC, 2020). As we reach the middle of 2021 some of these industries are starting to recover with an increase in employment and job opportunities. However, the pandemic has also signalled longer-term changes in the world of work, some of which are here to stay. For instance, the pandemic has heralded new approaches to remote and digital working which has affected how and where many of us do our jobs. This means skills needs have changed - particularly in relation to many workers requiring a good level of digital skills – from using and managing technical software to get the job done, to communicating effectively through digital platforms.

In response to the pandemic, we saw rapid innovations in technologies and software to support new ways of working, learning, and living - for instance, innovations in education software to support remote learning opportunities. Such innovations will no doubt continue to be created at this exponential rate and thus we will need those workers with the advanced technological skills, as well as the creativity and imagination to support their development (World Skills UK, 2021). From June to August 2020, digital tech saw a 36% increase in vacancies, second only to healthcare for the number of jobs advertised. Digital tech now accounts for 9% of the UK workforce, with such roles clustered in particular regions, two of which being Glasgow and Edinburgh. In both cities, 'Software Developer' was the most advertised role of 2019 (Tech Nation, 2020). Similarly, tech roles in AI, cloud computing and cyber security are also on the rise. While these roles demand specific technical skills, often the industries they sit within are also growing and seeking non-technical skills; Customer Success Managers, Product Quality Inspectors and Delivery Managers are all examples of important support roles requiring different skill sets to those of technicians. Such skills include project management, assurance testing, communication and team working.

The pandemic has also increased the demand within the health and social care sector. For instance, there was already a shortage of around 50,000 nurses across the UK even before the pandemic. In Scotland alone, in 2019 NHS Scotland had its highest ever vacancy rate at that time, with over 4,000 nursing posts unfilled (Royal College of Nursing, 2019). The pandemic has exposed the shortages and increased the pressure on the sector. A survey by Nursing Times (2021) in January 2021 indicated that 80% of nurses feel patient safety is compromised due to this severe staff shortage. Fortunately, the pandemic also appears to have signalled an increased interest from people to take on these jobs - applications for nursing courses in 2021 have risen by almost a third (32%) across the UK (UCAS, 2021). This could be thanks to a renewed wide appreciation and value for 'key workers' during the pandemic, as well as people seeing it as a 'safe' option that will continue to be in demand in the face of lockdowns and automation. However, this does not address the immediate and medium-term demand for nurses (Nursing Times, 2021). The human health and social services sector employs 402,000 people in Scotland (Scottish Enterprise, 2020), making it Scotland's top sector for employment and therefore one which must be nurtured to ensure adequate education and training provision is available to secure ongoing employment.

Covid-19 has also illuminated how precarious the livelihoods are of some groups in society whose workplaces have been disproportionately affected. This is highlighted in the 2020 White Paper Keep Scotland Working:

The impact on the Scottish labour market could be long lasting, and disproportionately affect workers in lower-skilled jobs, women, young people and those with disabilities. Long-term effects could include skills mismatch and underemployment as a result' (SDS, 2020, p. 9).

These groups are not only more likely to be in the roles disturbed by the pandemic, but they are also more likely to be affected by external factors which impact their ability to sustain their employment, such as health problems, family and care responsibilities. Ensuring employment and training opportunities also take account of the reality of people's livelihoods is therefore crucial for their success.

## Demographics

In Scotland, the working age population is set to fall from 3,545 million in 2020 to 3,475 million in 2040. Over the same period, the youth cohort aged 15-29 is forecast to decline from 998,000 to 933,000 (Office for National Statistics, 2019). At the same time, Scotland relies on international employees to make up a substantial proportion of its workforce. EU non-UK nationals in 2018 represented more than 10% of employment both in the food and drink and tourism sectors (National Records of Scotland, 2020). Leading up to the UK's grace period ending in June 2021 following Brexit, the UK as a whole has seen the number of EU nationals leaving the UK increase. A June 2021 survey showed that one in ten EU nationals intended to leave the UK after 30 June (Independent Monitoring Authority for the Citizens' Rights Agreements, 2021). This is in addition to Covid-19,

which prompted many international workers - both EU and non-EU - to return to their home countries. We have already witnessed some of the fallout from this as several sectors previously employing a higher number of international workers are being hit with hard-to-fill vacancies as they open up again after lockdown, for example those in the hospitality and tourism industry. We are still to see what the full effects of these demographic shifts will be, but they do signify a need to ensure Scotland trains and develops the appropriate skills for its own home workforce.

Another demographic change, which has been further influenced by the pandemic, is the growing need for adult social care workers. Within social care, the workforce is expected to grow between 2020 and 2021 by 0.8% or 1,400 people in Scotland alone (SDS, 2021). Since the pandemic, the health, care and social work sector has been an attractive option for workers leaving the 'lockdown' sectors, becoming the second most common destination of workers in the UK (just below finance, insurance and business) (Cominetti, 2021). Indeed, the need for adult social care had been increasing pre-pandemic, as the number of elderly increases as we live longer. The Resolution Foundation estimates that to meet current demand for care workers, in order to restore the ratio of adult care workers to the elderly (aged 70+) population to its recent peak, would require an additional 180,000 care jobs – roughly a 15% increase.

### What employers want

Many employers are aware of these drivers of change and to varying extents use them to understand their current and future workforce needs, in particular what skills they need from their employees. However, it should be pointed out, that employers, although often aware of the factors affecting their sector, may only be an accurate judge of what they need from their employees now or in the very short term. As we have seen, many wider global and local factors affect the world of work and skills requirements, and we cannot fully predict the effects these will have. The following section however provides an overview of current findings on employer skills needs.

Skills shortages are numerous, and yet in some cases skills are also under-utilised. The Scottish Employer Skills Survey 2020 reports that almost a quarter (24%) of establishments with vacancies reported at least one of these was hard to fill due to a skill-shortage issue, equating to 3% of all establishments in Scotland. Since the pandemic though, the number of skills gaps have decreased slightly, with only 12% of employers reporting any skills gaps within their workforce in 2020, compared to 16% in 2017. At the same time 33% of employers reported having staff whose skills and qualifications were under-used (Scottish Government, 2020).

