DRIVES

Development and Research on Innovative Vocational Education Skills

D5.2 Understanding the Marketplace UPDATE Report

Report on the European Automotive Apprenticeship Marketplace

Co-funded by the Erasmus+ Programme of the European Union

Development and Research on Innovative Vocational Skills -DRIVES – Project number 591988-EPP-1-2017-1-CZ-EPPKA2-SSA-B

TITLE OF DOCUMENT

Report Title:	Understanding the Marketplace Update		
Author(s):	Mick FELOY (ENGINUITY)		
Research support	Emma Smith (ENGINUITY); Bruno Imai (ENGINUITY)		
Responsible Project Partner:	ENGINUITY	Contributing Project Partners:	WP5 Partners VSB-TUO MPEG AIC ENGINUITY GESTAMP IDESCOM

Document data:	File name:	DRIVES-D5.2 Understanding the Marketplace – Update		
	Pages:	98	No. of annexes:	0
	Status:	Final	Dissemination level:	Public
Project title:	Development and Research on Innovative Vocational Educational Skills		GA No.:	2017-3295/001-001.
WP title:	WP5 – Apprenticeship Market		Project No.:	591988-EPP-1-2017-1-CZ-EPPKA2-SSA-B
			Deliverable No:	D 5.2
Date:	Due date:	December 2021	Submission date:	31/12/2021
Keywords:	Apprenticeship market, automotive market, automotive skill needs			
Reviewed by:	Neill Goodliffe, ENGINUITY		Review date:	26/11/2021
Approved by:	Jakub Stolfa, VSB-TUO		Approval date:	30/12/2021

TABLE OF CONTENTS

EXECUTIVE SUMMARY

Introduction

Since the publication of the DRIVES 'Understanding the Marketplace' Report in August 2020 the global and EU automotive sector have experienced a period of major upheaval and restructuring. While changes driven by technology development have continued, a number of other factors have also helped to reshape the sector including the impact of COVID 19, the associated recession across Europe and the different policy responses to this, together with other factors including BREXIT.

These factors have impacted on working practices and helped drive changes in skill requirements, which in turn have major implications for apprenticeships supporting the sector.

The purpose of this Report is to document these more recent patterns of change, identify the implications for the EU automotive apprenticeship marketplace, highlight a number of innovative ways in which the challenges facing the apprenticeship marketplace have been tackled and set out practical suggestions moving forward.

Changing economic context

The automotive industry remains crucial for Europe's prosperity,[1] providing 13.8 million direct and indirect jobs in Europe and represents 6.1% of total EU employment.

However, COVID-19 has significantly impacted on both automotive sector demand and output during 2020 and the early part of 2021. The pandemic has also been linked to significant restructuring of the automotive industry.

Together with specific measures aimed at tackling the immediate health impacts of COVID-19, many countries in Europe have announced specific stimulus packages for the automotive industry to help combat the impacts of COVID on the industry.

[1] https://ec.europa.eu/growth/sectors/automotive_en

There are some signs of a more optimistic outlook for the automotive sector for the rest of 2021 and beyond. However, one industry expert expects that the Western European automobile market will need about ten years to climb back to the size it was in 2019.[2]

While pre-COVID longer term drivers of skills change still remain, the pandemic and associated restructuring of the industry have resulted in both immediate and longer-term shifts in skill requirements. For example, an increased short term demand for skills such as knowhow in relation to minimising the risk of the spread of COVID and skills to engage in increased remote working, together with increased demand for skills associated with an acceleration of longer terms trends due to COVID including an acceleration in the trend towards electrification of vehicles and automation.

These changes have significant implications for the design and implementation of apprenticeships. In particular the need:

- To adapt apprenticeship delivery approaches to reflect new ways of working as a result of the pandemic
- To ensure the apprenticeship offer reflects new and emerging skills including those relating to the rapid move to electric and other 'energy' vehicles
- For apprenticeships to be flexible enough to adapt to fast changing skill requirements at the same time as ensuring they continue to provide apprentices with the foundations for long term career progression in the industry; and
- To make sure the apprenticeship offer is relevant to the massive upskilling challenge facing the automotive industry as well as for new entrants.

Recent developments across the European Apprenticeship marketplace

The pandemic has led to serious disruptions in the delivery of work-based learning, including apprenticeships over this period.[3] This has also resulted in severe problems in assessment and certification. Different countries have responded to these issues in different ways as outlined in recent

[2]Prof. Ferdinand Dudenhoeffer Director of Germany's Centre for Automotive Research; https://www.epicflow.com/blog/2021-automotive-industry-challenges-and-trends/

[3] Skills development in the time of COVID-19: Taking stock of the initial responses in technical and vocational education and training International Labour Office – Geneva: ILO, 2021. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_766557.pdf

work undertaken by Cedefop community of apprenticeship experts[4] which launched an internal consultation about how European countries are managing apprenticeships during the COVID-19 crisis.[5]

There have also been a number of recent announcements which will have implications for apprenticeships including:

- The European Green Deal, announced in December 2019, together with the 10-point plan to help implement the European Green Deal in relation to the automotive sector announced by ACEA;

- Endorsement in November 2020 of a new set of EU policy actions in VET for the period of 2021-2025;[6] and

- On Tuesday 10 November 2020, as part of the European Vocational Skills Week, the Pact for Skills, a central element of the European Skills Agenda was launched.[7] The Automotive sector, together with microelectronics, aerospace and defence industries, has been granted participation as part of the first European skills partnerships in key industrial ecosystems.[8]

The ambition of the Automotive Pact for Skills is to upskill 5% of the workforce each year, which, if achieved, would result in around 700,000 people being upskilled throughout the entire ecosystem, representing a potential overall private and public investment of €7bn, starting with regional pilot schemes.

Many of the commitments and associated actions relating to the Automotive Pact for Skills will have significant implications for future apprenticeship development and implementation. In particular:

- Updating of intelligence with more refined development of data on skills needs and guidance to education providers could significantly enhance the updating of the content of existing apprenticeships and the development of new automotive related apprenticeships;

[4] https://www.cedefop.europa.eu/en/events-and-projects/networks/cedefop-community-apprenticeship-experts
[5] https://www.cedefop.europa.eu/files/cedefop_community_apprenticeship_experts_synthesis_how_are_european_countries_managing_apprenticeships_to_respond_to_the_coronavirus_crisis.pdf
[6] https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf
[7] https://clepa.eu/mediaroom/automotive-selected-as-pioneer-ecosystem-to-be-part-of-the-pact-for-skills/
[8] https://clepa.eu/mediaroom/automotive-selected-as-pioneer-ecosystem-to-be-part-of-the-pact-for-skills/

- The establishment of an EU-wide framework for skills and job roles building on the DRIVES outcomes could help in the design and development of apprenticeships relating to specific automotive job roles and also support the development of clearer learning pathways between different job roles;

- Measures to enhance the sharing of good practice will further strengthen the work already undertaken on this through DRIVES in relation to apprenticeships; and

- The Pact for Skills focusses on a massive increase in upskilling and re-skilling of the workforce. We would argue that apprenticeships should be an integral component of the additional training development implied by this.

Innovative practice

This report sets out a number of particular examples of innovative practice of relevance to the Automotive Apprenticeship marketplace under the following themes:

- Theme 1: Meeting the challenges of rapidly changing skills

The pace of technological change within the automotive industry is increasing rapidly, which in turn impacts on the rate of skills change. With the fast pace of industry change, skills grow obsolete quickly. The apprenticeship offer needs to be flexible enough to respond to fast changing skills.

- Theme 2: Responding to Industry 4.0

The automotive industry is rapidly transforming towards Industry 4.0 with massive advancements in technology development and processes which in turn, will lead to a major change in the skills profile of the workforce. Many jobs and processes will need to be redefined, with the emergence of a range of new specialist skills at the same time that some existing skills will diminish in importance. In relation to apprenticeships Industry 4.0 implies both the need to attract a higher level of applicant in order to be able to learn rapidly as jobs evolve and increased use of the digital training for delivery.

- Theme 3: Ensuring progression at all levels

The evidence of changing skill requirements within the automotive sector shows how these changes will impact at all skill levels. Apprenticeships are needed at every level including higher levels, with clear progression pathways between different levels.

- Theme 4: Meeting upskilling and reskilling requirements

The rapid rate of skills change has huge implications for the continuous upskilling of existing employees. The scale of this training requirement will dwarf the requirement for training of new entrants. Employers need tailored, flexible and often bite sized solutions to meet their needs. Apprenticeships need to support upskilling and provide clear learning pathways between different levels to facilitate continuous reskilling. Apprenticeships need to be flexible enough to meet these changing upskills/reskilling needs, possibly through the adoption of a more modular approach.

- Theme 5: Understanding the EU automotive apprenticeship offer

There are wide variations across the EU in terms of overall apprenticeship models adopted, with significant differences in the overall apprenticeship offer, funding mechanisms, quality assurance procedures, overall governance arrangements and delivery methods. This makes comparison of the different apprenticeship offers across different EU countries quite difficult. Tools are needed to help employers and individuals understand the apprenticeship offer across different nations.

- Theme 6: Encouraging SME involvement in apprenticeships

Small and Medium Sized Enterprises (SME's) face particular challenges in relation to taking on Apprentices. This includes greater difficulties in recruiting candidates which meet their particular needs, and providing the required learning and development for their employees. Many SME's also struggle to offer the range of skills required by Apprenticeships in a work setting, given their particular specialisms. It will be important to improve apprenticeship related support to SME's including the creation and strengthening of networks and alliances, developing appropriate resources and tools, fostering teaching and training and sharing experiences of innovative practice.

- Theme 7: Increasing international labour mobility

As automotive supply chains become increasingly globalised in nature, by contrast apprenticeships tend to be focussed nationally or even more locally. This poses challenges for employers and for the mobility of apprentices seeking employment across national boundaries. Recognition of apprenticeships by different employers is also a problem in some cases. Initiatives that support a move towards a single market for automotive apprentices across the EU will be important. However, given the diverse national approaches currently in place for the development and implementation of apprenticeships this is unlikely to be practicable, at least in the short term. More realistic approaches

from a company perspective to enable recognition across national boundaries are likely to be initiatives such as 'dual certification'.

- Theme 8: Responding to COVID 19

Prior to the COVID 19 outbreak apprenticeship delivery was typically characterised by a high level of learning on the job, in the workplace, including learning by shadowing staff or gaining practical skills from a colleague. During periods of lockdown imposed as a result of COVID 19 this traditional approach has not been possible, with delivery having to change to an online approach. Restrictions posed by COVID have underlined the need for a range of innovative approaches at all apprenticeship stages, including not only an increased reliance on on-line delivery of learning, but also for assessment of apprentices.

- Theme 9: Addressing diversity and image

A range of innovative solutions are required to address the poor image and diversity issues within the sector. Apprenticeships can play an important role in helping to tackle diversity challenges and wider recruitment issues facing the automotive sector.

- Theme 10: Maximising available funding

The ways in which apprenticeships are funded vary widely across different EU countries with a mixture of different funding arrangements evident including approaches that place funding responsibilities entirely or partially with employers, entirely as a government responsibility or through tax subsidies, social security funding or partial government reimbursements. There are a number of examples of innovative ways in which funding has been used to maximise apprenticeship take up.

- Theme 11: Involving apprentices

It is important to involve apprentices themselves in the planning and improvement of apprenticeships. Available evidence highlights the wide range of benefits to the involvement of apprentices throughout all stages of development and implementation of apprenticeships, as underlined by a recent CEDEFOP report that indicates that focussing the policy process around apprentices' is essential for relevant future skills development.[9]

- Theme 12: The need for close dialogue between employers, providers and other stakeholders

[9] European Apprenticeship Network, 'Cedefop-ETF conference- what do learners think?' 2020,'Cedefop-ETF conference – what do learners think? – European Apprentices Network

Many of the current and likely future skill requirements within the automotive sector are quite complex. It is also the case that apprenticeships need to balance the need for equipping apprentices with the skills required for successful careers in the automotive industry with the need to meet employers' specific changing skill requirements. This highlights the importance of not only understanding these requirements in detail, but the need for a close and continued dialogue between employers in the sector together with schools, colleges, universities and other providers of apprenticeship training to ensure the apprenticeship offer evolves in line with these changing skills requirements.

Practical Implications and Next Steps

The Report summarises a number of practical suggestions for improving the current European apprenticeship marketplace serving the automotive sector and next steps in relation to the DRIVES Project to help achieve these actions.

Five main types of recommendations are set out, these being those relating to:

- Sustaining DRIVES initiatives after DRIVES funding ceases;
- Identification and publicising of further examples of innovative practice;
- Improvements to skills Intelligence;
- Measures to improve flexibility of apprenticeships as a tool for upskilling/reskilling; and
- Other practical recommendations.

These recommendations have been developed taking into account funding for the DRIVES Project will cease at the end of March 2022 and in the light of recent major developments across the automotive ecosystem including the recently announced Automotive Pact for Skills, the associated Automotive Skills Alliance (ASA) and a number of key EU wide initiatives.
Specific recommendations relating to the potential future role of the Automotive Skills Alliance (ASA) in taking forward these recommendations are also set out.

1 INTRODUCTION

The vehicle of the future will no longer function solely as a mode of transportation. Car usage behaviour, electrification, sharing, autonomy and connectivity are all fundamentally shifting the automotive sector's vision towards the integration of services around the product itself.

This makes sense because the ways that consumers' access, purchase and use cars and other modes of transport are changing rapidly. New technologies and the massive use of the internet will have a huge impact on the use and very concept of mobility. There is also a growing public expectation that greater automation will lead to even higher standards of road safety and higher connectivity of vehicles, together with a wide range of new services. These changes will involve issues surrounding Big data and Cybersecurity, whilst creating a demand for horizontal skills, and necessitating the migration of occupations from other sectors together with the emergence of new skill requirements.

In the face of such seismic change The Development and Research on Innovative Vocational Education Skills (DRIVES) project was commissioned to support the future-proofing of skills and allow the EU workforce to continue to compete on a global scale. Running from January 2018 until March 2022, the project brings together 24 partners from 11 European countries with a large automotive presence including the UK, Spain and Italy. Its broad objectives are to:

- Analyse key trends, covering the whole value-chain;
- Define future skills and job roles;
- Identify skills gaps for foreseen changes;
- Analyse the current offering of training/upskilling/reskilling; and
- Provide clear guidance for education and training providers.

A key aim of the DRIVES project is to identify ways of supporting the creation of an effective apprenticeship market serving the automotive sector.

The changes taking place within the automotive sector have huge implications for the apprenticeship marketplace serving the sector. These issues together with a number of practical actions to address them were set out in a major report published as part of the DRIVES project in 2020.

The 'Understanding the Marketplace' Report on the European Automotive Apprenticeship Marketplace was developed as part of the DRIVES Project in order to support the development of a

shared understanding of the automotive apprenticeship marketplace and help the sector promote apprenticeships effectively and meet identified challenges.

The Report which was published in August 2020 was developed to help shape thinking and policy development and underpin practical action and intervention within the automotive apprenticeship marketplace.

The report summarising key issues from this research can be found at: Key Issues Report

The Full Report can be found at: DRIVES Apprenticeships publications

Since the publication of the 'Understanding the Marketplace' Report the global and EU automotive sector have experienced a period of major upheaval and restructuring. While changes driven by technology development have continued, a number of other factors have also helped to reshape the sector including the impact of COVID 19, the associated recession across Europe and the different policy responses to this, together with other factors including BREXIT.

These factors have impacted on working practices and helped drive changes in skill requirements, which in turn have major implications for apprenticeships supporting the sector.

The purpose of this Report is to document these more recent patterns of change, identify the implications for the EU automotive apprenticeship marketplace, highlight a number of innovative ways in which the challenges facing the apprenticeship marketplace have been tackled and set out practical suggestions moving forward.

In order to achieve this, the Report is structured as follows:

Changing economic context: The section provides a brief overview of the economic context over the last 12 months including the impact of the economic downturn, COVID 19 and Brexit on the European automotive sector.

Recent developments across the European apprenticeship marketplace: This section highlights recent policy and other developments that have had or will have a significant impact on the European apprenticeship marketplace serving the automotive sector.

Innovative practice: This section highlights a number of particular examples of innovative practice of relevance to the Automotive Apprenticeship marketplace. These are set out under the following themes:

- Responding to rapid skills change;
- Responding to Industry 4.0;
- Ensuring progression at all levels;
- Using Apprenticeships to support upskilling and reskilling;
- Understanding the European automotive apprenticeship offer;
- Encouraging SME involvement in Apprenticeships;
- Increasing International Mobility;
- Responding to covid19;
- Addressing Diversity and Image;
- Maximising Available funding;
- Involving Apprentices; and
- Closer dialogue between stakeholders.

Practical implications and next steps: This section summarises a number of practical suggestions for improving the current EU apprenticeship marketplace serving the automotive sector and next steps in relation to the DRIVES Project

2 CHANGING ECONOMIC CONTEXT

2.1 WHY DOES THE AUTOMOTIVE INDUSTRY CONTINUE TO BE IMPORTANT?

The automotive industry remains crucial for Europe's prosperity.[10] In particular:

- It provides 13.8 million direct and indirect jobs in Europe and represents 6.1% of total EU employment;
- In relation to direct manufacturing of motor vehicles, this accounts for 2.6 million EU jobs, representing 8.5% of EU employment in manufacturing, with a further 0.9 million indirect manufacturing jobs;
- The turnover generated by the automotive industry is estimated to represent over 7% of EU GDP;
- The sector also represents the largest private investor in research and development (R&D); and
- If wider linkages to other sectors are taken into account the automotive sector is even more important generating an important 'multiplier effect'[11] on the economy through linkages to 'upstream' industries such as steel, chemicals, and textiles and to 'downstream' industries such as ICT, repair, and mobility services.