Numerous employer surveys and research have attempted to capture what employers are looking for from their workforce, and largely these tend to be both technical skills and qualifications, as well as transferable skills. CBI/Pearson's Education & Skills Survey 2019 showed that over half of employers (60%) value broader skills such as problem solving and nearly three quarters (75%) say they prefer a mix of academic and technical qualifications, or that they view all qualifications equally. Wider character, behaviours and attributes are the most important consideration when recruiting school and college leavers. Yet two in five (40%) employers report that they are dissatisfied or very dissatisfied with these 'work-ready' wider character, behaviours, and attributes (ibid, 2019).

The Skills Network (2020) analysed those 'soft skills' most required by employers by analysing 1.5 million job postings to identify the most in-demand skills and job roles sought by employers in the Covid-19 landscape. The research found that the ability to display soft skills like management, leadership and planning is crucial for candidates. This is supported by findings from LinkedIn's Global Talent Trends 2019, which found that 92% of employers said that so-called 'soft skills' are equally or more important than hard skills, with creativity highlighted as being of particular value.

As employers look to the future and anticipate the skills they will need after Covid-19, there is a strong focus on leadership and managerial capabilities ahead of industry-specific skills. The Open University's Business Barometer found two in five (39%) said they will require leadership skills, such as dependability, with a similar number (38%) requiring managerial skills, such as decision-making, reflecting the value that close to two thirds (61%) of organisations now place on agility and adaptability resulting from the pandemic (The Open University, 2020).

I think there is always going to be a place for purely academic degrees for some types of role, but the majority of what industry needs is what a Graduate Apprenticeship will deliver (Employer).

The importance of work experience has also been stressed with the large-scale Employer Perspectives Survey showing that almost two thirds (65%) of employers rated relevant work experience as significant or critical when hiring, compared to less than half (46%) for academic qualifications (Department for Education, 2017). Although many organisations are currently satisfied with this level, CBI/Pearson (2019) add that one third (33%) of employers are either dissatisfied or very dissatisfied with the amount of relevant work experience young people have, showing there is still some way to go. Positively, the 2020 Youth Census reports that opportunities for work experience appear to be increasing at secondary level; it was offered to 66% of respondents during their time in secondary school, up by 14% on last year and up 15% from 2018 (Youth Employment UK). However, as young people move to college and university the take up isn't quite so strong, with those who have taken work experience in college or sixth form down by 6% to 50%, and down by 29% for those in university. Some of this may be a direct impact of the pandemic and the unavailability of opportunities that would usually exist. But it does show that more should be more done to make work experience and opportunities to learn about the world of work more available in these settings, whether that be virtually or in-person. This resonates with what employers are looking for, as apprenticeships and work-based learning, they believe, will be critical to their recovery (The Open University, 2020).

The aspiration is for increased volume [of graduate apprenticeships] and strong parity of esteem with traditional degree courses... It's a win for both the wider economy and the employer (Employer).

## Adapting to the future of work

Many factors impact the world of work and therefore what employers need from their workforce. Scotland of course has been affected by these changes, with a number of these factors continuing to have profound effects, principally, the fourth industrial revolution (4IR) which is hollowing out low- and medium-skilled jobs, mainly as a consequence of automation. But at the same time this has also heralded the development of new roles which need higher-level technical skills, particularly within the digital space. The 4IR has nonetheless reminded us of the importance of the human skills and attitudes which robots cannot replace, such as social and communication skills, creativity, and innovation. The digital sector and digital roles have grown significantly due to the pandemic, which has highlighted that, as well as digital literacy being an essential skill in the workplace, advanced technical skills are in high and growing demand in this sector.

There is a large role for some sectors (e.g. transport, energy) to ensure their workforce is equipped with the green skills to reach net zero, but to an extent, many, if not all, jobs need to be equipped with appropriate green skills. This includes ensuring higher technical skills particularly in engineering, construction and beyond. At the same time, we must ensure any current workforce is prepared with the skills to transition to greener jobs, which includes harnessing their transferable skills and reskilling before jobs and livelihoods are lost.

The strongest thing that Graduate Apprenticeships do is deliver the skills faster. At the end of a four- or five-year Master's degree you get to the practical stuff and then it is another couple of years before usefulness arrives (Employer).



Overall, across many jobs there are key skills, attitudes, and behaviours which employers are seeking from their recruits. Employers have for some years been highlighting the need for people with the right set of 'work-ready' attitudes and behaviours. Transferable skills are also emphasised, particularly management, problem-solving and communication skills, and creativity. Since the pandemic, agility and adaptability are also seen as important in the modern workplace. This shows that in preparing young people for jobs of the future with the specific technical and higher-level skills that they may need, we must not forget to provide them with the opportunity for more rounded development, giving weight to the behaviours and skills that make them human.

In the next chapter, we look at how higher-level work-based learning is evolving internationally and what insights this yields for Scottish GAs.

## 3. International Perspectives

Work-based learning is an approach that is widely known for its benefits. It supports the development of a broader range of skills, allows individuals a greater understanding of the workplace context and demonstrates how theory is embedded in practice. Ultimately it has the ability to support the economy and lead to social inclusion. The proper integration of academic and work-based knowledge is considered one of the most significant challenges of vocational education and training (VET) and work-based learning.

Apprenticeships are work-based learning but not all work-based learning is an apprenticeship. The Riga Conclusion made by European ministers in 2015 emphasised:

the importance of investing in VET and skills' policies that, on the one hand, raise the employability of people, help to reduce current skills' mismatches and allow for smoother transitions into employment and, on the other hand, promote personal development of individuals and thus contribute to increasing quality of life.

In that document, work-based learning was identified as one 'medium term deliverable' for 2015-2020, emphasising and promoting this approach 'in all its forms'.