2.2 RECENT TRENDS

COVID-19 has significantly impacted on both automotive sector demand and output during 2020 and the early part of 2021.

In relation to **demand**, new registrations for EU passenger cars experienced the largest ever single year drop in 2020 as a result of the measures aimed at preventing the spread of the coronavirus, with new car registrations falling by 3 million units compared to 2019, or -23.7%.[12]
In relation to the largest EU automotive markets, Spain and Italy suffered the steepest falls, with car registrations contracting by 32.3% and 27.9% respectively by comparison with 2019, but there were

[10] https://ec.europa.eu/growth/sectors/automotive_en

[11] The multiplier effect refers to how an injection of new spending (wages, investment etc.) can lead to a larger increase in final national income (GDP) because a proportion of the injection of new spending will itself be spent, creating income for other firms and individuals. These firms and individuals will also spend a proportion of their income, which itself creates income for others.

[12] ACEA Economic and Market Report – Full-year 2020

also major falls in France (-25.5%) and Germany (-19-1%). The respective figure for the UK over this period was -29.4%. These are all steeper declines than the global average of -15.3%.

Although these declines continued through the first two months of 2021 a significant pick-up in demand in March this year offset this, bringing a positive growth of 3.2% in overall EU demand for first quarter 2021. These declines have not been uniform however, with both Spain (-14.9%) and Germany (-6.4%) continuing to experience an overall fall in demand over this period. [13]

In the UK, new car registrations also fell for the whole quarter in 2021 compared with the same period in 2020, but there was a pick-up in March 2021 for the first time since the start of the pandemic.[14]

More recently, in April 2021, new car registrations across the EU surged by 218.6% compared with the same time in *2020, but* despite this big percentage increase, sales volume for April this year was almost 300,000 units lower than that recorded in April 2019.[15]

Table 1: Top 4 – New passenger car registrations in the 'top 4' EU markets and the UK

	2020	2019	% Change 20/19
Germany	2,917,678	3,607,258	-19.1
France	1,650,118	2,214,279	-25.5
Italy	1,381,496	1,916,949	-27.9
Spain	851,211	1,258,251	-32.3
EUROPEAN UNION	9,942,509	13,028,948	-23.7
United Kingdom	1,631,064	2,311,140	-29.4
WORLD	63,404,618	74,897,059	-15.3

Source: ACEA Economic and Market Report – Full-year 2020

More recent figures for the first three quarters of 2021 indicate all car registrations across the EU increased by only 6.6% to reach 7.5 million units.[16]

[13] https://www.acea.auto/pc-registrations/passenger-car-registrations-3-2-first-quarter-of-2021-87-3-in-march/

[14] https://www.autocar.co.uk/car-news/industry-news-sales-figures/new-car-registrations-dealers-prepare-open

[15] https://www.acea.auto/pc-registrations/passenger-car-registrations-24-4-four-months-into-2021-218-6-in-april/

[16] https://www.acea.auto/pc-registrations/passenger-car-registrations-6-6-nine-months-into-2021-23-1-in-september/

In terms of **production**, the spring of 2020 caused major disruptions with wide scale shutdowns of plants and although production slowly restarted in the third quarter of 2020 and accelerated in the last quarter (2020) driven by incentivised demand and the need to rebuild inventory, the overall picture for the whole of 2020 was still a contraction of -23.3% to 10.8 million units. This compared with 14.1 million in 2020. The UK experienced an even steeper relative fall of -29.7% over the same period. Again, with respect to both the EU and UK, this was a steeper fall than was experienced globally.[17]

Table 2: World passenger car production

	2020	2019	% change20/19
European Union	10,810,265	14,096,291	-23.3
United Kingdom	918,526	1,306,957	-29.7
WORLD	61,356,408	73,811,205	-16.9

ACEA Economic and Market Report – Full-year 2020

Although production levels began to climb back towards the end of 2020, computer chip shortages and other supply chain uncertainties became the main cause of concern between December 2020 and March 2021, placing a brake on recovery. During the first quarter of 2021 many manufacturing firms across Europe were still relying on state aid to pay furloughed workers and prevent long-term plant closures.[18]

Semiconductor shortages have continued to impact on production and sales volumes since March this year, with this disruption expected to continue, with short term supply likely to lag behind demand for some time.[19]

The pandemic has also been linked to significant restructuring of the automotive industry. Recent research estimates that 79% of the EU workforce has been affected by the pandemic, with a number of recent announcements of job cuts by automotive companies including 4,000 jobs losses globally at

[17] ACEA Economic and Market Report – Full-year 2020
[18] https://www.statista.com/statistics/1105196/volume-index-of-motor-vehicle-production-in-europe/
[19] https://think.ing.com/articles/automotive-sector-update-recovery-under-way-stirred-but-undetered/

Volvo, 14,600 at Renault and closure of the Nissan factory in Barcelona with 3,000 direct job losses and 25,000 indirect jobs. [20]

2.3 RESPONSES TO COVID – STIMULUS PACKAGES

Together with specific measures aimed at tackling the immediate health impacts of COVID-19, many countries in Europe have announced specific stimulus packages for the automotive industry to help combat the impacts of COVID on the industry. This includes the following:

- In May 2020 **France** announced an €8 billion stimulus plan for the car industry directed to boost local manufacturing of electric and hybrid cars, and incentivize buyers towards lower-emissions models through increased government subsidies;[21]
- In November 2020 the **Germany** government agreed a €4 billion automotive industry stimulus package.[22] This included:
    - €2 billion made available from existing stimulus funds to help suppliers adapt production lines for Electric Vehicle products aimed at helping small and medium-sized enterprises (SMEs) invest. Innovation clusters are also to be established, allowing companies to bundle their resources and exchange knowledge and experience, as well as establishing shared laboratories for testing;
    - €1 billion is being put towards further incentives for battery-electric vehicles (BEVs) and plug-in hybrids (PHEVs);
    - A further €1 billion will be spent to help technological developments, as part of a 'future fund' for the automotive industry;
- In July 2020 it was reported that in **Italy** slightly less than 1 billion euros would be allocated to strengthen current incentives to encourage sales of state-of-the-art combustion engine cars as well as electric and hybrid vehicles;[23]
- In July 2020 the **UK** Government published a 'Plan for Jobs 2020' Policy Paper that included additional funding of £1 billion to the Automotive Transformation Fund to develop automotive technologies;[24]

[20] THE GREEN DEAL AND THE AUTOMOTIVE INDUSTRY IN THE EU Transforming the Automotive Industry - Impact on EU Regions Gökay Çınar https://reneweurope-cor.eu/wp-content/uploads/2020/06/The-Green-Deal-and-the-Automotive-Industry-in-the-EU.pdf
[21] https://www.dw.com/en/france-unveils-stimulus-plan-worth-8-billion-for-car-industry/a-53578294
[22] https://autovistagroup.com/news-and-insights/germany-increases-financial-support-its-automotive-industry
[23] https://europe.autonews.com/automakers/italy-help-auto-sector-minister-says
[24] https://www.gov.uk/government/publications/a-plan-for-jobs-documents/a-plan-for-jobs-2020

- In June 2020 the **Spanish** Council of Ministers approved a €3.75 billion plan to promote the Spanish automotive industry value chain. The European Investment Bank (EIB) will also finance a €200 million loan to Gestamp, a manufacturer of metal components for the automotive sector with factories in Spain, Germany, France, and Sweden; and[25]
- The stimulus package of the **Austrian** government includes an increased subsidy from €3,000 to €5,000 for the purchase of a Battery Electric Vehicle (BEV), €2,000 of which is provided by car manufacturers, and from €1,500 to €2,500 for a gasoline-powered Plug-In-Electric Hybrid Vehicle (PHEV), half of which (€1,250) is contributed by the car manufacturers.[26]

In May 2020 the four associations representing the European automotive sector (ACEA, CECRA, CLEPA and ETRMA) listed 25 immediate policy recommendations designed to help shape the political and regulatory response to the Covid-19 crisis and restart the automotive sector.[27]

This included suggestions of measures to maintain the necessary liquidity for businesses to support a healthy automotive ecosystem and lay the foundation for a sustainable economic recovery, primarily by triggering vehicle demand and investment in the latest technology and innovation.

The EU's long-term budget for 2021-2027, which was agreed in December 2020, coupled with NextGenerationEU, the temporary instrument designed to boost the recovery, represents the largest stimulus package ever financed in Europe. A total of €1.8 trillion will help rebuild a post-COVID-19 Europe. It is envisaged that this package will support a 'greener, more digital and more resilient Europe'. [28]

While not aimed specifically at the automotive sector, many of the measures covered by this long term budget will have a significant influence on the evolving European automotive sector, including measures to support increased digitisation, combatting climate change and funding for research and innovation.

[25] https://www.lw.com/thoughtLeadership/COVID-19-EU-State-Aid-Granted-to-the-Automotive-Sector
[26] https://theicct.org/blog/staff/economic-recovery-covid-19-ev-europe-aug2020
[27] 25 ACTIONS For a successful restart of the EU's automotive sector; MAY 2020 https://clepa.eu/wp-content/uploads/2020/05/25-ACTIONS-for-a-successful-restart-of-the-EUs-automotive-sector.pdf?utm_source=MemberList&utm_campaign=7fca4f39a5-EMAIL_CAMPAIGN_2019_04_18_09_57_COPY_01&utm_medium=email&utm_term=0_a91bb4297d-7fca4f39a5-205120901
[28] https://ec.europa.eu/info/strategy/recovery-plan-europe_en

2.4 EXPECTED FUTURE GROWTH

In February 2021 ACEA indicated that it expected auto sales to rebound 10 percent during the year as the pandemic is brought under control, with electric vehicles leading the way.[29]

While electric vehicle sales have continued to strengthen this year, during the first three quarters of 2021 ACEA report that over this period, all car registrations across the EU increased by only 6.6% to reach 7.5 million units. Looking in more detail at the largest EU markets over this period, Italy experienced the highest increase (+20.6%), followed by Spain (+8.8%) and France (+8.0%). By contrast, car registrations in the German car market actually declined compared with the same period in 2021 (-1.2%).[30]

It is pointed out that while this is an improvement on 2020, this was a year when sales were flattened by coronavirus shutdowns and short-term economic disaster.

September this year was reported as a particularly weak month for car sales across all major EU markets linked to by a lack of supply of vehicles due to the ongoing semiconductor shortage. In fact, demand in the EU shrank by 23.1% to 718,598 units, which is the lowest number of registrations for a month of September since 1995.

One industry expert expects that the Western European automobile market will need about ten years to climb back to the size it was in 2019.[31]

2.5 KEY DRIVERS OF CHANGE IN THE EUROPEAN AUTOMOTIVE MARKET

There are a wide range of key drivers of change shaping the future of the European automotive sector. Some of the most significant drivers are outlined below:

[29] https://auto.economictimes.indiatimes.com/news/industry/electric-vehicle-sales-surge-in-eu-amid-covid-slump/80690036
[30] https://www.acea.auto/pc-registrations/passenger-car-registrations-6-6-nine-months-into-2021-23-1-in-september/
[31] Prof. Ferdinand Dudenhoeffer Director of Germany's Centre for Automotive Research; https://www.epicflow.com/blog/2021-automotive-industry-challenges-and-trends/

- ***The move towards electric cars***

The upward trend in electric vehicles over the last decade has been very rapid. While there were only about 17,000 electric cars on the world's roads in 2010, this had reached 7.2 million by 2019, of which almost half were in China[32] and nearly 550,000 electric vehicles in the EU 27 (including Iceland, Norway and the UK). [33]

Despite an overall decline in car sales in the EU during 2020, demand for electric vehicles increased significantly with buyers taking advantage of government subsidies for clean cars introduced to help manufacturers cope with the Covid-19 pandemic.[34]This trend has continued during 2021. Looking in more detail:

- A total of 538,772 fully electric autos were sold across the EU during 2020, up 117% compared with 2019, while sales of plug-in hybrids more than tripled, to 507,059 from 139,954 over the same period;
- Up to the end of August 2021 sales of electric vehicles and plug-in hybrid cars has continued to grow. 151,737 electric vehicles were registered during August which implies a year-on-year increase of 61% and takes total volume since January 2021 to 1.32 million; and[35]
- Moreover, it is predicted that as prices come into line with petrol models, subsidies will no longer be necessary.

Unlike the rest of the industry, the pandemic has actually stimulated the development and sales of electric vehicles (EVs). This is linked to support measures put in place in different countries to support the car industry through the pandemic (EVs benefit from government support programmes and subsidies in various countries) and also a wider push for a green recovery.[36]

- ***Strong market growth in China***

China is expected to be a key growth market for the automotive industry in the coming years driven by strong growth in 'energy' vehicles.[37] Expectations of the China Association of Automobile

[32] https://www.iea.org/reports/global-ev-outlook-2020
[33] https://www.eea.europa.eu/data-and-maps/indicators/proportion-of-vehicle-fleet-meeting-5/assessment
[34] https://www.acea.auto/fuel-pc/fuel-types-of-new-cars-electric-10-5-hybrid-11-9-petrol-47-5-market-share-full-year-2020/
[35] https://www.jato.com/wp-content/uploads/2021/09/European-regs-August-by-fueltype.jpg
[36] https://think.ing.com/articles/automotive-sector-update-recovery-under-way-stirred-but-undetered/
[37] Energy vehicles include battery, plug-in hybrid and fuel-cell models

Manufacturers[38] were for sales of new energy vehicles in China to increase from 1.4 million units in 2020 to 1.8 million vehicles in 2021. These expectations are going to be exceeded, with Chinese consumers buying 1.79 million electric vehicles over the first eight months of 2021, up 194% from the same period in 2020.[39] This poses both opportunities for European vehicle manufacturers to increase sales in this market but also threats as Chinese vehicle manufacturers become more dominant.

- ***Shared Mobility***

Although the trend towards shared mobility [40] has been temporarily halted as a result of the pandemic and the need for social distancing, long term growth in this approach to transport is still expected. Electric Vehicle Outlook 2020 predicts that by 2040 shared mobility will represent 16% of all kilometres travelled by road.[41]

- ***Tackling climate change – The European Green Deal***

The stated goal of the European Green Deal, which was announced in December 2019, is to be climate neutral by 2050. To do this, it will carry out a series of initiatives that will protect the environment and boost the green economy.[42]

In relation to the automotive sector this includes key regulatory changes that are expected to be implemented such as the bolstering of emissions standards, the possible inclusion of road transport in the EU Emissions Trading System and incentives for the uptake of electric vehicles.[43]

The European Automobile Manufacturers' Association (ACEA) has indicated it believes that carbon-neutral road transport is possible by 2050, but that it will represent a seismic shift, requiring increasing efforts from all stakeholders.[44]

[38] https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/tesla-faces-growing-competition-in-china-after-smooth-ride-in-2020-62258555

[39] https://asia.nikkei.com/Spotlight/Electric-cars-in-China/Surging-EV-sales-put-China-ahead-of-government-targets2

[40] Shared mobility is a transportation system enabling travellers to share a vehicle either simultaneously as a group or over time as personal rental, and in the process share the cost of the journey, thus creating a hybrid between private vehicle use and mass or public transport.

[41] https://www.epicflow.com/blog/2021-automotive-industry-challenges-and-trends/

[42] https://ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal/actions-being-taken-eu_en

[43] https://www.linklaters.com/en/insights/publications/2020/june/the-european-green-deal

[44] https://www.acea.auto/publication/paving-the-way-to-carbon-neutral-transport-10-point-plan-to-help-implement-the-european-green-deal/

In order to try and meet this goal, ACEA has set out a range of key policy recommendations in its 10-point plan to help implement the European Green Deal.

Twenty-four countries and a group of leading car manufacturers committed to ending fossil-fuel powered vehicles by 2040 "or earlier", in a commitment at the UN Climate Conference Cop26 in November this year. The agreement included the Netherlands, Ireland and the UK and Automotive manufacturers Ford, Mercedes, Volvo, Jaguar LandRover and Mercedes-Benz. However, Germany, France, Spain and Portugal together with Volkswagen, Toyota and BMW did not put their name to the deal.[45] [46]

- **Increased use of renewable fuel**

Mazda is currently involved in research to promote the wide-spread adoption of biofuels from microalgae growth as part of its 'Sustainable Zoom-Zoom 2030' long-term technology development programme. Given expectations that the internal combustion engines combined with some form of electrification will still account for about 95% of the vehicles Mazda produces in 2030, the company recognises the importance of a renewable liquid fuel if major CO2 reductions are to be achieved. Given this, the company is reported as committed to reducing its average 'Well-to-Wheel' CO2 emissions to 50% of 2010 levels by 2030, and to 90% by 2050.[47]

- **Reducing Vehicle Weight with Composites**

A consortium led by Jaguar Land Rover (JLR), is developing low-cost, scalable vehicle structures utilising composite materials such as carbon-fibre and fiberglass as a substitute for heavier materials conventionally used such as steel and aluminium. JLR is planning to have a range of prototypes on the road by 2022. The company has indicated that this technology should help reduce the weight of a vehicle structure by 77 pounds, offsetting the weight of bigger batteries with increased range used in both battery-electric vehicles and plug-in hybrids.[48]

[45] https://www.theguardian.com/environment/2021/nov/10/cop26-car-firms-agree-to-end-sale-of-fossil-fuel-vehicles-by-2040
[46] https://ukcop26.org/cop26-declaration-on-accelerating-the-transition-to-100-zero-emission-cars-and-vans/
[47] https://www.insidemazda.co.uk/2020/03/30/mazda-backs-carbon-neutral-biofuel-research-2/
[48] https://www.motorauthority.com/news/1131057_jaguar-land-rover-looks-to-boost-ev-range-by-reducing-weight-with-composites

- ***Improvements in battery technology and production***

The battery technology landscape is changing rapidly together with the development of production facilities. In February 2021 it was announced by the German Economy Minister Jörg Steinbach that Tesla is planning to manufacture its newly-detailed 4680 battery cells at the Berlin Gigafactory within two years, which is expected to be the largest battery cell plant in the world. [49] The company officially applied to manufacture battery cells at the Berlin Gigafactory in June this year[50]. This adds to CATL and BASF SE that both have large-scale battery manufacturing projects in Germany already.