Work-based learning provision and work-related learning at university level are widespread in many European countries. For example, Finland and Spain include compulsory work-based modules in their academic undergraduate programmes regardless of the focus of the studies. In Spain, all higher VET programmes (ISCED 5) include a compulsory work placement module. In Denmark, both academic professional programmes (ISCED 5) and professional bachelor programmes (ISCED 6) include a compulsory internship, which accounts for about 25% of the programme. For part-time programmes, relevant work experience is an entry requirement, and the programmes are built on this prior relevant work experience.

In France, higher education programmes may be pursued via work-study pathways using either a 'contrat de professionalisation' or 'contrat d'apprentissage'. In Germany, dual higher education studies are typically delivered in universities of applied science, however, in Germany these dual studies are not considered apprenticeships. Two types of dual studies exist (ausbildungsintegrierende and praxisintegrierende duale Studiengänge). 'Meister' (Master) craftsmen examinations typically require several years of relevant work experience in Germany. These Meister qualifications offer a combination of higher-level technical and professional skills, and entrepreneurial skills to those with initial apprenticeships. This helps to further professionalise apprenticeships as it provides a clearer career structure, provides the skills to train further apprentices, and a professional framework which recognises and certifies higher technical skills. It also offers a flexible provision for older adults as final examinations are optional and tailored to individual needs (OECD, 2020).

The growing tendency towards implementing work-based learning across European economies clearly signals a growing view that it supports school to work transition and enhances graduate employability, providing a strong international context for the GAs in Scotland (Chapter 1). It is also able to respond more quickly to the changes in the labour market set out in Chapter 2.

As the number of lower skilled jobs declines and the demand for higher skilled workers increases ([Cedefop, Skills Forecast](#)), there is necessarily a growing demand for higher-level skills from both employers and employees. This is escalating the development of higher vocational education (HIVE) programmes. This increasing demand for higher vocational skills is powered by a rise in the need for lifelong learning (Lundgren, 2020). Again, this matches the role of GAs in Scotland as both an early career programme for entrants to the labour market and a reskilling programme for more established workers.

### 3. International Perspectives

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As in Germany above, most countries do not label their HIVE programmes as part of their apprenticeship route, so examples of degree-level apprenticeships specifically are limited. Degree-level vocational training and practical based studies are much more widespread, and their models vary significantly.

Specific Universities of Applied Sciences exist in many European countries with a particular focus on offering more work-related programmes, but even in these the models can vary significantly – in Lithuania, for instance, Universities of Applied Sciences are more academic than practical. With the end of polytechnics, Scotland and the UK more widely are unusual in the European context in having a single tier of universities which each cover a wide range of subjects and modes of delivery.

The following examples help to illustrate some of the different approaches taken in the HIVE space in other European countries.

## Norway

In Norway, there is evidence for a 'vocational drift' (Nyen & Tønder, 2019) within higher education that can be observed through programmes that incorporate work and work-related learning. While the number of students participating in higher vocational courses is not significant,

the ambition of government and the social partners is to develop the vocational college sector as an alternative to academic higher education (p. 1).

A government strategy for the development of higher vocational education is due in 2021 (Ministry of Education and Research, 2020 in Lundgren et al, 2020).

At ISCED Level 5 and above, there is currently no provision that is solely work-based learning. Polytechnic (university) colleges are part of an ongoing recent programme of reform and innovation. As with GAs in Scotland, this is a new development and an evolving process, so the system is not yet well developed. One current debate, which will be familiar in Scotland too, is about how work-based learning can be fully integrated into higher education programmes.

One example is the [University of South-Eastern Norway \(USN\) – Kongsberg campus](#), which offers a number of engineering and ICT programmes. These are offered at BSc and MSc levels. They are focused on practical study methods with a problem-based approach that should help students to prepare for real-life situations. USN has developed a strong partnership with the local business community. In addition to company visits, career fairs and invited guest speakers, USN and local businesses conduct extensive research together. Most students' projects are based on partnerships between the university and local companies. Some programmes also offer international work experience that is optional but integral to the degrees. This supports the development of skills used internationally in their discipline and helps students' adaptability, making them more attractive in the labour market.

Students can study, for example, an [MSc in Optometry and Visual Science](#) through the standard programme or through the 'Industry Master' programme. Students who take the 'Industry Master' programme divide their time equally between employment and their studies at USN. Students who have already completed continuing education courses in occupational optometry, contact lens specialisation, or paediatric optometry and orthoptics, or who have other relevant qualifications at MSc level or higher, may apply for recognition for the courses undertaken and exemption from parts of the MSc programme. Applications are evaluated individually.

Similar work-based learning programmes are mainly available in engineering, ICT, hospitality and teacher training courses in Norway. OsloMet also offers programmes for kindergarten teachers and VET teachers.

## Lithuania

In Lithuania, as in Scotland, employers have started to demand higher-level technical and vocational skills. While VET is predominantly school based, there are some innovative approaches to work-based learning. There is clear demand for ISCED Level 5 programmes; however, implementation is taking place as experimental pilots at this stage. At ISCED Level 6 and above, higher vocational education and training takes place at Universities of Applied Science. These programmes offer some practical training but are dominated by academic studies. Some private training providers have therefore started to offer work-based learning opportunities, especially in the ICT and engineering sectors.

One example of an innovative approach is the '[Create Lithuania](#)' professional development programme, which started in 2012. This programme aims to attract graduates and professionals with international experiences in public policy. The programme seeks to encourage Lithuanian graduates from foreign universities to return and work in the public sector in Lithuania. These young professionals are offered the opportunity to shape the future of their home country.

Programme participants are employed full time for twelve months at 'Invest Lithuania'. The programme includes 2 projects (6 months each) which are conducted in teams of two, with two to three rotations.

Programme participants advise public sector bodies on national and regional issues in areas such as the improvement of Lithuania's image, the enhancement of competitiveness and business environment, the promotion of entrepreneurship and foreign direct investment. Participants develop their practical skills and competencies, whilst at the same time contributing to the development of governance and the public sector.

This programme has clear benefits for the individual and for the country. For the individual professionals these include, for example, gaining direct experience in the public sector of Lithuania while applying the knowledge and skills developed abroad. Participants are successfully integrated into the national and local labour market. Participants add to their existing professional networks from abroad with contacts from the Lithuanian policy community. Participants with international experiences bring foreign best practice, innovative business models and work culture to be considered by public sector bodies. Working on joint projects with national and local stakeholders (businesses and governmental and non-governmental organisations) offers professional development opportunities for existing public sector employees.

The University of Vilnius also has a very dynamic and innovative unit for the organisation of different entrepreneurial practical training for students and graduates. The Centre for Enterprise Practice (CEP) launched the [Entrepreneurship Academy](#) in 2017. In 2018, CEP was acknowledged as the key partner of the Lithuanian Confederation of Industrialists (similar to the UK's CBI), creating the first University – Business Consortium in Lithuania. Its goal is to expand 'real life' training opportunities for students and university personnel through 'Business – International Organisation – University partnerships'. In 2019, they codified the model they had developed with three key phases: Experience, Create, Initiate. It is now considered to be one of the leading organisations in Lithuania in fostering entrepreneurial mindset, implementing creative and experience-based methods into the curriculum, and creating innovative partnerships between higher education and business.

## Wales

The [National Software Academy \(NSA\)](#) was established in 2015 by Cardiff University in partnership with the Welsh government and industry experts. NSA aimed to respond to the unmet demand for skilled software engineers in the region of south Wales while supporting a generally deprived area with issues such as above average levels of unemployment and skills shortages. Although the Applied Software Engineering BSc at NSA

is neither considered vocational nor work-based, the model clearly builds on elements that are associated with work-based learning provisions. These elements include employer engagement, client-facing projects, work-simulating environment, facilitating learning through linking theory and practice, and explicit teaching of employability skills. These key elements of the NSA model support their aim, namely to develop professional and work-ready graduates.

Meaningful and sustained employer engagement is at the heart of the graduate programme at NSA. Employers have and are continuing to play a key role in the set up and delivery of the programme. They have contributed to the curriculum design and development from the outset, which is being continuously updated and made relevant and timely through their involvement in client-facing projects and student work experience.

Throughout the three years of the course at the NSA, each semester students carry out a 6-8-week client-facing 'real-world' project in small student teams. The 'clients' of these projects are external organisations, often an employer, across a range of industries, and including private and public organisations, and charities. These projects are defined by the client and are of current relevance or priority to them. In addition, these projects are scrutinised by the teaching staff to ensure that they are fully in line with the course learning objectives and relevant to the students at that stage of their programme. Students develop technical skills and employability skills such as team working, creativity, and communication skills; using timely terminology, building up a professional rapport with employers, communicating ideas to non-specialist audiences, developing self-confidence are all key to making students employable.

The teaching and learning space at NSA is set up in a way that ensures students become familiar and feel safe in a work-like environment which prepares them for employment. Simulation of an open office, starting the day with briefings and having business-like lunch events are examples through which students develop an understanding of the workplace.

The elements of the NSA model are more often to be found in work-based learning programmes. These elements of the NSA delivery model are purposefully built into the course to specifically develop student employability. Each element has a connection to employment, employers, and the workplace. They are not unique to NSA, however their combination and intensity within the course may add to NSA's successful outcome.

As with any international comparisons, contextualisation is crucial, but these should give Scotland cause to reflect positively on the development of GAs and on their potential. Without the specific Universities of Applied Science that are common to other European countries, in Scotland, as in the Welsh example above, innovative work-based learning has had to be established within existing broader universities. Even where there is strong appetite, this inevitably takes time and is a process of cultural and institutional change.

In developing and growing GAs, Scotland is part of a much broader international movement towards expanding HIVE so as to benefit from its ability to address skills gaps and help prepare for the future of work. Other countries, like Norway, are grappling with similar questions and challenges such as the balance within these programmes between new entrants and re-skilling, the recognition of prior learning and the integration of work-based and academic elements.

It is clear from examples such as the University of South-Eastern Norway and Cardiff University that the success of these programmes rests on the development of deep local partnerships between higher education and businesses, and on the creation of bespoke models of pedagogy and practice which underpin this new kind of programme.

In the next chapter, we draw together all the threads from the first three sections with reflections from interviews with key stakeholders to develop a possible way forward.

## 4. Opportunities for Growth

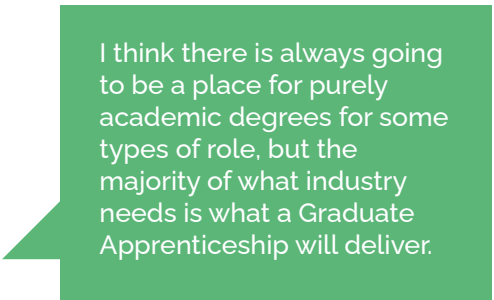
In Chapter 1, we saw that the Scottish Government and Skills Development Scotland have strengthened and developed apprenticeships at all levels over recent years to address growing global megatrends and integrate the 'meta-skills' that will be needed across the labour market. Introduced in 2017/18, Graduate Apprenticeships (GAs) were designed in collaboration with employers and universities and have grown to more than 3,500 places across 13 different frameworks. Satisfaction is high amongst employers and graduate apprentices themselves. There is a strong appetite for growth from all quarters, which is why the Scottish Apprenticeship Advisory Board (SAAB) commissioned this report to both reflect and look ahead to future opportunities for growth.

In Chapter 2, we saw that changes to the labour market, which were one of the initial inspirations for GAs, are continuing to accelerate and strengthen the case for change. The impact of the long-term trends of the fourth industrial revolution (4IR), climate change and demographics have been hastened and deepened by the effects of the Covid-19 pandemic and lockdown over the last two years. In Scotland, as across the UK and internationally, employers are pointing to skills shortages and are making it clear that they value broader 'meta-skills' such as team working, problem solving and communication. They also stress the importance of work experience and the skills learned within the workplace. These two strands are, of course, central to the Graduate Apprenticeship (GA) experience.