In April 2021 the top 5 battery manufacturing plants in Europe were Samsung SDI Hungary Plants 1 and 2 (Hungary), SK Innovation Plants 1 and 2 (Hungary), LG Chem (Poland), Northvolt Ett (Sweden) and CATL Germany.[51]

- ***Automotive Infotainment***

Automotive information systems are changing radically with a trend towards 'infotainment systems' with built-in services without the necessity for access via USB and smartphones, given drivers are now banned from using their phones while behind the wheel. In essence, this makes your smartphone's functionality accessible via your infotainment screen.[52]

Key players in this market are:

- Google through Android Auto which allow access to Google Maps, Voice Assistant, Google Cloud and other services for navigation, communication, and entertainment
- Apple CarPlay which allows the driver to safely access the functionality of iPhones

2.6 IMPLICATION FOR SKILLS

The original marketplace report identified a number of ways in which skills change is impacting on the automotive sector including:

[49] https://www.teslarati.com/tesla-4680-giga-berlin-battery-plant-two-years/
[50] https://electrek.co/2021/06/04/tesla-officially-applies-build-battery-cells-gigafactory-berlin/
[51] https://www.automotive-iq.com/electrics-electronics/articles/top-five-ev-battery-factories-in-europe
[52] https://www.leasefetcher.co.uk/guides/car-technology/what-is-android-auto

- The move towards electrification which will lead to a greater demand for engineers with software and digital skills and most likely a decrease in jobs linked to the production of conventional powertrains (unless the transition to full electric cars is preceded by a prolonged period of hybrid cars which require two powertrains and, thus, more components);
- There will be an increased demand for digital and advanced engineering skills as well as a need to refocus some talent towards basic skills;
- Set against this, a number of traditional job profiles will disappear;
- How technical skills such as engineering or software development that have traditionally been essential will remain important, but how factors such as alternative autonomous capabilities and ICT connectivity are contributing to engineering complexity;[53]
- At the same time, entrepreneurial and automotive process and transformation skills are essential as companies need to change into highly efficient high-tech companies;[54]
- How both challenges and opportunities of technology adoption and deployment linked to Industry 4.0 continue to arise, but few companies fully recognise the number one challenge of finding qualified talent;
- Due to the rapid pace of innovation across the automotive industry, academic institutions are struggling to develop curriculums to match in-demand skills from the industry. The need for educational institutions and industry to partner with one another to close this talent gap for the future workforce is highlighted in this respect;[55] and
- How the rapid pace of skills change underlines the increasing importance of workforce upskilling, with, on average, automotive executives indicating that 16% of the workforce will need to be reskilled by 2030 to meet changing digital requirements, with an expected 31% increase in training/reskilling budgets expected to meet these demands.[7]

These issues still remain, but COVID-19 in particular and the associated restructuring of the industry have resulted in the need for other skills and also impacted on the relative significance of some of the above issues.

Some of these skills implications have been immediate. For example:

[53] T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce“, 2019.
[54] T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce“ ,2019.
[55] T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce", 2019.

- The pandemic has caused a rapid shift to **remote working** for those that are able to do this. In some cases, this shift is likely to be permanent. This has implied a range of new support and training to ensure people have the skills to engage in remote working. This includes the need for guidance on new ways of working and clear policies, together with increased cybersecurity demands;[56]

- For **front-line employees** whose work continues to occur on-site, automotive employers have faced a challenge to ensure employees know how to minimise the spread of the virus and what to do if they experience symptoms of COVID-19, together with the need for the development of business continuity plans to deal with complete shutdowns or shortfalls in a critical skills;[57] and

- In many cases **production layouts have had to be reconfigured** to ensure social distancing can be conformed to satisfactorily.

However, the pandemic has also resulted in a number of longer-term shifts in skill requirements including the need for:

- **Enhanced leadership skills:** As the need for new skills arises and the need to reconfigure traditional working practices and approaches becomes more important post-pandemic, this implies the need for new sets of leadership skills within the automotive value chain to drive this transformation.[58] As recent analysis states, 'It's about how leaders can reskill and upskill the workforce to deliver new business models in the post-pandemic era'.[59] It is reported that economic recovery is forcing organisations to 'reimagine' their operations with manufacturing companies reconfiguring their supply chains and their production lines;[60]

- **Increased pace of automation:** While increased automation of processes is a long-term trend already evident, there is evidence that the automation revolution has been accelerated by the

[56] https://www.pwc.com/us/en/library/covid-19/coronavirus-impacts-automotive.html
[57] https://www.pwc.com/us/en/library/covid-19/coronavirus-impacts-automotive.html
[58] https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis
[59] https://www.mckinsey.com/featured-insights/leadership/the-future-is-not-what-it-used-to-be-thoughts-on-the-shape-of-the-next-normal
[60] https://www.mckinsey.com/business-functions/operations/our-insights/building-the-vital-skills-for-the-future-of-work-in-operations

COVID-19 pandemic.[61] On the one hand this reduces numbers shop-floor workers but on the other increases the need to upskill remaining workers[62] with enhanced digital and related skills required. Skills in growing demand as a result of increased automation include those relating to Artificial Intelligence (AI), use of robotics, data driven systems and Robotic Process Automation (RPA).[63] In relation to the increased demand for digital related skills recent research splits these into two categories:

- Baseline digital skills – skills that help to boost productivity through software such as Word, Excel and SAP; and
- Specific digital skills – such as software & programming, data analysis, digital design and machining & manufacturing technology.

- While the trend towards **electrification** of cars has been clear for a number of years, more recent evidence points to an accelerated pace of adoption than many previously thought was going to be the case. This implies an even sharper increase in demand for engineers with software, digital and related skills. Given that electric cars are mechanically simpler than traditional cars this means the number of production workers required is lower with an estimated 30% less working hours needed for production of electric cars when compared to traditional internal combustion engines. It is estimated that without measures to add additional value as part of this transition to electrification more than 4 million EU automotive jobs could be lost over time.[64] This is likely to impact the automotive supply chain more severely than OEM's.

2.7 IMPLICATIONS FOR APPRENTICESHIPS

These changes have significant implications for the design and implementation of apprenticeships. In particular the need:

[61] https://www.mckinsey.com/business-functions/operations/our-insights/building-the-vital-skills-for-the-future-of-work-in-operations
[62] https://www.automation.com/en-us/articles/january-2021/manufacturers-adapt-workers-skills-covid-recovery
[63] THE GREEN DEAL AND THE AUTOMOTIVE INDUSTRY IN THE EU Transforming the Automotive Industry - Impact on EU Regions Gökay Çınar https://reneweurope-cor.eu/wp-content/uploads/2020/06/The-Green-Deal-and-the-Automotive-Industry-in-the-EU.pdf
[64] THE GREEN DEAL AND THE AUTOMOTIVE INDUSTRY IN THE EU Transforming the Automotive Industry - Impact on EU Regions Gökay Çınar https://reneweurope-cor.eu/wp-content/uploads/2020/06/The-Green-Deal-and-the-Automotive-Industry-in-the-EU.pdf

- To adapt apprenticeship delivery approaches to reflect new ways of working as a result of the pandemic;
- To ensure the apprenticeship offer reflects new and emerging skills including those relating to the rapid move to electric and other 'energy' vehicles;
- For apprenticeships to be flexible enough to adapt to fast changing skill requirements at the same time as ensuring they continue to provide apprentices with the foundations for long term career progression in the industry; and
- To make sure the apprenticeship offer is relevant to the massive upskilling challenge facing the automotive industry as well as for new entrants.

All these issues will be explored in more detail in later chapters of this Report.

3 RECENT DEVELOPMENTS ACROSS THE EU APPRENTICESHIP MARKETPLACE

The first 'Apprenticeship Marketplace' Report provided a detailed analysis of the different apprenticeship models adopted across the EU and the implications of these different approaches for the automotive sector.

This chapter provides an updated summary of key developments over the last 12-18 months that have impacted on, or will impact on the automotive apprenticeship marketplace across Europe.

3.1 THE IMPACT OF COVID ON APPRENTICESHIPS

In January 2021 ACEA reported on the severity of the impact of the COVID-19 crisis on the European automobile industry, with both production and sales of motor vehicles suddenly halting for periods of 2020.[65]

In March 2020 temporary plant closures were announced by Volkswagen in Spain, Portugal, Slovakia Italy and Germany, Renault in France and the PSA Group, with parent of brands including Peugeot, Citröen, Opel and Vauxhall, temporarily shutting plants in France, Spain, Poland, the U.K., Portugal, Germany and Slovakia.[66]

This led to serious disruptions in the delivery of work-based learning, including apprenticeships over this period.[67] This has also resulted in severe problems in assessment and certification. In a recent global survey undertaken by the ILO covering all sectors it was found that in the majority of countries, during the period covered by the survey, respondents reported that TVET providers were not assessing

[65] https://www.acea.auto/news/coronavirus-covid-19/
[66] https://fortune.com/2020/03/17/coronavirus-impact-shutdown-european-auto-sector-volkswagen/
[67] Skills development in the time of COVID-19: Taking stock of the initial responses in technical and vocational education and training International Labour Office – Geneva: ILO, 2021. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_766557.pdf

learning outcomes related to practical skills developed in workshops or laboratories, or through work-based learning and apprenticeships.[68]

3.2 HOW ARE DIFFERENT COUNTRIES RESPONDING TO COVID IN RELATION TO APPRENTICESHIPS?

In April 2020, Cedefop community of apprenticeship experts[69] launched an internal consultation about how European countries were managing apprenticeships during the COVID-19 crisis.[70]

Key messages from the report included:

- All countries have made efforts to keep up with learning at education and training providers, while they are closed (solution: distance learning), and to maintain the contracts with the companies (not suspend the contract, development of distance projects, incentives from the government, agreement with education and training providers). Most countries at the time of the research were still working out how to deal with the final assessment;

- Distance learning was identified as piecemeal, and highly dependent on the VET providers and teachers' e-skills and availability, together with the particular sector. Some countries were reported as considering virtual final assessment;

- Teachers play a critical role through collaboration at school-company level to ensure training continuity (especially via distance learning); and

- Discontinuation of the school attendance due to school closures does not necessarily mean discontinuation of company attendance with variations identified in this by economic sector.

[68] Skills development in the time of COVID-19: Taking stock of the initial responses in technical and vocational education and training International Labour Office – Geneva: ILO, 2021. https://www.ilo.org/wcmsp5/groups/public/---ed_emp/---ifp_skills/documents/publication/wcms_766557.pdf
[69] https://www.cedefop.europa.eu/en/events-and-projects/networks/cedefop-community-apprenticeship-experts
[70] https://www.cedefop.europa.eu/files/cedefop_community_apprenticeship_experts_synthesis_how_are_european_countries_managing_apprenticeships_to_respond_to_the_coronavirus_crisis.pdf

3.3 OTHER RECENT DEVELOPMENTS IMPACTING ON APPRENTICESHIPS

The European Green Deal, announced in December 2019, with the goal of climate neutrality by 2050 has already been discussed in Chapter 2, together with the 10-point plan to help implement the European Green Deal announced by ACEA.

One of these 10 points has particular potential implications for future apprenticeships. ACEA suggest that in order to facilitate and properly address structural changes in member states and regions with an automotive industrial base, the Commission should support re-skilling and skills upgrading in the auto industry, which could be supported by implementing industry-supported projects funded by Erasmus+, such as DRIVES or ALBATTS.

At a meeting on 30 November 2020 a declaration by the Ministers in charge of vocational education and training of the Member States, the EU Candidate Countries and the EEA countries, the European social partners and the European Commission relating to a new set of policy actions in VET for the period of 2021-2025 was endorsed.[71] This focuses in four main areas:

- Resilience and excellence through quality, inclusive and flexible VET;
- Establishing a new lifelong learning culture – relevance of C-VET and digitalisation;
- Sustainability – a green link in VET; and
- European Education and Training Area and international VET.

While the declaration focuses on VET rather than specifically on apprenticeships, this will influence the development of apprenticeships within the EU moving forward.

On Tuesday 10 November 2020, as part of the European Vocational Skills Week, the Pact for Skills, a central element of the European Skills Agenda was launched.[72]

The Automotive sector, together with microelectronics, aerospace and defence industries, has been granted participation as part of the first European skills partnerships in key industrial ecosystems.[73]

[71] https://www.cedefop.europa.eu/files/osnabrueck_declaration_eu2020.pdf

[72] https://clepa.eu/mediaroom/automotive-selected-as-pioneer-ecosystem-to-be-part-of-the-pact-for-skills/

[73] https://clepa.eu/mediaroom/automotive-selected-as-pioneer-ecosystem-to-be-part-of-the-pact-for-skills/

In relation to the automotive sector, the ambition is to upskill 5% of the workforce each year. This will result in around 700,000 people being upskilled throughout the entire ecosystem, representing a potential overall private and public investment of €7bn, starting with regional pilot schemes. This is based on a re-skilling investment of on average €10,000 per employee.[74]

In order to reach this target, the partners involved in the Skills Partnership for the Automotive Ecosystem will need to jointly commit to:

- Establish a skills partnership for the automotive ecosystem;
- Update intelligence about the ecosystem and its development, resulting in data on skills needs and guidance to education providers;
- Set up an EU-wide framework for skills and job roles building on the DRIVES outcomes; share experience and best practices; and
- Provide financial or non-financial contributions (depending on the nature of the entities) to the training realised under the Framework, connected to the established support schemes for individual projects in the respective regions or member states.

The following specific actions are identified for implementation:

- Analyses and definition of skills needs (industry is committed to share its perspective and strategy);
- Streamlining of the workforce planning, including employee skills assessment (industry and regional/national authorities will cooperate together);
- Relevant training and education courses for all kinds of backgrounds and levels of education; and
- Assessment of the outcomes of the training to improve the quality of the system (a joint exercise of all stakeholders involved).

Many of the commitments and associated actions outlined above have significant potential implications for future apprenticeship development and implementation with the European automotive sector. In particular:

[74] https://www.project-drives.eu/Media/Publications/204/Publications_204_20201111_113944.pdf

- Updating of intelligence with more refined development of data on skills needs and guidance to education providers could significantly enhance the updating of the content of existing apprenticeships and the development of new automotive related apprenticeships;

- The establishment of an EU-wide framework for skills and job roles building on the DRIVES outcomes could help in the design and development of apprenticeships relating to specific automotive job roles and also support the development of clearer learning pathways between different job roles;

- Measures to enhance the sharing of good practice will further strengthen the work already undertaken on this through DRIVES in relation to apprenticeships; and

- Although the Pact for Skills focusses on a massive increase in upskilling and re-skilling of the workforce, we would argue that apprenticeships should be an integral component of the additional training development implied by this.

4 INNOVATIVE PRACTICE

This section highlights a number of particular examples of innovative practice of relevance to the Automotive Apprenticeship marketplace. These are set out under the following themes:

- Responding to rapid skills change;
- Responding to Industry 4.0;
- Ensuring progression at all levels;
- Using Apprenticeships to support upskilling and reskilling;
- Understanding the European automotive apprenticeship offer;
- Encouraging SME involvement in Apprenticeships;
- Increasing International Mobility;
- Responding to covid19;
- Addressing Diversity and Image;
- Maximising Available funding;
- Involving Apprentices; and
- Closer dialogue between stakeholders.

4.1 RESPONDING TO RAPID SKILLS CHANGE

The growing wave of new technologies and trends is about to redefine mobility. Therefore, it is of vital importance that the millions of Europeans working in the automotive industry are sufficiently prepared. Given the fast pace of developments, and with other world regions keen to take the lead, leveraging the strengths of the European workforce is of utmost importance.

Simultaneously, domain experts and highly skilled engineers cannot keep up with the pace required to stay in sync with these changes. With the fast pace of industry change, skills grow obsolete quickly. More recent analysis shows the half-life of skills[75] is now only five years - Which means the skills learned today are only half as valuable five years from now.

The impact of the digital and energy transition on today's jobs is enormous;
With 2.7 million people working on the manufacturing of vehicles across 226 factories in the EU, the automotive industry accounts for 8.5% of total manufacturing jobs in the region[76]. If the UK is included combined automotive manufacturing employment increases to about 2.9 million[77]. All of these high-skilled jobs are impacted by these changes as well as the entire European automotive supply chain.

The future of the automotive industry is sustainable, smart and shared, and each of these characteristics is associated with both existing and new challenges.