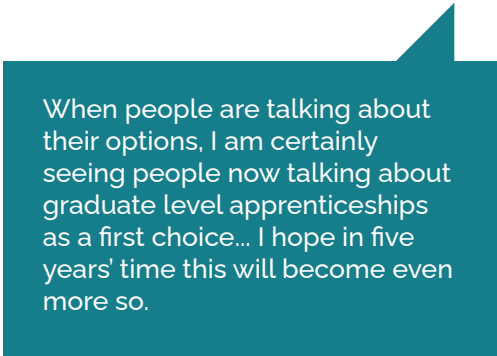
In Chapter 3, we saw that GAs are part of a growing international movement to develop and broaden higher-level vocational education. Other countries, such as Norway and Lithuania, are at a similar stage of development and grappling with similar questions and challenges. In Scotland, as in the rest of the UK, this new provision is being developed within broader universities rather than in the specific Universities of Applied Sciences that exist in many European countries, which can bring its own challenges of prioritisation and culture change. Where they are working well, these new models of HIVE rest on deep partnerships between higher education and business as well as on the creation of new models of pedagogy and practice to underpin truly integrated work-based learning.

This chapter brings into play a series of interviews conducted for this report to reflect on and contextualise these themes. Seven individual semi-structured interviews were conducted with: two employers, three higher education representatives, one policy advisor and one international expert in work-based learning. In addition, one focus group was held with employers and another with current and former graduate apprentices.

It is clear from speaking to stakeholders across the system, and to employers and graduate apprentices particularly, that there is much to be celebrated in Scotland's current GA offer. As we saw in Chapter 1, it is still a relatively young programme and yet it has grown rapidly, reflecting an increasing demand, and already receiving high positive scores for satisfaction from apprentices and employers alike. These were brought to life by many of the employers we spoke to, as these quotes show:



I think there is always going to be a place for purely academic degrees for some types of role, but the majority of what industry needs is what a Graduate Apprenticeship will deliver.



When people are talking about their options, I am certainly seeing people now talking about graduate level apprenticeships as a first choice... I hope in five years' time this will become even more so.

Some research shows typically it takes 43 weeks for a graduate to get up to speed in a business after they leave University. Having [graduate apprentices] who are working with you and learning at the same time, the transition is much quicker – you have people who are ready to perform straight away when they come through that.

The strongest thing that Graduate Apprenticeships do is deliver the skills faster. At the end of a four or five year Master's degree you get to the practical stuff and then it is another couple of years before usefulness arrives.

The Aspiration is for increased volume and strong parity of esteem with traditional degree courses... young people do Foundation Apprenticeships in school, they may do Modern Apprenticeships and progress their relationship with their employer. It's a win for both the wider economy and the employer

GAs already play an important role in Scotland's work-based learning offer, enabling graduate apprentices to develop the broader 'meta-skills' and rich workplace experience that we learned from Chapter 2 are so in demand from employers. Businesses recognise GAs as a key part of developing their talent pipeline, while graduate apprentices themselves are clear that these opportunities are a crucial step towards their chosen careers. The wider benefits that result for the Scottish economy are well articulated.

The interviewed employers were keen for the programme to grow both in terms of scope through an increased number of frameworks and in terms of the number of apprentices. This would help to continue to position Scotland amongst those nations leading the growth of higher-level work-based learning as seen in Chapter 3.

Our research has identified five key opportunities that could be addressed to help consolidate and grow this important programme further. In each case we provide reflections on the issue and a small number of further questions which SDS and SAAB may wish to focus on and discuss with stakeholders as they plan the next phase of GA development.

#### Five Key Opportunities for Consolidation and Growth

**Increase Flexibility:**

Build a more flexible system to support the delivery of Graduate Apprenticeships.

**Upskill Urgently:**

Introduce an agile funding system led by employer demand

**Demonstrate Commitment:**

Provide certainty and clarity of provision

**Futureproof Opportunities:**

Develop more diverse future frameworks

**Drive Demand:**

Increase awareness of the GA programme

### Increase Flexibility: Build a more flexible system to support the delivery of Graduate Apprenticeships.

Even before the pandemic, it was clear that the world of work was changing with a move towards the 4IR driven by automation, big data, the Internet of Things, and artificial intelligence. The Covid-19 pandemic has accelerated change in the working world, bringing with it more flexible, hybrid and digital working.

In the future, as set out in Chapter 2, we are likely to continue moving towards more flexible working patterns. GAs will be critical in the future of work, as they provide a flexible route towards upskilling and reskilling, and a different opportunity to gain a degree qualification through flexible entry and exit points onto the programme, a blend of academic and work-based approaches, and modular learning. By catering to different learning styles, more people will be able to benefit from the GA programme. The Apprenticeship Framework also offers the key stakeholders flexibility to tailor the learning programme to employers' and apprentices' individual needs.

Moreover, GAs are underpinned by high quality standards and frameworks. Scotland's new industry-led development model brings together employers, apprentices, trade unions and industry representatives to understand both the current and future needs of the occupation in the development of a standard. This ensures that GAs align to the realities of the world of work, enables apprentices to develop the most relevant skills and to move across occupations, and ensures employers have a skilled and productive workforce (SDS, 2021). By remaining alert to innovations in standards development and changing occupational profiles, GAs can remain relevant and continue to fill critical skills needs across Scotland.

There is also much to be learnt from the Meister (master) qualifications in German-speaking countries, which allows qualified apprentices to acquire higher-level professional skills, develop further skills to train the next level of apprentices and entrepreneurial skills to run their own business. This professional and flexible offer opens up further learning opportunities to apprentices and, as recommended by the OECD (2020), there is merit in considering how similar principles can be applied in Scotland.

Building on the flexibility of the GA programme, interviewees we spoke to suggested that the programme could go even further to embed greater adaptability and openness.

One approach suggested was to provide the option to blend modules across different GA frameworks. This could allow employers and higher education institutions to tailor learning even more specifically to the needs of the individual industry, organisation and apprentice. SDS would need to consider what safeguards must be put in place to encourage flexibility whilst maintaining the structural integrity of each GA programme.

One of the main purposes of GAs is upskilling and reskilling existing employees, hence there is a growing uptake of GAs among older age groups. Graduate apprentice feedback and higher education representatives highlighted the need for greater balance between work and study time (OECD, 2020).

Interviewees felt that there may need to be additional flexibility in modes of study as the programme develops, as some adults will want to study part time or will need to arrange learning around caring, home, or work responsibilities. This flexibility may further support and strengthen SDS's commitment to maintaining a flexible and dynamic work-based learning system in Scotland.



### Increased Flexibility – Questions to consider

- How might GAs be made more flexible and open, allowing apprentices to blend modules and modes without losing the structural integrity of the programme?
- What is the right balance within the GA programme between recruiting existing workers and new entrants to the labour market?
- How could a more flexible model support the needs of both employers and apprentices?

## Upskill Urgently: Introduce an agile funding system led by employer demand

As explored in Chapter 2, we know that rapid advances in technology, the race towards net-zero, and the implications of Brexit and the Covid-19 pandemic will continue to change the future of work. The qualifications and skills mix within Scotland will need to continuously evolve and it is important that the skills landscape is flexible enough to meet oncoming change. The question is whether Scotland's current funding system is able to respond quickly enough to transformations expected over the coming years (OECD, 2020).

The interviewed employers mirrored this observation. While they want to see the programme grow, they expressed concerns that the complexity of the funding system was one thing that may be holding back the system from responding quickly enough to the rapidly changing labour market.

They felt that SDS may wish to consider a move towards a demand-led funding model. This is something that has also been highlighted in the OECD's report "Strengthening Skills in Scotland" (OECD, 2020). A more agile, demand-led funding model could better respond to employer demand and employee supply, allowing the system to respond more quickly to labour market transformation over the coming years.

### Upskill Urgently – Questions to consider

- To what extent does the current funding system allow Scotland to respond flexibly to changing labour market needs?
- How might a demand-led model encourage a more agile funding system?

### Demonstrate Commitment: Provide certainty and clarity of provision

The future of work will require us to prepare individuals for a dynamic and changing labour market. Technological skills will be needed more than ever before, alongside the 'meta-skills' that make us uniquely human – skills such as judgement making, creativity and interpersonal skills (Deming, 2015). Knowledge and skills will be best developed when applied together in the real world, and we will need individuals ready to embrace a lifetime of flexible learning and reskilling, to respond to jobs that have not yet come into being. GAs will continue to play a critical role in responding to this need, and we will likely see demand for GAs continue to grow.

To complement this growth, we need to see learning and skills development guided by the needs of employers and apprentices, with clarity provided around the future direction of travel for GAs.

Supporting this, interviewees highlighted that they are keen to plan further ahead, and to facilitate this would appreciate additional longer-term certainty in terms of its funding and policy future.

The annual tendering process currently in place can make it difficult for employers and GA providers to forward plan and prepare for the continuation of an existing GA programme from one year to the next. Given the individualised nature of GAs and their resource intensity, SDS are keen that funding should be in place to support a high-quality offer and quality delivery at the workplace and in training.

Annual funding also impacts on communicating the range of GAs available to prospective students as an alternative to other undergraduate studies (see Opportunity 5). It impacts on employers offering GA places and on higher education institutions securing teaching staff for the off-the-job training. Annual funding is particularly challenging for SMEs.

All stakeholders felt that they would benefit from greater communication and clarity around the future direction of travel for GAs, in addition to secured funding commitments and frameworks that are on offer. Some employers even urged SDS to consider longer-term public growth targets to emphasise the ongoing commitment to the GA programme.

A longer planning horizon and greater certainty would enable providers to highlight the GA courses on offer to prospective students. Employers, providers and prospective students would have a longer window to interact prior to official placement, leading to higher quality and further trust in the GA programme, which would further raise the profile of GAs. Many interviewees saw this potential change to funding as a key driving force for GAs to grow and prosper.

#### Demonstrate Commitment – Questions to consider

- How can GA funding and communication be adapted to support a longer planning horizon and greater clarity about the future direction of travel?
- What is the overall ambition for growth in GAs over the coming five years and how could that be expressed publicly?

### Futureproof Opportunities: Develop more diverse future frameworks

Employers are increasingly telling us that they value a mix of academic and technical qualifications, alongside broad meta-skills and essential skills such as problem solving, creativity and team working. GAs are responding to employer need as they support individuals to develop essential skills in practical work-based settings. Moreover, their flexible, modular nature is attracting more applicants from a range of backgrounds including those from both older-age and under-represented groups.

The onset of the 4IR is heralding the development of new roles which need higher-level technical skills – particularly in roles within the digital, green, construction and engineering sector. GAs are well placed to meet this future need, and we encourage Scottish colleagues to consider whether there is appetite to expand the frameworks on offer.

Of the 13 GA frameworks currently on offer, most of these are predominantly STEM focused (for example, Civil Engineering, Construction and the Built Environment, Cyber Security, Data science). These attract a higher proportion of male applicants - in 2020/21 GA uptake by gender was 64.5% male compared to 35.2% female.

There are currently only 3 frameworks outside STEM (Accounting, Business Management, and Early Learning and Childcare) which remain a more popular choice amongst females (SDS, 2021). Interviews with higher education representatives suggest that they have achieved a good gender balance in STEM GA frameworks. Recruitment processes could be further investigated to identify good practice.