These trends will all have an impact in terms of changes to existing job roles and associated skills and in a number of cases, in relation to the emergence of new job roles and skill sets. These trends also have implications for EU policy.

The European Sector Skills Council Automotive Industry Report (2013)[78] highlights how changes in the EU automotive sector will require a different mix of skills and a permanent upgrading of skills levels and competences. In particular, increased automation and the introduction of new technologies will lead to a shift to more advanced technical skills and more knowledge intensive work at the same time, that manual assembly line jobs will be reduce drastically, or in some cases disappear.

[75] This means that every five years, that skill is about half as valuable as it was before https://www.weforum.org/agenda/2017/07/skill-reskill-prepare-for-future-of-work/
[76] https://www.acea.be/uploads/publications/ACEA_Pocket_Guide_2020-2021.pdf
[77] https://www.great.gov.uk/international/content/about-uk/industries/automotive/
[78] European Sector Skill Council: Report, EU Skill Council Automotive Industry, 2013

The EU Commission High-Level Group GEAR 2030 Report[79] underlines how the on-going trends in terms of digitalisation, electrification, Computer Aided Design (CAD), the automation of production processes (smart manufacturing & Industry 4.0) and smart mobility, will bring significant structural changes to automotive enterprises and their workforce in the future.

This poses both challenges and opportunities for the reshaping of the apprenticeship offer across Europe.

While the above trends continue the outbreak of COVID 19 has also significantly impacted on output, working practices and skill requirements across the European automotive sector.

This has included the temporary closure of some factories, raw material shortages and supply chain disruptions together with worsening demand conditions[80].

Recent evidence from the European Automobile Association (ACEA) indicates that COVID continues to depress market conditions across the sector.

In the case of the UK problems relating to COVID are compounded by BREXIT. Although the BREXIT deal provides some certainty for the UK industry it has significant negative implications with additional costs for automotive manufacturers including tariffs, customs declarations, certification costs, audits to prove that rules of origin requirements are met, border delays disrupting just-in-time systems, EU customers switching to other suppliers and visa costs for EU workers[81].

There is also evidence that COVID is not only impacting on the scale of demand but the nature of demand across the automotive sector. ACEA reported that in the fourth quarter of 2020, nearly one in six passenger cars registered in the European Union was an electrically-chargeable vehicle (16.5%),

[79] In 2015, the EU Commission set up a new High-Level Group (HLG) for the automotive industry. The High Level Group named GEAR 2030 was formally established on the basis of the Commission Decision 2015/C 6943/2 (19 October 2015). The resulting report was GEAR 2030, High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the EU, 2017

[80] COVID-19 outbreak exacerbates European automotive industry woes | IHS Markit

[81] https://ukandeu.ac.uk/the-brexit-deal-and-uk-automotive/

with stimulus packages introduced by governments to boost demand in the sector in response to COVID-19 cited as a key factor driving these changes[82].

Alongside these impacts there is emerging evidence that COVID-19 will have a longer-term impact on working practices within the industry. For example, social distancing measures may remain in place for the foreseeable future and companies need to have in place measures to easily adapt to changing guidelines in order to prevent industry disruption[83].

Future implications for the industry are expected to go well beyond these issues with results of recent survey work indicating that a large majority of leaders from advanced industries (which includes the automotive sector) expecting major change in almost every facet of their organisations as a result of the COVID-19 crisis. Long term shifts are expected across every facet of business operation including the structure of meetings, the role of leadership, core processes and technology, skills, and organisational culture[84].

A long-term trend within the sector being accelerated by COVID-19 is increased automation. It was reported in November 2020 that 63% of automotive executives believe that within the next 2 years their organisations will use robotics in uncontrolled environments[85].

Irrespective of the specific impacts of COVID-19 it is clear that the rapid pace of skills change within the automotive sector will continue and this presents a clear challenge for apprenticeships to keep pace with these changes.

Available evidence suggests that in many countries within Europe this is not the case. A recent report on adaptation of national apprenticeship systems to advanced manufacturing[86] looked at apprenticeship systems and practices in the manufacturing sector in five EU Member States (Denmark,

[82] https://www.acea.be/press-releases/article/fuel-types-of-new-cars-electric-10.5-hybrid-11.9-petrol-47.5-market-share-f
[83] See for example: https://www2.deloitte.com/us/en/pages/about-deloitte/articles/covid-19/covid-19-impact-on-automotive-sector.html
[84] https://www.mckinsey.com/industries/advanced-electronics/our-insights/organizing-for-speed-in-advanced-industries
[85] https://www.accenture.com/ae-en/insights/automotive/technology-vision-post-digital-future
[86] Eurofound (2018), Adaptation of national apprenticeship systems to advanced manufacturing, Publications Office of the European Union, Luxembourg. https://www.eurofound.europa.eu/news/news-articles/are-apprenticeships-keeping-up-with-changes-in-manufacturing

France, Germany, Ireland and Italy) and two countries outside Europe (Australia and the USA). The Report concluded that while all seven countries have public industrial policy initiatives aimed at fostering advanced manufacturing, the link between these initiatives and initial vocational education and training (IVET) and apprenticeship policies and practices is relatively weak, with only Germany and Denmark having developed a comprehensive approach to modernising and adjusting apprenticeship training in response to new skills advanced manufacturing requirements.

In addition to the need to develop innovative ways to design and deliver apprenticeships that reflect the latest technological developments and associated skill requirements, the pace of skills change also implies the need for the development of innovative approaches to track existing skill trends and predict futures changes.

One example of such an innovative approach is set out in the case study below.

High Value Manufacturing Catapult – Skills Foresighting Process: The future skills foresighting process is an example of a structured process in the UK of engaging with research organisations and employers to understand new organisational capabilities needed in the automotive sector in 3 to 5 years' time and then engaging with employers and educators to identify the competencies (knowledge and skills) needed to implement these capabilities. (See link below for full case study)
https://drives-compass.eu/bpr-detail?id=YkVNU0thVGpFVnhWMUdiV3EwR3Z6QT09

4.2 RESPONDING TO INDUSTRY 4.0

The 4th Industrial Revolution or Industry 4.0 (i4.0)[87] will have far reaching impacts across all areas of the global economy. It is largely driven by four specific technological developments: high-speed mobile Internet, Artificial Intelligence (AI) and automation, the use of big data analytics, and cloud technology, with AI and automation expected to have the most significant impact on global employment[88].

[87] Industry 4.0, also sometimes referred to as IIoT or smart manufacturing, marries physical production and operations with smart digital technology, machine learning, and big data to create a more holistic and better-connected ecosystem for companies that focus on manufacturing and supply chain management.
[88] https://www.changerecruitmentgroup.com/knowledge-centre/how-will-the-fourth-industrial-revolution-impact-the-future-of-work

Although it is expected that AI and automation will significantly decrease numbers of full time staff as robots replace many existing jobs,[89] a recent World Economic Forum report predicts that 38% of businesses believe AI and automation technology will allow employees to carry-out new productivity-enhancing jobs and over 25% of companies think automation will result in the emergence of new roles[90].

The need to rise to both the challenges and opportunities posed by i4.0 is recognised by the EU Commission which has created a new Digital Europe programme with an overall budget of €9.2 billion over the period 2021-2027, in order to shape and support the digital transformation of Europe's societies and economies. The programme will boost frontline investments in supercomputing, artificial intelligence, cybersecurity and advanced digital skills[91].

One example of an innovative approach to the challenges and opportunities posed by Industry 4.0 at a regional level is the Basque Industry 4.0 Strategy:

Basque Industry 4.0 Strategy - Spain

This case study highlights the advantages of adopting a co-ordinated regional approach to tackling the skills and other challenges posed by and capitalising on the potential opportunities created by Industry 4.0. This regional strategy includes technology transfer measures, subsidies for experimental and innovative projects, and has emphasised the need for adaptive, highly skilled employees in the future. (See link below for full case study)

https://drives-compass.eu/bpr-detail?id=Mkg1bFp5V3k0VkV0SzJFS1VaODFOZz09

The automotive industry is rapidly transforming towards Industry 4.0 (i4.0) with massive advancements in technology development and processes[92].

[89] https://www.changerecruitmentgroup.com/knowledge-centre/how-will-the-fourth-industrial-revolution-impact-the-future-of-work
[90] http://www3.weforum.org/docs/WEF_Future_of_Jobs_2018.pdf
[91] https://ec.europa.eu/info/sites/info/files/budget-june2018-digital-transformation_en.pdf
[92] Navigating the future of work. Can we point business, workers, and social institutions in the same direction? By John Hagel, Jeff Schwartz, and Josh Bersin - Illustration by Tim Marrs; Deloitte Review 2017; https://www2.deloitte.com/content/dam/Deloitte/mx/Documents/human-capital/Future-of-work.PDF

Available evidence underlines the scale of the impact these changes are already and will have on the automotive industry. Recent research[93] highlights a number of key impacts on the workforce and skill requirements in the sector including the following:

- Digitisation will cause a decline in low-skilled jobs linked to an increased use of robots, programmed to perform manual and routine tasks – The implication is that many low skilled workers will need to upskill to tasks that utilise 'human skillsets' that for the moment at least, are protected from digitisation;[94]

- These social, creative and cognitive abilities that will become increasingly important include Leadership and strategic management; Operational expertise; Creativity; People development / coaching; Negotiation; Critical thinking; Problem solving; Emotional intelligence; Analytical abilities and Cyber security;

- Although Engineers are expected to remain crucial, the specific skillsets associated with engineers will evolve as technology evolves with developments such as autonomous vehicles; and

- More 'hybrid' jobs linked to new technological demands relating to i4.0 will also become more evident.

There are examples of apprenticeships that have been developed or refined to try and meet the changing workforce skill requirements resulting from Industry 4.0. Recent research focussing on company initiatives to align apprenticeships to changes in advanced manufacturing highlights a number of examples of such developments[95] including:

- A project run by Bosch that offers selected learners a two-year high-training apprenticeship contract, during which, in addition to carrying out an exclusive Master in Industry 4.0, the Bosch

[93] How will the Fourth Industrial Revolution change jobs in the automotive industry?; ARM Automotive https://www.arm.co.uk/media/1714/arm-automotive-white-paper.pdf
[94] THE FUTURE OF EMPLOYMENT: HOW SUSCEPTIBLE ARE JOBS TO COMPUTERISATION?; Carl Benedikt Frey and Michael A. Osborne September 17, 2013; https://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf
[95] Eurofound (2019), Company initiatives to align apprenticeships to advanced manufacturing, Publications Office of the European Union, Luxembourg; Eckhard Voss, (wmp consult – Wilke Maack GmbH), Jeff Bridgford (King's College London); https://euagenda.eu/upload/publications/untitled-202320-ea.pdf

Industry 4.0 Talent Program (bi.t) participants have the opportunity to spend six months in Germany in one of the Bosch Industry 4.0 plants of excellence;[96] and

- The Jules Vernes Manufacturing Academy in France - Commencing in January 2021 a 3,000 m2 academy was opened with the aim of responding to changes in skills required to meet the needs of Industry 4.0. The centre is accessible to apprentices as part of specific modules of their particular educational path, while it will also be available to employees of industrial companies[97].

Specifically, within the automotive sector there are also a number of examples of such developments including Jaguar LandRover which have recruited apprentices on to their Digital Degree Apprenticeships[98] and Bentley which have also recruited apprentices to focus on digital transformation within the enterprise[99].

The case study below highlights how a major international group dedicated to the design, development and manufacture of metal automotive components has responded to the training challenges posed by Industry 4.0 developments.

An In-company Apprenticeship Focused Training Centre

Gestamp Technology Institute (GTI) was founded in 2015 and represents the first training undertaken by Gestamp on a global basis and is the Gestamp On the Job Learning and Technology Research and Professional Development Centre. With a total area of 3400 m2, it is one of Europe's best training centres for steel solutions production technologies for the automotive sector and focusses on the development of talent and skills associated with new technological challenges relating in particular to the New Electric Vehicle (NEV) and Industry 4.0. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=bjAvUUZxbC9EYmNIOVhyTnFJbk5Odz09

However, available evidence suggests that due to the rapid pace of innovation across the automotive industry, academic institutions are generally struggling to develop curriculums to match in-demand

[96] https://www.bosch.it/bosch-industry-4-0-talent-program.html
[97] https://www.formation-industries-paysdelaloire.fr/la-fab-academy/actualites/299-la-jules-verne-manufacturing-academy-ouvre-bientot.html
[98] https://www.jaguarlandrovercareers.com/go/Digital-and-Technology-Solutions-Degree-Apprenticeship/4027501/
[99] https://www.volkswagenag.com/en/news/2019/02/bentley_apprentice_recruitment_2019.html

skills from the industry, underlining the need for educational institutions and industry to partner with one another to close this talent gap for the future workforce[100].

In terms of the potential impacts of these changes on apprenticeships, recent research suggests this is likely to imply the need to attract a higher level of applicant in order to be able to learn rapidly as jobs evolve and also the need to revise qualifications to take account of Industry 4.0 changes[101].

This last point is supported by recent survey work of German companies undertaken between mid-October and December 2017. The research indicates that nearly a third of companies responding to the survey indicated that new training apprenticeship occupations should be created as a result of digitalisation[102]. Far more German companies are in favour of some form of structural changes in the apprenticeship system in order to meet the changing skill requirements posed by increased digitalisation, with more than eight out of 10 companies in favour of the introduction of new supplementary qualifications and/or the modernisation of existing training occupations[103].

These changes highlight not only the need to ensure the content of relevant apprenticeships reflects changing skill requirements, but also, as advances in digital technology increases so do the possibilities for the innovative use of digital technology to deliver at least some aspects of apprenticeships.

These were issues highlighted as part of a European Skills Week 2020 (EVSW) online conference discussing green and digital skills in apprenticeships and vocational education and training, organised by the European Alliance for Apprenticeships (EAfA)[104]. In particular:

- Ashwani Aggarwal from the International Labour Organization highlighted an increased reliance on e-learning, and a greater use of new technologies involving mobile apps, virtual reality and augmented reality as part of the delivery of apprenticeships; and

[100] T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce", 2019.
[101] Apprenticeships and 'future work': are we ready? Erica Smith, 2019 https://rdcu.be/bQRIx
[102] Digitalisation of Apprenticeship in German Companies; 2019 joint Cedefop and OECD symposium The next steps for apprenticeship; October 2019 / Dr. Regina Flake, German Economic Institute
[103] CHAPTER 9. Digitalisation of apprenticeship in Germany; Status quo and support needs of companies © Dr Regina Flake and Dr David Meinhard - Cedefop/OECD (2021). The next steps for apprenticeship. Luxembourg: Publications Office. Cedefop reference series; No 118 http://data.europa.eu/doi/10.2801/085907
[104] See Apprenticeships and the twin green and digital transition European Alliance for Apprenticeships online event 9-10 November 2020 - Meeting report

- Attila Szekely[105] highlighted how OpenClassrooms [106]offers an all-online training model which removes both geographical and time constraints.

In recognition of the scope for the use of digital technology for work-based learning a new tool has been developed that helps VET schools and companies improve their use of digital technologies in their training programs. The tool is organised around four short and anonymous surveys. Teachers, learners, school leaders and in-company trainers can all give their input. Based on these, the tool generates a tailor-made, interactive report – a 360-degree snapshot of the training programme's strengths and weaknesses in the use of digital technology.[107] SELFIE for Work-Based Learning is available free of charge in all 24 EU official languages. Users can customise the tool to adapt it to their needs.

A project (the DAMAS project) to test virtual training and mobility in the automotive sector has recently been launched.[108] The project will support the development and use of digital applications for Vocational Education and Training (VET) teachers, boost the digital facilitation of learning processes and integrate supportive, innovative technologies along with digital applications including gamification and virtual reality. For this purpose, a digital platform that motivates different types of stakeholders in VET will be built.

One innovative example of the application of digital technology to welding training featured in the DRIVES Good Practice Resource is set out in the case study below:

[105] *Attila Szekely* is VP Enterprise at OpenClassrooms, the leading online education-to-employment platform in Europe
[106] OpenClassrooms is a France-based online education platform for vocational training, providing courses in IT, technology, entrepreneurship, and digital skills. Courses are conducted fully online, through a mix of video resources, online reading, real-life projects and individual mentoring sessions.
[107] https://ec.europa.eu/jrc/en/news/selfie-for-work-based-learning-launch
[108] https://www.earlall.eu/fostering-digital-mobility-in-vet-damas-project-kicked-off/

Soldematic

Soldamatic IE, by Seabery, is an example of the successful development and application of augmented Reality (AR) technology to advance training in the high demand field of welding. (See link below for the full case study)
https://drives-compass.eu/bpr-detail?id=bXpKZlUrRTZnczVYWDF4L1gzckYrUT09

4.3 ENSURING PROGRESSION AT ALL LEVELS

The evidence of changing skill requirements within the automotive sector shows how these changes will impact at all skill levels. This underlines the importance of developing apprenticeships serving the sector at every level, including higher levels, in order to meet these changing needs.

The current situation across the EU with respect to higher level apprenticeships is quite variable. While the apprenticeship offer in France, Italy, Germany and the UK include higher level pathways the focus in Sweden, Romania and Hungary is on lower/intermediate level (EQF levels 2-4).