The Scottish Apprenticeship Advisory Board (SAAB) will want to consider whether there is appetite to broaden the frameworks currently on offer, including sectors where there might be more female applicants. The SAAB Gender Commission has also been tasked with developing recommendations on how employers can tackle barriers to gender diversity in their workforce. They are due to report in 2021 and SAAB and SDS will want to carefully consider its recommendations.

Diversity should also be considered in relation to other characteristics such as socio-economic status, special needs and disability and ethnicity. Recruitment processes could consider higher education's commitment to diversity and social inclusion as well as diversity and social inclusion at the workplace.

#### Futureproof Opportunities – Questions to consider

- How can GA provision be broadened to respond to industry needs?
- Which are the five highest priority occupations and sectors to add to the GA portfolio?
- In widening the range of GAs, what opportunities are there to further embed diversity?

### Drive Demand - Increase awareness of the GA programme

Since their introduction in 2017, GAs have grown rapidly, increasing from 277 individuals undertaking a GA in 2017/18 to 1,158 in 2020/21 (SDS, 2021). The dominant age group is 25-34, and interestingly the last year, 2020/21, saw a decrease in uptake for 16-19-year-olds and an increase in uptake for those in the 25-34 age group (SDS, 2021). While the numbers are still small, the overall trend is clearly positive.

While this indicates that degree-level work-based learning continues to attract older, experienced individuals as a means of upskilling, more work could be done between SDS and partners to further raise the profile of GAs as an excellent opportunity among school leavers. Not only this, but the future of work will also require a change in attitudes towards vocational and technical education. While academic education still attracts a higher number of applicants, technical and vocational education offers an opportunity for individuals to develop the practical, work-based skills that employers are increasingly calling for.

As part of this, SDS should consider how to communicate and further raise the profile of GAs to underrepresented groups (this links with Opportunity 4), particularly in frameworks such as Civil Engineering and Construction and the Built Environment where there is currently no ethnic minority representation (SDS, 2021). According to interviewees, communicating GA opportunities and their benefits would greatly support the further development of GAs and cement their position as a key part of the Scottish skills infrastructure.

#### Drive Demand – Questions to consider

- How can Scotland continue to build further awareness of Graduate Apprenticeships, particularly in schools and colleges?
- As part of this, how can SDS raise awareness among applicants who are currently underrepresented on the programme to embed diversity?

Whilst still relatively new, Graduate Apprenticeships are already making a strong impression on Scotland's skills system (Chapter 1), helping to address the challenges posed by the future of work (Chapter 2) in line with a wider international trend towards high quality degree-level work-based learning (Chapter 3). Our interviews have revealed strong support for GAs and an appetite from employers to see the programme further grow and flourish. Discussing and taking advantage of the five key opportunities set out here (Chapter 4) will help SDS and SAAB to steer the GA programme towards its next phase of growth and success.

# References

## Chapter 1 – The Current Policy Position

- Scottish Government (2020). State of the economy: September 2020. Edinburgh: September 2020 - <https://www.gov.scot/publications/state-economy/pages/5/>
- Scottish Government (2021). Curriculum for Excellence: Scottish Government response to OECD Review. Edinburgh: June 2021 - <https://www.gov.scot/publications/oecd-review-of-curriculum-for-excellence-scottish-government-response/>
- Skills Development Scotland (2021). Graduate Apprenticeships at SCQF Levels 8-11: Progress report. June 2021 - <https://www.skillsdevelopmentscotland.co.uk/media/47944/graduate-apprenticeships-progress-report-june-2021.pdf>
- Skills Development Scotland (2019). A Human Future: Strategic Plan 2019–2022. March 2019 - <https://www.skillsdevelopmentscotland.co.uk/media/45753/a-human-future-strategic-plan-2019-2022.pdf>
- Skills Development Scotland (2020). Graduate Apprenticeships Early Activity and Progress- 2019/20 - [https://www.skillsdevelopmentscotland.co.uk/media/47647/1227\\_ga-report-2020\\_update-050521.pdf](https://www.skillsdevelopmentscotland.co.uk/media/47647/1227_ga-report-2020_update-050521.pdf)
- Skills Development Scotland (2021). Graduate Apprenticeships Future funding arrangements - [https://www.apprenticeships.scot/media/4094/graduate-apprenticeships-future-funding-arrangements\\_2021-may-28.pdf](https://www.apprenticeships.scot/media/4094/graduate-apprenticeships-future-funding-arrangements_2021-may-28.pdf)
- OECD (2018). Seven Questions about Apprenticeships: Answers from International Experience, OECD Reviews of Vocational Education and Training. OECD Publishing: Paris - <http://dx.doi.org/10.1787/9789264306486-en>
- OECD (2020). Strengthening Skills in Scotland: OECD Review of the Apprenticeship System in Scotland. OECD Publishing: Paris - [http://www.oecd.org/skills/centre-for-skills/Strengthening\\_Skills\\_in\\_Scotland.pdf](http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf)

## Chapter 2 - The Future of Work

- Bakhshi, H., Downing, J., Osborne, M. and Schneider, P. (2017). The Future of Skills: Employment in 2030. London: Pearson and Nesta
- CBI/Pearson (2019). Education and learning for the modern world: CBI/Pearson Education and Skills Survey report 2019 - [https://www.cbi.org.uk/media/3841/12546\\_tess\\_2019.pdf](https://www.cbi.org.uk/media/3841/12546_tess_2019.pdf)
- Cedefop (2018). Skills for Green Jobs: 2018 update - <https://www.cedefop.europa.eu/en/publications-and-resources/publications/3078>
- Cognizant (2018). 21 More jobs of the future: A guide to getting and staying employed through 2029. Teaneck, NJ: Cognizant
- N Cominetti, L Gardiner & H Slaughter, The Full Monty: Facing up to the challenge of the coronavirus labour market crisis, Resolution Foundation, June 2020
- Davis, N (2016). 'What is the fourth industrial revolution?' World Economic Forum, 19 Jan 2016
- Deming, D., 2015. The growing importance of social skills in the labor market. Tech. Rep. 21473, NBER Working Paper
- Department for Education (2017). Employer Perspectives Survey 2016 Research report. London: IFF Research