- In Germany, higher or degree-level apprenticeships are part of the dual system university programmes that combine learning at both a higher education institution and a company;

- In France they also exist in the form of 'alternance' arrangements in some university programmes; [109]

- In Italy, one of the different types of apprenticeship models is a 'Higher education and research apprenticeship' for those aged 18 to 29. The apprenticeship for higher education and training leads to a university degree, doctorate or higher technical institute diploma; and

- In the UK, higher apprenticeships were first introduced (equivalent to foundation degrees or above) in 2010 and in 2015, Degree Apprenticeships were introduced as part of higher apprenticeship standards, seeing apprentices achieving a full bachelor's or master's degree (Levels

[109] *Alternance* training contracts are available for the recruitment of young people aged between 16 and 25 years (with certain exceptions which may extend this bracket to 30 years) and are based on alternating between formal lessons dispensed within a recognised training institution and on the job professional experience in the recruiting enterprise itself. https://www.tironem.com/apprenticeship-in-france/

6 and 7)[110] as a core component of the apprenticeship[111]. Both Higher and Degree Apprenticeships must last a minimum of one year; Degree Apprenticeships in particular will last longer, typically up to four years, though there is no fixed maximum duration. A range of higher level apprenticeships of relevance to the automotive sector are now either in place in England or under development.

Recent research undertaken by the International Labour Organisation (ILO) has identified a number of challenges in relation to applying an apprenticeship model to higher education[112] including the need for higher education institutes:

- to work in partnership with employers to design and organise training programmes;
- to find enough placements in industry for the work place component of apprenticeships, which is often the majority of apprenticeship time; and
- to play a supporting role to industry.

These challenges will need to be addressed in order to achieve a more widespread adoption of higher level/degree level apprenticeships.

It will also be important to ensure barriers to progression are addressed so that learners can progress through different levels using a mixture of apprenticeship and other provision, irrespective of whether they are starting at ground level, need higher level qualifications or something in between.

Two case studies below, one from Portugal and one from the UK illustrate successful initiatives relating to the automotive industry that ensure clear progression pathways.

[110] This is equivalent to EQF levels 6 and 7

[111] https://www.allaboutschoolleavers.co.uk/articles/article/298/what-is-the-difference-between-a-degree-apprenticeship-a-higher-apprenticeship

[112] ILO Toolkit for Quality Apprenticeships – Volume 2: Guide for Practitioners; Module 6. Innovations and strategies in apprenticeships; Edited by: Ashwani Aggarwal; Skills and Employability Branch, Employment Policy Department International Labour Organization 2020

Car Mechatronic Learning Path

The case study provides an example of how an integrated learning path enables the development of highly specialised Car Mechatronic Technicians in Portugal, by linking EQF level 4 Apprenticeship programmes with EQF level 5 Technological Specialisation Courses. This is delivered by ATEC which is a private non-profit association, the result of a joint-venture between Volkswagen, Siemens, Bosch and the Portuguese -German Chamber of Commerce and Industry. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=MTcyVkNQbUJ5THVudnZ3a3R3SjY0QT09

Skills Escalator

The case study highlights how several partners in one locality in the UK have come together to establish an Institute to support the development of specialist skills in some of the new emerging technology areas within the automotive sector that allows students to progress through different levels and move seamlessly between training partners within the Institute, rather than having to seek training outside of the initiative. (See link below for full case study)
https://drives-compass.eu/bpr-detail?id=YkExVDFteDJJdjV0VXhjMzErWEN3UT09

4.4 USING APPRENTICESHIPS TO SUPPORT UPSKILLING AND RESKILLING

The case for upskilling and reskilling of adults across the EU is compelling. According to estimates developed by Cedefop[113] , upskilling the EU-27 + the UK[114] adult population would lead to an average yearly gain of EUR 200 billion in the 10-year period between 2015 and 2025. It is also pointed out that although there is a lack of comprehensive data, these estimates should be regarded as underestimating the real economic and social costs of low skills in Europe.

According to these estimates, in the EU-27 + the UK, there are 128 million adults (46.1% of the adult population of this area) with potential for upskilling and reskilling, based on those with either low

[113] Empowering adults through upskilling and reskilling pathways, Volume 1: adult population with potential for upskilling and reskilling; Cedefop reference series 112; 2020
[114] This was prior to the UK leaving the EU

education, low digital skills, low cognitive skills or are medium- to high-educated at risk of skill loss and obsolescence, because they work in elementary occupations[115].

The upskilling and reskilling challenges faced across the European Automotive sector are widely recognised. In particular, large-scale transformation within the industry is taking place as a result of the impact of COVID together with longer term shifts towards zero-emission, digital mobility and the goal of achieving carbon neutrality by 2050[116].
It is pointed out that these issues together with foreseen structural changes will impact on the automotive workforce, with significant job losses at the same time as significant recruitment difficulties across the entire automotive supply chain.

In order to meet these challenges a 'Pact for Skills' based on a skills partnership for the EU automotive ecosystem was announced in November 2020. The aim of the Pact is to reach 5% of the workforce each year which would result in 700,000 employees being up- and re-skilled along the automotive ecosystem in the coming years. It is pointed out that based on a re-skilling investment of on average €10,000 per employee; this represents an overall commitment of around €7bn from the private and public authorities[117].

We would argue that Apprenticeships need to support upskilling of existing employees as well as provide training for new entrants and that Apprenticeships can play a significant role in fulfilling the up and re-skilling ambitions of the Automotive Pact for Skills.

Recent work undertaken by Cedefop underlines the role apprenticeships could play in upskilling the existing workforce, highlighting adult participation in apprenticeships as one possible policy solution to the need to support adults willing to train, at the same time as broadening the skills base of the working population across Europe[118].

[115] Empowering adults through upskilling and reskilling pathways, Volume 1: adult population with potential for upskilling and reskilling; Cedefop reference series 112; 2020
[116] The Pact for Skills, Skills Partnership for the Automotive Ecosystem, 10 November 2020 https://ec.europa.eu/social/main.jsp?catId=1534&langId=en
[117] The Pact for Skills, Skills Partnership for the Automotive Ecosystem, 10 November 2020 https://ec.europa.eu/social/main.jsp?catId=1534&langId=en
[118] https://www.cedefop.europa.eu/files/9147_en.pdf

It is pointed out that all EU Member States have begun taking steps in this direction, but this will require approaches to facilitate greater take up such as promoting more flexible learning options that take into account adult life situations and learning needs[119].

It is argued that adult apprenticeship participation needs to be supported firstly by removing age limits, secondly by building flexibility into apprenticeship provision at the same time as promoting its distinct value (avoiding re-labelling of existing training that is not actually apprenticeship training) and thirdly by offering incentives to employers to use apprenticeships as a way to upskill their workers and offer them career advancement opportunities[120].

A number of potential benefits for employers have been highlighted in relation to the use of apprenticeships to upskill and retrain the existing workforce[121]including to:

- Fill key skill gaps in the business;
- Provide a boost to employee motivation by investing in their development; and
- Improve workforce retention.

It has been pointed out that an experienced employee may be keen to get a formal qualification in their specialist area, or may want to learn something new and progress into a different role[122].

One of the hurdles to overcome when recruiting existing staff onto an apprenticeship is dealing with misconceptions, including the assumption that apprenticeships are for someone younger or newer to the organisation, are restricted to those in 'craft' trades, or involves going back to school[123].

Respondents to a survey conducted with apprenticeship stakeholders[124] as part of the DRIVES Project identified a number of other barriers hindering a wider take up of apprenticeships amongst existing workers, including barriers relating to:

- Age limitations;
- Difficulties getting time off work;

[119] https://www.cedefop.europa.eu/files/9147_en.pdf
[120] https://www.cedefop.europa.eu/files/9147_en.pdf
[121] https://www.apprenticeships.gov.uk/employers/upskilling-your-workforce#
[122] https://www.apprenticeships.gov.uk/employers/upskilling-your-workforce#
[123] https://www.fenews.co.uk/fevoices/24454-apprenticeships-for-existing-staff-what-are-the-considerations
[124] The on-line survey was conducted during 2021 and received 42 responses form 9 different European countries. These were aa mixture of education and training providers and employers involved in the automotive industry. 20 respondents currently employed apprentices and 27 currently delivered apprenticeships.

- The low renumeration often associated with apprenticeships;
- The focus of apprenticeships on new entrants or the perception of this;
- Cost and funding limitations;
- Limitations on the availability of apprenticeships for large numbers of existing employees and/or difficulties these employees face accessing this provision; and
- Technology challenges including the difficulties in terms of apprenticeship provision keeping up with technological change in the sector.

If apprenticeships are to be used more for training of existing employees, this implies that they need to be flexible enough to meet the diverse workforce training needs of different employers, but recent evidence indicates that a lack of flexibility in apprenticeship content is identified as a major barrier to increased participation by employers, with 32% of employers citing this as a significant issue according to recent market research[125].

This has led some to argue for a move away from a 'one size fits all' apprenticeship approach towards a more 'agile' modular approach to apprenticeship design and a move towards a personalised apprenticeship model with the flexibility to evolve over time. It is argued that this would provide the opportunity to pick modules relevant to the specific occupational knowledge needed, combined with the soft skills lacking in their particular organisation, together with specific modules built around specific employees skill requirements, with other digital skills added on top[126].

It is pointed out that this approach has been successfully applied in other areas of learning with one in five of the undergraduate degrees awarded at the Open University in the UK now open degrees, which allow students to largely customise their own requirements by picking different modules[127].
Recent research undertaken by the International Labour Organisation (ILO) also identifies a number of advantages of adopting a modular approach towards apprenticeships[128] including:

- It allows increased specialisation through elective modules;
- Helps facilitate the update of qualifications, by enabling the modification of individual modules in response to new developments, without having to revise the whole qualification;

[125] https://www.hrmagazine.co.uk/article-details/the-case-for-modular-apprenticeships
[126] https://www.hrmagazine.co.uk/article-details/the-case-for-modular-apprenticeships
[127] https://www.hrmagazine.co.uk/article-details/the-case-for-modular-apprenticeships
[128] ILO Toolkit for Quality Apprenticeships – Volume 2: Guide for Practitioners; Module 6. Innovations and strategies in apprenticeships; Edited by: Ashwani Aggarwal; Skills and Employability Branch, Employment Policy Department International Labour Organization 2020

- It enables certification of part-qualifications, which serves as a mechanism by which those who have dropped out or switched to a different programme, can transfer their credits to another apprenticeship programme; and
- It allows apprentices to be exempted from completing selected modules through Accredited Prior Learning, when they already possess the required knowledge and skills to fulfil certain components of the qualification.

It has also been pointed out that it would help facilitate transfer between employers, which may be convenient for SMEs and would protect apprentices should their employment be curtailed.[129]

Adoption of a more modular approach in order to encourage wider use of apprenticeships for upskilling/reskilling was supported by 64% of respondents to a survey conducted with apprenticeship stakeholders as part of the DRIVES Project.

In Austria, apprenticeship programmes have been modularised in some fields including vehicle technology since 2006, to allow for the possibility of specialization, in addition to acquiring the main apprenticeship qualification.[130]

However, the ILO Toolkit for Quality Apprenticeships also points out that the modularisation of apprenticeships might lead to the fragmentation of curricula and competencies, undermining the more holistic conception of professions, and focus on simply acquiring a set of specific skills.

In the context of the automotive sector which is subject to rapid skills change driven by technological change and faces major upskilling and reskilling challenges, adopting a modular approach to apprenticeships could enable a more flexible offer and allow greater uptake by existing employees. However, this would need to be achieved at the same time as ensuring the fundamental goal of apprenticeships as a way of equipping learners with a comprehensive set of skills, knowledge and behaviours to enable entry and progression in a particular occupation is not compromised.

[129] Source: EXPERIENCE ENHANCED; Improving engineering degree apprenticeships, Engineering Professors Council, September 2018

[130] ILO Toolkit for Quality Apprenticeships – Volume 2: Guide for Practitioners; Module 6. Innovations and strategies in apprenticeships; Edited by: Ashwani Aggarwal; Skills and Employability Branch, Employment Policy Department International Labour Organization 2020

In addition to the adoption of a modular approach a range of other suggestions were made by respondents to a recent DRIVES survey of Apprenticeship stakeholders when asked to identify how the design of apprenticeships can be improved in order to provide support for existing workers needing to upskill or reskill. These suggestions included those relating to:

- **Industry experience:** '*Apprenticeships need to be taught by those with significant industry experience*'; '*Multiple blended deliverers (are needed) who can add value with specific knowledge and teaching'*
- **Innovative delivery methods***: 'Provision of learning materials and processes through multiple channels, adapting to the differing needs of learners'*
- **Recognition of existing skills:** *'Allow existing skills to be, where possible introduced to offer value the mature learner'*
- **Career guidance:** '*There should be clearer guidelines as to where this person fits into the qualification i.e. age, experience, qualifications.' 'Providing career guidance paths/ tutoring services for current workers, either delivered by the company itself, or jointly co-designed by external consultants. The purpose should be to design a clear progression path that workers might undergo based on either skills, purpose or willingness to learn, that should be available from the initial stages of a career'.*

In recognition of the greater flexibility needed for adult upskilling there is growing interest in the use of micro-credentials.[131] These are qualifications evidencing learning outcomes acquired through a short, transparently-assessed course or module and can be completed on-site, online or in a blended format.[132] On 20 April 2021, the European Commission launched a 12-week public consultation on a European approach to micro-credentials for lifelong learning and employability.

Use of micro-credentials could be an important component of an approach towards increasing the flexibility of the current apprenticeship offer serving the automotive sector.

[131] As part of the DRIVES project a number of micro-credentials linked to digital badging have been developed.
[132] https://ec.europa.eu/education/education-in-the-eu/european-education-area/a-european-approach-to-micro-credentials_en

4.5 UNDERSTANDING THE EUROPEAN AUTOMOTIVE APPRENTICESHIP OFFER

Based on research undertaken as part of the DRIVES project it is clear that within individual European nations, skills provision serving the automotive sector can be characterised by a complicated mix of colleges, universities, private providers and employers' own training which can be particularly confusing for employers and potential trainees alike. While the apprenticeship offer within particular nations is relatively structured, understanding and comparing different apprenticeship offers across different European countries is currently a significantly more difficult challenge.

There are a wide range of different apprenticeship models adopted across Europe and also differences in understanding of what an apprenticeship actually is.

CEDEFOP has undertaken a wide range of research identifying different approaches towards apprenticeships and different apprenticeship models across Europe. This includes a major cross nation review published in 2018 that established a framework for categorising different apprenticeship approaches by country[133].

The study explores different apprenticeship definitions used in different countries and identifies the changes that apprenticeships are undergoing in practice in order to highlight the different functions and purposes that apprenticeship policies fulfil in different countries. As a reference point for this analysis the study uses the following definition of apprenticeships:

'*Systematic, long-term training alternating periods at the workplace and in an education institution or training centre. The apprentice is contractually linked to the employer and receives remuneration (wage or allowance). The employer assumes responsibility for providing the trainee with training leading to a specific occupation*'[134].

The analysis indicates that there are wide variations across countries not only in terms of overall apprenticeship models adopted, but in terms of patterns of school-company alternation, typical duration of apprenticeships, volume of in-company training per year, requirements placed on both employers and wider labour market stakeholders and age and educational level eligibility criteria.

[133] Apprenticeship Schemes in European countries – A cross-nation Review – CEDEFOP 2018
[134] Apprenticeship Schemes in European countries – A cross-nation Review – CEDEFOP 2018

There are also significant differences in the overall apprenticeship offer, funding mechanisms, quality assurance procedures, overall governance arrangements and uptake.

Since this date further apprenticeship country comparison work has been undertaken by CEDEFOP which can be accessed through Cedefop European database on apprenticeship schemes.[135]

Cedefop European Database on Apprenticeship Schemes

This case study highlights an apprenticeship information resource developed by CEDEFOP, presenting structured, comparable information on apprenticeship schemes in EU Member States plus Iceland, Norway and the UK. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=a3AyTk1zUVNHYjF0eDh6eERHOVByUT09

The recently adopted European Framework for Quality and Effective Apprenticeships (EFQEA) recommendations provides a more detailed accepted framework against which the current automotive Apprenticeship market place within selected countries can be benchmarked. There are 14 recommendations that have been adopted that form a standardised criterion for both learning and working conditions and framework conditions. As part of the DRIVES Project this benchmarking process has been applied to 6 key EU automotive countries selected to highlight divergences in approach to apprenticeships, these being Sweden, Spain, Portugal, Czech Republic, Germany and the UK. These countries were selected in order to represent different approaches to apprenticeships and also to reflect a range of differing sizes in terms of automotive sector employment. The results of this assessment are summarised in the diagram below.[136]

[135] https://www.cedefop.europa.eu/en/publications-and-resources/data-visualisations/apprenticeship-schemes/country-fiches-comparison

[136] D5.2 Understanding the Marketplace - Key Issues Report; DRIVES, Mick FELOY (SEMTA - Trading as ENGINUITY), Georg MACHER (TUG), July 2020

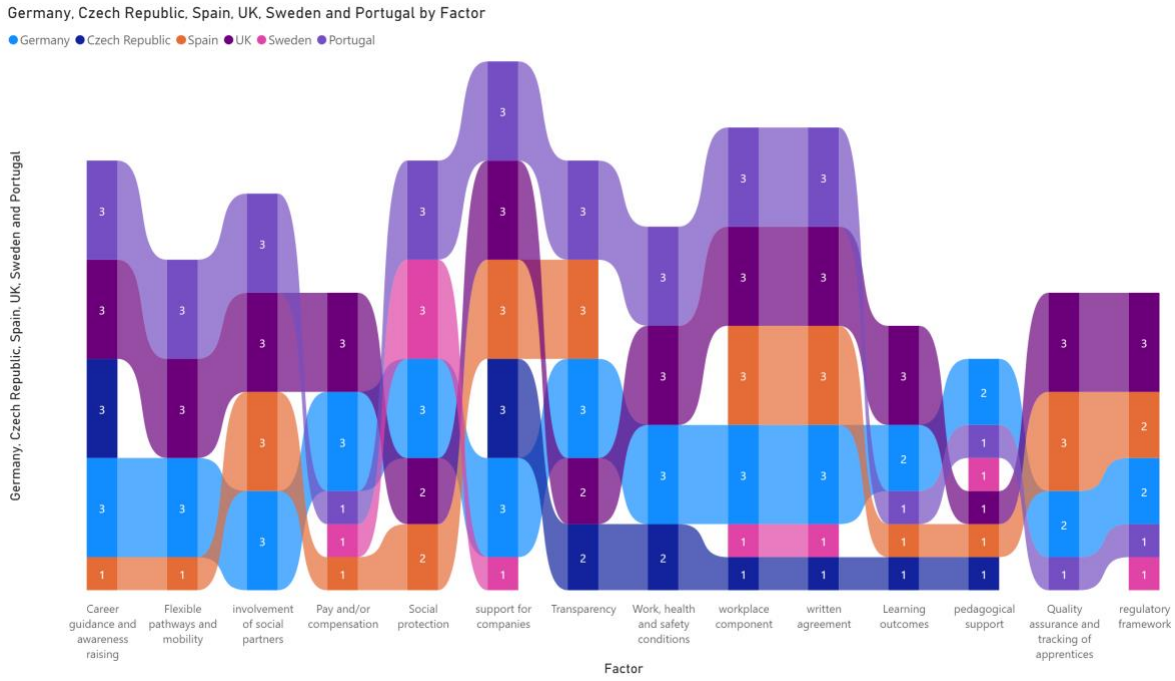


Figure: Benchmarking the apprenticeship systems from six different countries

The graph provides scores for each of the 14 standardised criteria for learning and working conditions for each country, with 3 the highest score and 0 the lowest score.

The assessment is based on available evidence and points to generally higher scores in Germany and the UK (each scoring 3 for between 10 and 11 of the criterion) reflecting the relatively formalised apprenticeship infrastructures in both countries and somewhat lower scores in the Czech Republic, and Sweden (Each scoring 3 in relation to less than 3 of the crteria). However, it should be noted these assessments should only be treated as a guide, given the current difficulties involved in the assessment process based on information available.

In order to enable comparison of relevant automotive related apprenticeships in different European countries in one place for use by both employers and individuals, DRIVES has developed an Automotive Apprenticeship Comparison Tool. Specifically for the automotive sector, for each relevant apprenticeship this provides information on:

- What the apprenticeship involves and the relevant job role(s);
- Qualifications gained on completion;
- EQF Level;
- Duration of the programme;

- Funding information; and
- Knowledge, skills and behaviours covered by the apprenticeship programme.

Comparisons of the offer in the countries covered will be possible using a number of the above criteria. The tool has been designed to supplement more general information collected by CEDEFOP and provide a practical tool for employers and individuals in the automotive sector to help engagement in the apprenticeship process. To date, information collected for the Tool covers relevant automotive related Apprenticeships in Spain, Portugal, Czech Republic, Austria, Germany and the different UK nations.

The tool will be launched later in 2021.

4.6 ENCOURAGING SME INVOLVEMENT IN APPRENTICESHIPS

Small and Medium Sized Enterprises (SME's) face particular challenges in relation to taking on Apprentices. This includes greater difficulties in recruiting candidates which meet their particular needs, and providing the required learning and development for their employees. Many SME's also struggle to offer the range of skills required by Apprenticeships in a work setting, given their particular specialisms.

Recent action research undertaken as part of the EU Erasmus funded COTRAIN project[137] relating to collaborative approaches to apprenticeship training further underline the particular challenges SME's face and how collaborative arrangements can benefit apprentices, SME's and industry as a whole[138].

In relation to challenges faced by SME's trying to train apprentices alone the research[139] highlights issues relating to the:

- Increased workload apprenticeships generate;
- Involvement of in-company trainers;
- Impact of training on daily production activities; and

[137] The idea behind developing the COTRAIN project was to contribute to increasing the quality of dual training, based on an understanding of the inadequacies of a "one-company one-training" model in relation to tackling skills mismatches
[138] 2019 joint Cedefop and OECD symposium: The next steps for apprenticeship; 7 October 2019, Paris
[139] Creating collaborative training - Learning and working in a network of companies to meet training requirements more adequately; CoTrain; Cepag, Isabelle Michel, Education/Training Advisor COTRAIN project manager

- Lack of resources of many SME's and that they often do not have all the equipment and machines required for teaching the occupation targeted.

Those SME's that have not previously trained apprentices are often reluctant to take on apprentices, with a particular concern being the potential costs of offering training placements, notably if an apprentice subsequently leaves the company[140].

These challenges have significant implications for the effective operation of the automotive and wider engineering sector. It has been pointed out that given the proportion of engineering jobs that are located within SMEs, failure to make Apprenticeships attractive to these employers is potentially damaging not only to the future of apprenticeships, but the whole economy[141].

In some cases, employer involvement in the development of apprentices has tended to reflect the needs of large employers rather than SME's. The evidence to date indicates this has been the case with the development of many of the new apprenticeship standards in England.[142]

It is pointed out that in England the Trailblazer groups responsible for the development of apprenticeship standards to support different sectors tend to comprise primarily of large employers, usually offering programmes to a large number of apprentices and are characterised by well-resourced HR departments and organisational structures, that allow support systems for apprentices to be put in place, resources often not available to SME's[143]. Feedback indicates this is to a large extent due to difficulties engaging with SME's.

It has also been commented that while sector specific needs are important, small companies often need bespoke training that aids their ability to be durable, fast-moving and flexible, with many current apprenticeships not offering this level of flexibility. This has led some people to argue for a more modular approach to the design of apprenticeships in order to allow increased flexibility to cater for specific company skill requirements [144].

[140]Good for Youth Good for Business; European Alliance for Apprenticeships, September 2019
[141] EXPERIENCE ENHANCED; Improving engineering degree apprenticeships, Engineering Professors Council ,September 2018
[142] https://publications.parliament.uk/pa/cm201415/cmselect/cmeduc/597/59708.htm
[143] EXPERIENCE ENHANCED; Improving engineering degree apprenticeships, Engineering Professors Council, September 2018
[144] https://www.hrmagazine.co.uk/article-details/the-case-for-modular-apprenticeships

Recent EU funded projects[145] have piloted a number of initiatives to support SMEs engage in apprenticeships. The projects focussed activity on two types of partnerships[146]:

- Building up intermediary bodies, such as chambers of commerce and professional organisations, to develop SME support structures and establish partnerships with bigger companies to assist SMEs in increasing the supply of apprenticeships; and

- Targeted cooperation between the umbrella organisation of existing European networks and organisations and their national members or affiliates for developing and setting up support for SMEs.

Some of the main activities included creating and strengthening networks and alliances, developing resources and tools, fostering teaching and training, as well as learning and sharing experiences and enhancing support through tutors and coaches.

One practical step that would enhance the support available to SMEs within the automotive sector would be the establishment of an Automotive Centre of Vocational Excellence (CoVE).[147] These are designed to act as catalysts for local business investment, and ensure supply of high-quality skilled workers, but also support entrepreneurial initiatives of their learners (incubators), and act as knowledge and innovation hubs for companies (in particular SMEs).

Two particular examples of successful approaches to engaging SMEs in Apprenticeships, one from Italy and one from Wales are highlighted below.

[145] In 2015, a specific Erasmus+ call under key action 3 – national support to policy reform – financed 16 projects on the engagement of SMEs in apprenticeships. . In total, the projects were worth € 8.3 million. The two-year projects were implemented between 2016 and 2018. Erasmus+ Programme KA3 – Support for Policy Reform'; Highlights from the Support for small and medium sized enterprises engaging in apprenticeships - Call for proposals EACEA 41/2015 Final Reports. https://ec.europa.eu/social/vocational-skills-week/sites/evsw/files/highlights_support_for_smes_in_apprenticeships_clean.pdf

[146] Good for Youth Good for Business; European Alliance for Apprenticeships, September 2019

[147] https://ec.europa.eu/social/main.jsp?catId=1501

Collaborative training COTRAIN

This case study highlights how a collaborative training agreement between two companies in Italy, one specialising in technical drawings and in innovative mechanical production technologies and the other in electric upsetting and forging benefited both the companies involved and the trainee. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=emhKVUthK0M3RGhwc1k0d3hFckJndz09

Shared Apprenticeships

This case study highlights a 'Shared Apprenticeship' training model in Wales where a central management organisation holds the responsibility of the apprentices training contract but where apprentices move between different employers who share the responsibility for the Apprentice's true work experience and performance criteria. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=QmRRM1lMWGRXZXpSSGlseG91alNZdz09

A further practical initiative to be launched shortly as part of the work undertaken through DRIVES is an Apprenticeship Toolkit. This is being developed to support SMEs through each stage of the process of apprenticeship engagement, right through from initial workforce analysis, recruitment and selection to on-boarding of apprentices.

4.7 INCREASING INTERNATIONAL MOBILITY

Increased globalisation has impacted across all sectors, but particularly in relation to the automotive sector, with increasingly complex and global Supply Chain Management patterns.

As automotive supply chains become increasingly globalised in nature, by contrast apprenticeships tend to be focussed nationally or even more locally, with wide variations in approach, delivery mechanisms, employer involvement and commitment. This poses challenges for employers when choosing whether to participate in the apprenticeship systems of those countries they operate in and for the mobility of apprentices seeking employment across national boundaries. Recognition of apprenticeships by different employers is also a problem in some cases.

Recent research undertaken in relation to the future direction of apprenticeships[148] highlights the challenges this can pose for apprenticeships. The report points out that many workers are employed in companies whose headquarters are in other countries, and hence their employers may or may not choose to participate in the apprenticeship systems of the country of operation.

At present there are a number of aspects of the current apprenticeship market serving the European automotive sector that impede efficient operation, with a number of factors potentially restricting labour mobility across the European automotive sector. In particular:

- Some overall apprenticeship models are likely to encourage greater inter-industry mobility than other models. It is possible to split apprenticeship models into two broad types[149] these being:
  - An approach towards apprenticeships that fits the criteria of an education and training system which is aimed at providing people with full competency and capability in an occupation or trade suitable for apprenticeships (Model A); and
  - Apprenticeship as a type of VET delivery aimed at providing a diverse way to achieve formal VET qualifications by bringing people into the labour market (Model B).

Countries that have adopted an approach towards apprenticeships that fits the criteria of Model A are likely to provide apprentices with greater prospects for mobility between companies than those countries adopting the Model B approach, typified by less regulation and greater variations in apprenticeship length and content.

In relation to those European countries with significant concentrations of automotive manufacturing, most have adopted an approach towards apprenticeships that fit Model B – in other words a model less conducive to international mobility.

Only two of the key European automotive countries operate apprenticeships through Model A: Apprenticeship as an education and training system. These are Germany and Poland.

[148] Apprenticeships and 'future work': are we ready? Erica Smith; First published: 21 January 2019 https://doi.org/10.1111/ijtd.12145
[149] See Apprenticeship Schemes in European countries – A cross-nation Review – CEDEFOP 2018

A total of seven key European automotive countries operate apprenticeships through Model B: A type of VET delivery within the formal VET system, these being France, Romania, UK (both England and Scotland), Spain, Hungary, Italy and Sweden.

In the case of the other key automotive sector country (Czech Republic), there is no formal apprenticeship programme in the Czech Republic that includes a contract between the apprentice and the employer and there is no shared responsibility between employer and the school related to the training delivered.

Labour mobility is currently further restricted by the wide inter-country variations, not only in terms of the overall apprenticeship models adopted, but in terms of patterns of school-company alternation, typical duration of apprenticeships, volume of in-company training per year, requirements placed on both employers and wider labour market stakeholders and age and educational level eligibility criteria.

One way of tackling these issues would be to develop a single market for automotive apprentices across the EU by linking regional, national and European apprenticeship initiatives. However, given the diverse national approaches currently in place for the development and implementation of apprenticeships this is unlikely to be practicable, at least in the short term.

One practical approach from a company perspective, enabling recognition across national boundaries is 'dual certification'. One example of this being successfully implemented in Spain within the automotive sector is highlighted below.

Dual Certification

This is an example of partnership between the German Chamber of Commerce in Spain and both Volkswagen that developed the first German/Spanish dual certificate and also SEAT. The programme was developed by a group of experts who analysed the competences covered in both countries as a basis for the development of a three-year curriculum for Volkswagen incorporating best practices from both countries. Programmes were developed covering five different job roles. SEAT is also now fully involved in the Dual Certification programme. (See link below for full case study).
https://drives-compass.eu/bpr-detail?id=a1d1Yk9GREhvcldGUE1iTmFxcG9aZz09

Key benefits for employers of this approach include the following:

- It ensures the quality of the programme from both German and Spanish perspectives;
- It increases talent development locally and supports the development, presence, and strength of participating German companies internationally;
- It creates good vocational opportunities and opens alternative pathways for students in areas of skills shortage; and
- Continuous quality management and communication with Chambers of Commerce in different countries provides an opportunity to identify best practices and incorporate these into the development of all other applicable programmes.

In terms of benefits, for participating students, for those:

- Interested in working in Germany it provides an opportunity for this career path; and
- That aspire to stay and develop their career in Spain, the dual certification ensures training on a high-quality programme, particularly for students that want to work for a German company in Spain.

There has been an increasing focus on how to support increased international mobility through the design of vocational programmes and qualifications to improve cross-border mobility in relation to apprenticeships. An event focussing on this issue involving a wide range of apprenticeship stakeholders was held in March 2019 co-organised by the European Commission and the European Parliament.[150]

A wide range of benefits in terms of increased cross-border apprenticeship mobility were highlighted, including as a way of apprentices gaining independence, learning new skills (particularly soft skills), and also foreign language skills through international work experience. It was pointed out that the companies involved also benefit, as cultural exchange fosters creativity, reinforces the companies' skills base and attracts international talent.[151]

However, it was also pointed out that currently, figures from the Erasmus+ mid-term evaluation indicate that relatively few apprentices have taken up apprenticeships in other Member States. In most cases, their cross-border mobility experience is limited to a period shorter than 3 months, while less than 1 % of apprentices spend more than 6 months abroad.[152]

[150] This included stakeholder groups, such as Erasmus+ national agencies, representatives from the European Parliament pilot project on long-term mobility for apprentices, members of the European Alliance for Apprenticeships (EAfA), the European Apprentices Network, other youth representatives as well as European and national policy makers.

[151] Mobility of Apprentices in Europe, 21–22 March 2019 A contribution to youth employment and competitiveness of businesses; European Parliament, PHS room 5.B1 Meeting report 21-22 March 2019.

[152] Mobility of Apprentices in Europe, 21–22 March 2019 A contribution to youth employment and competitiveness of businesses; European Parliament, PHS room 5.B1 Meeting report 21-22 March 2019

It is proposed that as part of the next Erasmus + (2021–2027) transnational platforms of Centres of Vocational Excellence will bring together VET providers, authorities, companies, social partners and other stakeholders to contribute to the design of vocational programmes and qualifications with a strong element of mobility experience abroad.

What is clear from the analysis above is that working towards an approach to the development of apprenticeships within the automotive sector that meet the demands of both employers and employees for cross-border recognition, at the same time as the need to meet particular national apprenticeship requirements and circumstances remains a challenge.

The case study below is a good example from Portugal of the development of appropriate training that meets both localised and global quality compliance requirements within the automotive industry.

Automotive QMS requirements

The case study illustrates how a tailor-made training and implementation programme combines Global OEM specific requirements with IATF 16949 requirements. The case study provides a good example of how to combine organisational training and implementation in relation to compliance requirements with automotive industry requirements, through support and training of all involved parties, from a Quality Management System perspective to a shop floor-oriented approach. (See case study below for full case study)

https://drives-compass.eu/bpr-detail?id=SEpFSGcreU82Umx6S2paV3J3MFIvUT09

4.8 RESPONDING TO COVID19

The economic and social costs of the COVID 19 crisis have been well documented. Specifically, within the European automotive sector the crisis has significantly impacted on output, working practices and skill requirements.

What is less well documented is the impact the crisis has had on apprenticeships. However, available evidence points to a major impact on apprenticeship in terms of both delivery and take-up.

Prior to the COVID 19 outbreak apprenticeship delivery was typically characterised by a high level of learning on the job, in the workplace, including learning by shadowing staff or gaining practical skills from a colleague. At the same time, different apprenticeship stages such as enrolment, progress reviews and assessment have traditionally involved face to face contact with tutors[153].

During periods of lockdown imposed as a result of COVID 19 this traditional approach has not been possible, with all delivery having to change to an online approach. For some apprenticeship providers and employers this has proved a major challenge, while for others, this transition has been somewhat easier[154]. In particular:

- For those already providing a blended delivery approach - a mixture of classroom and e learning – this has involved the transfer of part of their delivery on line;

- For those not already adopting a blended learning approach this has involved changing all processes and the rapid adoption of brand-new digital systems.