## References

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- Edge Foundation (2021). Skills Shortages in the UK Economy: Bulletin 8 (January 2021) - [https://www.edge.co.uk/documents/82/Edge\\_SSB-8\\_web-1c.pdf](https://www.edge.co.uk/documents/82/Edge_SSB-8_web-1c.pdf)
- Independent Monitoring Authority for the Citizens' Rights Agreements (2021). European citizens' concerns after Brexit Report on the IMA's first survey May 2021
- Industrial Strategy Council's (2019). UK Skills Mismatch in 2030. Research Paper October 2019 - <https://industrialstrategycouncil.org/sites/default/files/UK%20Skills%20Mismatch%202030%20-%20Research%20Paper.pdf>
- Institute for Public Policy Research Environmental Justice Commission (2020). Faster, Further, Fairer: Putting people at the heart of tackling the climate and nature emergency - <https://www.ippr.org/files/2020-07/faster-further-fairer-ejc-interim-may20.pdf>
- Kollewe, J. (2020). 'Robots gear up to march to the fields and harvest cauliflowers'. *The Guardian*, 21 Sept 2020
- Nursing Times (2021). 'Nursing Times survey reveals extent of Covid-19 workforce pressures'. *Nursing Times*, 03 Feb 2021
- ONS (2019). 'Which occupations are at highest risk of being automated?' *ONS*, 25 March 2019
- PwC (2020) Impact of COVID-19 on youth in Scotland. Glasgow: Skills Development Scotland
- Royal College of Nursing (2019). 'The RCN insists action is needed now to fill the increasing gaps in the nursing workforce'. *RCN*, 3 Sept 2019
- Scottish Enterprise, 2020. Scottish Economic Statistics - <https://www.scottish-enterprise.com/learning-zone/research-and-publications/components-folder/research-and-publications-listings/scottish-economic-statistics>
- Scottish Government (2020). Scottish Employer Skills Survey - <https://www.gov.scot/publications/scottish-employer-skills-survey-2020-2/>
- Scottish Government (2020). Greenhouse gas emissions 2018: estimates - <https://www.gov.scot/publications/scottish-greenhouse-gas-emissions-2018/pages/3/>
- Skills Development Scotland (2020). Keep Scotland Working: Preparing for the new normal. White Paper, May 2020: SDS
- Skills Development Scotland (2021). Sectoral Skills Assessments Social Care June 2021 - <https://www.skillsdevelopmentscotland.co.uk/media/46379/ssa-social-care.pdf>
- Tech Nation (2020). Job & Skills Report - <https://technation.io/jobs-and-skills-report/>
- The Open University (2020) Business Barometer 2020
- The Skills Network (2020). Available at Edge Foundation (2021): 'Skills Shortages in the UK Economy: Bulletin 8' (January 2021) (pg 21-22)
- Thrive Renewables (2020). Delivering a Green Recovery with UK Renewable Power. Bristol: Thrive Renewables
- UCAS (2021). 'Nursing applications soar as UCAS publishes latest undergraduate analysis'. UCAS, 18 Feb 2021
- UKCES (UK Commission for Employment and Skills) (2016). Working Futures 2014-2024. Evidence Report 100. April 2016
- Youth Employment UK (2020). Youth Voice Census Report 2020.
- World Economic Forum (2016). The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution. Global Challenge Insight Report. Geneva: World Economic Forum
- World Skills UK, Learning & Work Institute, & Enginuity (2021). Disconnected: Exploring the digital skills gap. London: WorldSkills UK

## Chapter 3 – International Perspectives

- European Commission (2015). *Riga Conclusions 2015 on a New Set of Medium-Term Deliverables in the Field of VET for the Period 2015-2020, as a Result of the Review of Short-Term Deliverables defined in the 2010 Bruges Communiqué*. Brussels: European Commission.
- OECD (2020). *Strengthening Skills in Scotland: OECD Review of the Apprenticeship System in Scotland*. OECD Publishing: Paris - [http://www.oecd.org/skills/centre-for-skills/Strengthening\\_Skills\\_in\\_Scotland.pdf](http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf)
- Nyen, T. & Tønder, A.H. (2019). *The changing nature and role of vocational education and training in Europe. VET in higher education: Country Case Studies. Case study focusing on Norway*. Thessaloniki: Cedefop
- Ministry of Education and Research. (2020). Meld. St. 14 (2019-2020) *Kompetansereformen - Lære hele livet (White Paper 14 (2019-2020) - Learning throughout life)*. Oslo: The Norwegian Ministry of Education and Research. Retrieved from <https://www.regjeringen.no/contentassets/afb66fbbcdfb47749f1b7007b559d145/no/pdfs/stm201920200014000dddpdfs.pdf>
- Lundgren, A., Cuadrado, A., Meijer, M.W., Sigurjónsdóttir, H.R., Turunen, E., Salenius, V., Teräs, J., Grelck, J.B.G., Berg, S.L. (2020). *Skills Policies – Building Capacities for Innovative and Resilient Nordic regions*. Stockholm: Nordregio.

## Chapter 4 – Opportunities for Growth

- European Commission (2015). *Riga Conclusions 2015 on a New Set of Medium-Term Deliverables in the Field of*
- OECD (2020). *Strengthening Skills in Scotland: OECD Review of the Apprenticeship System in Scotland*. OECD Publishing: Paris - [http://www.oecd.org/skills/centre-for-skills/Strengthening\\_Skills\\_in\\_Scotland.pdf](http://www.oecd.org/skills/centre-for-skills/Strengthening_Skills_in_Scotland.pdf)
- Skills Development Scotland (2021). *Graduate Apprenticeships at SCQF Levels 8-11: Progress report. June 2021* - <https://www.skillsdevelopmentscotland.co.uk/media/47944/graduate-apprenticeships-progress-report-june-2021.pdf>



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