The implications of COVID 19 in relation to the delivery of apprenticeships has gone far beyond just the digital delivery of learning material, but has also led to the introduction of a range of other methods such as electronic signature technology, video conferencing, e-mail, phone and shared electronic

[153] https://www.fenews.co.uk/featured-article/55491-from-survival-to-revival-reflecting-on-apprenticeship-delivery-during-covid-19
[154] https://www.fenews.co.uk/featured-article/55491-from-survival-to-revival-reflecting-on-apprenticeship-delivery-during-covid-19

documents to ensure effective collaboration between apprentices, employers and training providers[155].

The increased focus on on-line delivery methods has also led to an increase in the need for associated support for apprentices without computer access such as the provision of Google Chrome books or iPads by training providers[156].

There is some evidence that the changes in apprenticeship delivery methods prompted by the outbreak of COVID 19 have led to a change in attitudes to remote delivery for some learners and tutors, away from a focus on cutting costs to a recognition of how this approach can enhance the quality of learning through more regular interaction between students and tutors through techniques such as bite-size interactive digital content and reflective video diaries[157].

In April 2020, Cedefop community of apprenticeship experts[158] took the initiative to launch an internal consultation about how European countries are managing apprenticeships under the current global health emergency due to the COVID-19 crisis. Key messages from the resulting report[159] include the following:

- All countries are making efforts to keep up with learning at education and training providers, while they are closed and to maintain the contracts with the companies;
- Distance learning, however, is piecemeal;
- A critical role is played by teachers and by collaboration at school-company level in ensuring training continuity; and
- Apprentices have largely discontinued their company attendance in the sectors whose activities have been shut down.

[155] https://www.skillsdevelopmentscotland.co.uk/news-events/2020/august/innovation-at-the-heart-of-apprenticeship-learning-through-pandemic/
[156] https://www.skillsdevelopmentscotland.co.uk/news-events/2020/august/innovation-at-the-heart-of-apprenticeship-learning-through-pandemic/
[157] https://www.fenews.co.uk/fevoices/48164-has-covid-19-created-a-new-normal-for-apprenticeship-delivery
[158] https://www.cedefop.europa.eu/en/events-and-projects/networks/cedefop-community-apprenticeship-experts
[159] https://www.cedefop.europa.eu/files/cedefop_community_apprenticeship_experts_synthesis_how_are_european_countries_managing_apprenticeships_to_respond_to_the_coronavirus_crisis.pdf

In order to capture the variety of VET initiatives that have been undertaken across the EU in response to COVID, the European Commission launched an online survey in March 2020[160]. Some of the key findings are summarised as follows:

- All countries are setting up online environments, ranging from using very simple messaging services such as WhatsApp (e.g., when learners do not have a computer at home) or through other more elaborate IT learning platforms, or even using national television for broadcasting and replacing usual classroom lessons;
- Some countries have developed TV and YouTube channels for learners to follow general and VET lessons. Teachers and trainers record their lessons on video and broadcast them;
- Work based learning is maintained in only very few countries and in sectors where companies' activities are still going on; and
- Although on the positive side the COVID 19 crisis has provided an opportunity for everyone to develop or deepen their digital skills, it has also underlined the digital divide and the inequality and disadvantage this creates for households and learners that do not have access to computers and Internet.

The example below from the UK highlights how COVID 19 has triggered the successful development and application of apprenticeship assessment through use of mobile phones.

[160] https://ec.europa.eu/social/vocational-skills-week/fight-against-covid-19_en#2

Assessing Apprentices Remotely

The case study highlights, one approach that has been successfully implemented in the UK to ensure that apprenticeship assessments can continue through the restrictions imposed by COVID 19.

An approach that has been developed and successfully trialled is the use of remote and video-based observations as part of the End Point Assessment[161] process. The International Assessment Centre (IAC)[162] has begun delivering their first remote and video-based observations for End Point Assessment. One example of the successful implementation of this approach is in relation to the Engineering Utility Technician Apprenticeship. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=WnFJei94UnhYeXJVb0lqbW5RWXp4Zz09

4.9 ADDRESSING DIVERSITY AND IMAGE

While steps have been taken to try and address the continued under-representation of women and minority groups within the European Automotive sector these issues still remain, with significant improvements in the image and perceptions of the sector needed if it is to become fully inclusive and maximise the available talent pool.

There is a mixed pattern of female engagement with STEM subjects[163] and subsequently STEM related jobs, such as engineering, across Europe.

In Germany the figure for women employed by automotive manufacturers is 18% and in France 16%,[164] while in the UK 19% of the national automotive sector is female.

Looking more broadly at the proportion of females employed in engineering and science related occupations this figure increases to just over 40% on average within the EU.[165] However, this under-

[161] End-Point Assessment is the final test for apprentices during their apprenticeship. It is designed to be an objective and impartial assessment of an apprentice's knowledge, skills and behaviours. Activities are different for every apprenticeship, but they all follow the same overall structure.
[162] The IAC is an organisation that provides industry expert assessors to EpAOs to carry out EPA support services via their Independent Technical Expert Network
[163] Science, technology, engineering and mathematics
[164] Women in the Automotive Industry: Quick Take | Catalyst
[165]'Gender Equality in STEM is possible. These countries prove it', Big Think, March 2019 Growing number of women in stem - Big Think

representation is not universal. In the case of Lithuania, Bulgaria, Latvia, Portugal, Denmark and Norway, Eurostat data indicates women outnumber men in these occupations,[166] indicating gender equity is perfectly possible.

Specifically in relation to apprentices within the automotive sector, an under-representation of females is again evident, although patterns by country and individual employer vary.

In the UK females make up less than 18% of higher apprentices in engineering and manufacturing, and 7.4% of all engineering apprentices. [167] Specifically in relation to automotive apprentices, evidence suggests this proportion is far lower, with 2% being female in 2016/17.[168]

Evidence from Volkswagen in Germany indicates that in 2019, of the 1,400 career entrants starting their dual vocational training or their dual course of studies with Volkswagen 389, or 28% were female.[169]

More recently the COVID-19 crisis has compounded gender disparities across all industries, as a result of increased reliance of unpaid care for which women carry a disproportional burden,[170] a situation likely to have been mirrored within the automotive sector.

In relation to ethnic diversity in the automotive industry there is much less information, but a recent article points out that in the US automotive industry there are still only a few top Black executives, most notably the now-retired Ed Welburn at General Motors and Fiat Chrysler design boss Ralph Gilles.[171] There is even less information regarding the automotive sector workforce profile in relation to disability.

Available evidence suggests tackling diversity within the Automotive sector is not just an ethical issue, but a strong business case can be made for tackling these issues, with reports highlighting that the

[166] 'Women in Science and Technology', Eurostat, February 2019, Women in science and technology - Products Eurostat News - Eurostat (europa.eu)
[167] Engineering UK report 2018 https://www.engineeringuk.com/research/engineering-uk-report/
[168] 'Empowering Gender Equality in Automotive', The Institute of the Motor Industry, published 2018, updated 2020 https://tide.theimi.org.uk/industry-latest/news/empowering-gender-equality-automotive
[169] https://www.volkswagen-newsroom.com/en/press-releases/1400-women-and-men-start-apprenticeship-or-dual-courses-of-studies-with-volkswagen-5299
[170] 'COVID-19 and gender equality: Countering the regressive effects', McKinsey Global Institute, 2020, COVID-19 impact on women and gender equality | McKinsey
[171] https://www.thedrive.com/news/34228/the-world-of-cars-has-a-diversity-problem-how-are-we-going-to-fix-it

global recovery needs to include a focus on increasing diversity within the sector.[172] In terms of the business benefits of addressing diversity issues, evidence indicates:

- The sector will benefit from pursuing the goal of increased diversity as companies with a varied workforce often outperform non-diverse companies on profitability;[173] and
- Increased diversity improves overall company performance.[174]

Changing the image of the European Automotive sector does not come without challenges, due to longstanding negative perceptions and attitudes.

Key challenges faced by the Automotive sector in terms of improving both the diversity and the image within the sector include:

- The predominance of males within the automotive sector which contributes to negative perceptions of the sector amongst female engineers;[175] and
- A particular focus on gender issues within the sector risks neglecting other equally relevant, diversity and image issues such as race, disability, religion and sexual orientation; [176]

Despite the challenges outlined above, the image of the EU automotive sector is changing with an increase in the number of females engaging with careers in engineering broadly.[177]

Across Europe Automotive companies have become increasingly aware of the need to tackle the varied diversity and image issues facing the sector with a range of examples of different initiatives highlighting both the practical steps being taken and that longer term progress is achievable.

In relation to tackling:

- **Gender issues**, both Rolls-Royce and Jaguar Land-Rover that have made conscious efforts to increase the number of female participants within their engineering departments and more

[172] https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Diversity%20and%20Inclusion/Diversity%20wins%20How%20inclusion%20matters/Diversity-wins-How-inclusion-matters-vF.pdf
[173] 'Diversity wins. How inclusion matters', McKinsey& Company, May 2020, https://www.mckinsey.com/~/media/McKinsey/Featured%20Insights/Diversity%20and%20Inclusion/Diversity%20wins%20How%20inclusion%20matters/Diversity-wins-How-inclusion-matters-vF.pdf
[174] 'Study: Workplace diversity can help the bottom line', MIT New, Peter Dizikes, October 2014, Study: Workplace diversity can help the bottom line | MIT News | Massachusetts Institute of Technology
[175] 'Attracting and Retaining Talent in the Automotive Industry'. The role for the employer brand and employee experience in the battle for talent', Weber Shandwick, 2018, Attracting-and-Retaining-Talent-in-the-Auto-Industry.pdf (webershandwick.com)
[176] Automotive industry slow to embrace D&I-related changes – report | Automotive Industry Interview | just-auto (just-auto.com)
[177] 'Encouraging women into engineering careers', Topcon Ireland, Encouraging women into engineering careers | Topcon Positioning Systems, Inc.

fundamentally to increase female engagement with STEM subjects; ŠKODA Academy has pioneered a Girls Day event each year, aiming to increase the number of girls partaking in vocational education, an area where the deficit in female engagement is significant.[178] The gender disparities relating directly to the COVID-19 situation is something that SEAT Spain has also addressed since the outbreak of the pandemic. The company has highlighted the importance of co-responsibility in the home environment when working from home, which it emphasised on International Women's Day with a specially organised talk;[179]

- Issues relating to **ethnic diversity and refugees**, German company Brose Group has piloted the integration of refugees and asylum seekers in several plants across Germany. At the start of 2016, the company integrated 20 refugees and asylum seekers in three locations, 60 in total, in order to give them an opportunity to gain experience and employment. The company will also provide support in the form of counselling, German speaking courses, and trained sponsors to support employees in their integration process.[180] In the UK, Rolls Royce has established an African and Caribbean Professional Network (ACPN) which connects employees from African and Caribbean cultures;[181]
- **Disability issues,** Renault Groupe have pioneered the inclusion of people with disabilities into the employee infrastructure[182]. The company has partnered with the NGO Handicap International to deliver an initiative called 'DuoDay' that pairs a person with a disability with a professional in order to help breakdown and address stigmas across the automotive sector;[183] and
- **Sexual orientation**, Rolls Royce has established PRISM, a group that engages LGBT+ employees.[184]

Some progress has been made in terms of improving the inclusivity of the Automotive sector, evidenced by changes in the workforce profile over the last 50 years. However, there is clearly a long way to go before the sector achieves gender parity and overcomes other diversity issues.

Having a clear focus on these issues will not only help make the sector fully inclusive but expanding the talent pool will help tackle the significant skills challenges facing the sector.

[178] Girls Day (sou-skoda.cz)
[179] '2020 Annual Report. 2020 Reasons to believe' , SEAT es, 2020 others-annual_report_2020_full-NA-NA-NA-march-2021.pdf (seat.es)
[180] Brose: Employee program to integrate refugees in Franconia | Automotive World
[181] Employee networks – Rolls-Royce (rolls-royce.com)
[182] Groupe Renault is committed to promoting diversity - Groupe Renault
[183] Promoting the inclusion of people with disabilities in the company - Groupe Renault
[184] Employee networks – Rolls-Royce (rolls-royce.com)

Two case studies below provide examples of different approaches to attracting young women into the automotive industry in the case of the ŠKODA Academy in the Czech Republic and more broadly into science, technology, engineering and maths related vocations in the case of the STEM Talent Girl Program in Spain.

STEM Talent Girl Program (Spain)

Since 2017 Fundación ASTI, a part of ASTI Robotics, has been leading the STEM Talent Girl Program, aimed at teaching, inspiring and empowering the next generation of female leaders in Science and Technology. Its positive impact has been recognized at national level by local and national authorities (namely the Queen of Spain), boosting the range of activities focusing on motivating young girls towards science, technology, engineering and maths. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=WTRCK0lvVXBLbjVPMjlWRTdOV2N3dz09

Girls Day (Czech Republic)

This case highlights how an event organised by the ŠKODA Academy is used to attract more girls to study at the ŠKODA AUTO Secondary Vocational School and helps breaks down barriers to girls choosing these technical career paths. (See link below for full case study)
https://drives-compass.eu/bpr-detail?id=d2hZVEozamorWnFmeFpCOEVHR3dtQT09

4.10 MAXIMISING AVAILABLE FUNDING

The ways in which apprenticeships are funded vary widely across different European countries with a mixture of different funding arrangements evident including approaches that place funding responsibilities entirely or partially with employers, entirely as a government responsibility or through tax subsidies, social security funding or partial government reimbursements[185].
The recent DRIVES D5.2 Understanding the Marketplace Report summarises funding arrangements in place in key European automotive countries including the following:

[185] DRIVES D5.2 Understanding the Marketplace; Report on the European Automotive Apprenticeship Marketplace, Georg MACHER (TUG), Mick FELOY (ENGINUITY)

- In Germany companies participate voluntarily in apprenticeship training and bear its costs. This is also the case in Hungary although training costs and some further expenses can be reimbursed;
- In Poland, VET education is jointly funded by employers and the Labour Fund, a special fund under the jurisdiction of the Ministry of Labour;
- In the UK employers with a pay bill of over £3 million per year pay a levy. For employers who do not pay the levy, costs are largely provided through government funding;
- Romania - Special social insurance funds cover the cost. In Italy employers are partially compensated to take on apprenticeships through a reduction of the social security contributions and in Spain employers training costs are reimbursed through public funding. Sweden - Each apprenticeship position is funded by a government grant from the state budget administered by the Swedish National Agency for Education; and
- France - To encourage the use of apprenticeship contracts, multiple financial subsidies are in place. In the Czech Republic there are tax incentives for companies co-operating with schools in relation to VET.

To date, data for apprenticeship funding in countries in Europe has not been systematically collected, with the responsibility for financing often shared between different stakeholders, further complicating the picture.

However, Cedefop's recent study - Financing apprenticeships in the EU - systematically collected and analysed information on financing arrangements for apprenticeship schemes in EU countries and the UK for the first time.[186]

The report demonstrates the wide variety of ways in which apprenticeships are financed and proposes a typology of financing arrangements for apprenticeships.

The report points out that given the huge variety of the financing arrangements across apprenticeship schemes, international comparisons are difficult. The study suggested distinguishing between three models of financing apprenticeships: a split financing model in which costs for off-the job training are basically paid by the State and costs for on-the-job training by employers; a financing model in which costs are also shared, but in which employers do not just individually but also jointly contribute

[186] https://www.cedefop.europa.eu/en/publications-and-resources/publications/4192

(including non-training companies) to the financing of apprenticeship via training funds; and a 'single' financing model in which the costs are paid (predominantly) by the State, including apprentice remuneration.

The report found that the majority of apprenticeship schemes follow the split model, with only three following the single model: Austria (supra-company apprenticeship), Portugal and Sweden (education contract).

The report is accompanied by an online database www.cedefop.europa.eu/en/tools/financing-apprenticeships that provides detailed financing information for each apprenticeship scheme covered.

What will be important for European automotive employers, particularly those operating across international borders will not only be accessible information on different apprenticeship financing schemes, something the recent Cedefop Report and online data base starts to provide, but also practical examples of innovative ways automotive employers can utilise the funding that is available in different countries.

To date the DRIVES Project has collected one such example:

WMCA Levy Transfer Fund: The case study highlights how a regional authority in England helps transfer unspent apprenticeship funding from large employers to local SMEs in need of apprenticeship funding, including SME automotive employers. (See link below for full case study)
https://drives-compass.eu/bpr-detail?id=M3I5NjlZaGkyeTRyUzVNUThCOUVEZz09

As EU members together with the UK start to focus on post-pandemic economic recovery measures there will be new opportunities together with challenges posed for apprenticeships.

As a concrete action under the European Pillar of Social Rights, the European Commission recently presented a Recommendation on Effective Active Support to Employment following the COVID-19 crisis (EASE). It outlines a strategic approach to gradually transition between emergency measures taken to preserve jobs during the pandemic and new measures needed for a job-rich recovery.[187]

[187] https://ec.europa.eu/commission/presscorner/detail/en/qanda_21_971

It suggests that policy packages should comprise three components: (1) hiring incentives and entrepreneurial support, (2) upskilling and reskilling opportunities, and (3) enhanced support by employment services, with a special focus on young people and workers of all ages in the sectors worst affected by the pandemic.

The importance apprenticeships can play in aiding recovery is explicitly mentioned. The announcement refers to how support for apprenticeships, especially in SMEs, can be effective to develop the skills required on the labour market and help young people and other vulnerable groups into employment.

An integral aspect of recovery plans announced in November 2020 is the European Commission Pact for Skills, described as a shared engagement model for skills development in Europe and the first of the flagship actions under the European Skills Agenda.[188] A specific Skills Pact for Automotive Skills has been launched (The Pact for Skills - Skills Partnership for the Automotive Ecosystem) with the ambition to reach 5% of the workforce each year, resulting in 700,000 employees being up- and re-skilled along the automotive ecosystem in the coming years. Based on a re-skilling investment of on average €10,000 per employee, this represents an overall commitment of around €7bn from the private and public authorities.[189]

It will be important that the potential for supporting and reshaping apprenticeships within the EU automotive sector are maximised through this initiative.

[188] https://www.euractiv.com/section/digital/news/commission-launches-pact-for-skills-to-aid-green-and-digital-ambitions/
[189] https://www.project-drives.eu/Media/Publications/204/Publications_204_20201111_113944.pdf

4.11 INVOLVING APPRENTICES

The mechanisms in place for the development and updating of apprenticeships varies across Europe but tends to involve a range of key stakeholders including employers, business organisations (chambers etc.), training and education providers, regional bodies and national government. The direct involvement of apprentices in this process is less developed in most instances. For example, recent research by the European Alliance for Apprenticeships indicated that at a national level there is limited evidence of structures in place to represent apprentices.[190]

Available evidence does however highlight the wide range of benefits to the involvement of apprentices throughout all stages of development and implementation of apprenticeships. This is underlined by a recent CEDEFOP report that indicated that centring the policy process around apprentices' is essential for relevant future skills development.[191]

Further evidence indicates that engaging in a continuous learner feedback loop positively contributes to both learner satisfaction should companies use the feedback constructively, and the quality of learning provided to apprentices, with associated long-term positive impacts on the company as a whole.[192]

Involving Apprentices can embody a range of different mechanisms; from involving them at jobs fairs to engaging them in the planning and reshaping of apprenticeships more broadly. [193] It can even entail increasing their involvement in the design and manufacturing process, as seen by the Azubi Car concept created by SKODA academy.

[190] Good for Youth, Good for Business; European Alliance for Apprenticeships; September 2019
[191] European Apprenticeship Network, 'Cedefop-ETF conference- what do learners think?', 2020, 'Cedefop-ETF conference – what do learners think? – European Apprentices Network
[192] Gabriel Swift, 'Seven steps to apprenticeship success', Capita, 2020, Seven steps to apprenticeship success | Capita
[193] Jörg Markowitsch & Günter Hefler, Staying in the loop: formal feedback mechanisms connecting vocational training to the world of work in Europe, pg289, International Journal for research in vocational education and training, Volume 5, 2018 Staying in the loop: formal feedback mechanisms connecting vocational training to the world of work in Europe (pedocs.de)

Azubi Car – Skoda Auto (Czech Republic)

The Azubi Car initiative is an example of a programme at the Skoda Vocational School in the Czech Republic that gives learners the opportunity to design and manufacture their own concept car

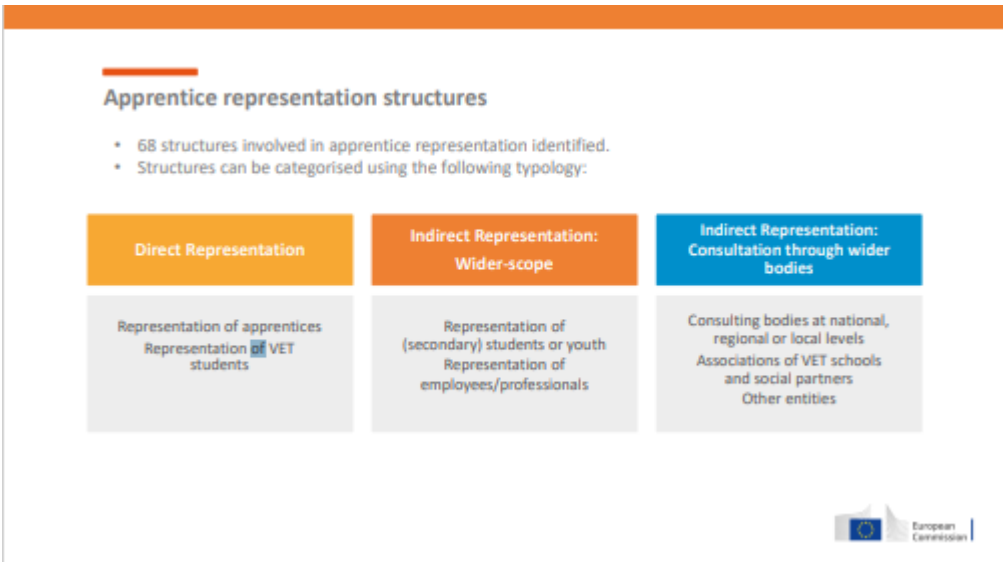
It is an optional programme that takes place in the last year of their vocational programmes, and is offered to students from all courses in the Skoda academy, as it requires tasks involving different skills such as, logistics, mechanics, and painting. (See link for full case study)

https://drives-compass.eu/bpr-detail?id=NGd1cmhOUCtUQzVqVGJvU0I4TkJBQT09

A widely accepted method of involving apprentices is through feedback so employers can refine and revise the delivery and structure of their training programmes.[194] In the case of apprenticeships this can help ensure their skills coincide with the needs of the industry which is essential for company success, efficiency and longevity. Engaging with those completing apprenticeships is the best way to ensure this. A conversation between governments, employers and skills providers can be stimulated as a result of the feedback obtained by apprentices, ensuring that skills remain relevant within the automotive sector. [195]

In a study conducted by the European Commission under the Employment, Social Affairs and Inclusion Directorate there were 3 types of structures concerning apprenticeship representation: 1) Direct Apprenticeship Representation, 2) Indirect representation: wider-scope, and 3) Indirect representation: consultation through wider bodies.[196] Direct representation uses structures to represent apprentices directly. Wider-scope indirect representation gives apprentices a place within the concerned organisational body, but apprentices are not the focus. Lastly, consultation through wider bodies is identified in the absence of the two aforementioned structures and is characterised through informal, ad-hoc consultation of apprentices that is not organized.[197]

[194] Training Zone, 'The Feedback Loop of Employee Training- Getting Honest Responses' 2016 The Feedback Loop of Employee Training – Getting Honest Responses | TrainingZone
[195] Richard Handley, 'Getting real-time feedback from apprentices', 2018, Education and Skills Funding Agency, Getting real-time feedback from apprentices - ESFA Digital (blog.gov.uk)
[196] ICF, 'Study on the representation of apprentices in vocational education and training (VET), pg31, European Commission, 2019
[197] Ibid, pg35-36



Source: Representation of apprentices in Vocational Education and Training (VET). Presentation by Ilona Murphy and Patricia Vale: Representation of apprentices in vocational education and training

Practical examples of specific approaches to apprenticeship involvement include the following:

In Germany apprentices have direct representation in relation to apprenticeship development and there are also extensive examples of the varying ways to involve apprentices through feedback and other forms of representation. The German government places an emphasis on training providers creating a strong feedback culture due to the positive benefits that emerge.[198] An example of this feedback culture is the ARSY, a trainee feedback system used by Wieland-Werke AG.[199] This feedback system focuses on trainee opinions of current experiences rather than evaluating the past, providing a contemporary opportunity to improve the existing delivery and content of training. Additionally, within Germany there are two key organisational bodies through which apprentices are represented, providing a point of access to the system. One of these is the German Work Councils,[200] the other being the German DGB youth, a youth trade union.[201] Both act as a mechanism for German apprentices to articulate their concerns regarding: training quality, employee turnover and working conditions, with the German Trade Union Youth publishing regular reports regarding working conditions in Germany.[202] Another country that has developed direct and indirect apprenticeship representation structures is England with similar involvement and feedback goals to Germany, but through different mechanisms.

[198] Federal Ministry of Education, 'Report on Vocational Education and Training', pg80, 2015, Report on Vocational Education and Training 2015 (bmbf.de)
[199] Wolfgang Bliem, Alexander Petanovitsh & Kurt Schmid, 'Success factors for the Dual VET system. Possibilities for Know-how-transfer', pg89, ibw, 2014Microsoft Word - FB177_en_final (dcdualvet.org)
[200] Benno Koch, Samuel Mühlemann & Harald Pfeifer, 'Do work councils improve the quality of apprenticeship training in Germany? Evidence from workplace data', 2018 pfeifer_h4414.pdf (iza.org)
[201] DGB Jugend, 2014, German Trade Union Youth (dgb.de)
[202] Eurofound, 'Germany: Working conditions in apprenticeships', Germany: Working conditions in apprenticeships (iwkoeln.de) – see link embedded pg1 for example of the 2014 report in German

In England, the UK government set up a panel of apprentices within the Institute of Apprentices, which is consulted on an ongoing basis regarding the development of apprenticeship content and seeks to represent the needs of a varied range of apprenticeships across the UK, reflected in their diverse panel membership.[203] This is a clear example of engaging apprentices in the policy process so they can have a contributary role in apprenticeship developments. Although the previous example is regarded as indirect representation, the National Society of Apprentices (NSoA) is an example of the UK's direct representation of apprentices. The NSoA works with training providers and employers, striving to represent apprentices across all sectors and industries.[204]

A further UK government initiative is ESFA Digital. This initiative engages in real-time text conversations with apprentices in order to obtain feedback on whether they are receiving the skills required for job progression, overall support and time to complete training off the job.[205] This illustrates a modern-approach to feedback as the mechanism used - text-messages - is easily accessible, expedient and can be implemented quickly. These were all identified as issues in feedback by apprentices, prior to this initiative's development, regarding their previous reluctance to engage in feedback.[206] However, set against this, the Trailblazer groups that set apprenticeship standards in England currently lack involvement of apprentices in this process[207].

The European Apprentice Network (EAN) is a Pan-European response to the need to increase the voices of young apprentices and VET students. One way in which the Network has tried to achieve this goal is through the #AskTheApprentices survey which is used to develop agenda priorities, strengthen apprenticeship representation and the overall quality of apprenticeships throughout Europe.[208] This involvement is particularly valuable as the EAN informally consults the European Commission and therefore can disseminate the accumulated information with efforts to positively influence the policy process.

[203] Institute for Apprenticeships & Technical Education, 'Overview', Panel of apprentices / Institute for Apprenticeships and Technical Education
[204] NSOA | National Society of Apprentices | NSOA
[205] Richard Handley, 'Getting real-time feedback from apprentices', 2018, Education and Skills Funding Agency, Getting real-time feedback from apprentices - ESFA Digital (blog.gov.uk)
[206] Ibid. Getting real-time feedback from apprentices - ESFA Digital (blog.gov.uk)
[207] Institute for Apprenticeships & Technical Education, 'Developing Apprenticeship Standards- Overview', 2018, Developing apprenticeship standards – overview / Institute for Apprenticeships and Technical Education
[208]European Apprentices Network, 'Share your voice: take the #AskTheApprentices survey', 2019, Share your voice: take the #AskTheApprentices survey – European Apprentices Network

In Austria z.l.ö. - zukunft.lehre.österreich is an example of how apprenticeship involvement is encouraged through the establishment of an Apprenticeship Alumni-Club.

z.l.ö. - zukunft.lehre.österreich (Austria)

This case study provides an example of z.l.ö. - zukunft.lehre.österreich, an independent, non-profit and cross-sector initiative with the aim of highlighting the advantages, possibilities and opportunities of an apprenticeship and permanently improving the reputation of dual training in Austria. This is achieved through a wide range of promotional, networking and other activities including the z.l.ö. Apprenticeship Alumni-Club. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=dnZwMmQrSWh4QjBtQnNEUTUzenFHdz09

The JA3B initiative in Spain provides a good example of an innovative approach to capturing the views of automotive apprentices and is fed back to key stakeholders including members of the European Parliament

JA3B (Spain)

The case study provides an example of how a major Spanish multinational company involved in the global automotive industry in collaboration with a Spanish University have developed a 'Junior Automotive Apprenticeship Advisory Board'. The purpose of this is to ensure that the views of young people on how to improve learning, development and career opportunities are captured and communicated to key stakeholders including members of the European Parliament. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=UDRTTk83c0F4Ty9JT21uRDUvcnVVQT09

The examples above provide an insight into some of the ways in which apprentices can be involved in the planning, development and refinement of apprenticeships and the benefits of such involvement. But it is clear from the available evidence that there is a need to embed apprenticeship involvement much more widely in all aspects of apprenticeship development and implementation.

4.12 CLOSER DIALOGUE BETWEEN STAKEHOLDERS

Employers are central to the apprenticeship system in all countries in Europe. This is where most training occurs as part of an apprenticeship. Employers involved in delivering apprenticeships will need to meet the specific requirements of the country concerned with respect to standards relating to learning and also re-numeration of apprentices.

However, a key aspect of apprenticeship systems is also that they tend to be characterised by a high degree of involvement of social partners at different levels. Most commonly this includes employer representative bodies, trade unions and associated bodies, training providers and associated representative bodies. Careers advice providers and relevant employment and labour related government departments are also generally involved.[209]

The involvement of these stakeholders includes activities such as the definition of standards, curriculum development, quality assurance and funding. Their role is identified as central to ensuring that the training content and learning outcomes correspond to the requirements of the labour market and supporting transition into the labour market.[210]

Although the involvement of these stakeholders is critical to ensuring the achievement of the above competing aims of apprenticeships the need for different stakeholders to agree to changes/developments can also create a certain amount of inertia.[211]

The arrangements in place for involving stakeholders, together with the specific roles of each stakeholder in different countries varies. For example:

[209] Cedefop/OECD (2021). The next steps for apprenticeship. Luxembourg: Publications Office. Cedefop reference series; No 118; http://data.europa.eu/doi/10.2801/085907https://www.cedefop.europa.eu/files/3087_en.pdf
[210] https://www.apprenticeship-toolbox.eu/social-partners-companies
[211] Cedefop/OECD (2021). The next steps for apprenticeship. Luxembourg: Publications Office. Cedefop reference series; No 118; http://data.europa.eu/doi/10.2801/085907https://www.cedefop.europa.eu/files/3087_en.pdf

- In Austria the social partners (employers´ and employees´ representatives) are the main party responsible for apprenticeship development and are involved throughout the apprenticeship development process from needs analysis through to the review of the training programme;[212]

- In Germany the Vocational Training Act regulates that the social partners are involved in decision-making processes at all levels, with business and trade organisations, social partners and the State in Germany cooperating through consensus;[213] and

- In England new apprenticeship standards are developed by employer groups known as 'trailblazers'. These are employer led but supported by a range of training providers together with professional institutes and bodies. The employers who form the 'Automotive Trailblazer Group, include Toyota, JLR, Ford, BMW, JCB, Nissan, Honda and Bentley. [214]

Apprenticeships must balance the need for equipping apprentices with the skills required for successful careers in the automotive industry with the need to meet employers' specific changing skill requirements.

As changing skill requirements within the automotive industry become more complex and the rate at which these skill changes take place increases, the role played by different social partners in ensuring the appropriate balance between these two aims will also become more challenging.

In practice this means that the consultative mechanisms established to ensure involvement of different stakeholder groups in the design and updating of apprenticeships will need to be flexible enough to respond quickly to the changing skill requirements of employers, at the same time as ensuring they continue to provide a basis for successful entry into the sector and long-term career progression possibilities for apprentices.

Two examples are set out below illustrating how close employer involvement in the design of training has ensured apprenticeship and course content is meeting employer skill requirements.

[212] https://www.apprenticeship-toolbox.eu/social-partners-companies/involvement-of-social-partners/12-involvement-of-social-partners-in-austria
[213] https://www.apprenticeship-toolbox.eu/social-partners-companies/involvement-of-social-partners/18-involvement-of-social-partners-in-germany
[214] https://www.instituteforapprenticeships.org/developing-new-apprenticeships/trailblazer-group/

Automotive Technology - Level 5 (Portugal)

The case study provides a good example of how one educational institution in Portugal has developed a close relationship with the industrial world through the establishment of a partnership with a key company and co-developed a course unit as part of apprenticeship training of automotive students. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=QlJGM2phMlhGOVRRT0tRTnFybm5FZz09

Dual Training (Spain)

This case study provides an example of a University in the Basque Region of Spain that has pioneered an approach to engineering at Undergraduate and Masters Level that enables the educational offer to meet the immediate and future skill needs of enterprises in the Region. (See link for full case study)
https://drives-compass.eu/bpr-detail?id=VVVUT2dUOFFzemdYV2FDWis5RlZsdz09

5 PRACTICAL IMPLICATIONS AND NEXT STEPS

This Report has been developed in order to underpin practical action and intervention within the European automotive apprenticeship marketplace.

This section summarises a number of practical suggestions for improving the current European apprenticeship marketplace serving the automotive sector and next steps in relation to the DRIVES Project to help achieve these actions.

These recommendations have been developed taking into account funding for the DRIVES Project will cease at the end of December 2021 and in the light of recent major developments across the automotive ecosystem including the recently announced Automotive Pact for Skills and associated Automotive Skills Alliance (ASA).

The recommendations below start with those relating to potential actions to sustain the DRIVES Good Practice Resource in the future before setting out recommendations relating to each of the Report 'themes'.

Recommendations relating to the potential future role of the Automotive Skills Alliance (ASA) in taking forward these recommendations are set out at the end of this section.

Sustaining and enhancing the Good Practice Resource

Considerable work has been undertaken as part of the DRIVES project to identify and document examples of innovative practice relating to different aspects of apprenticeship development and delivery supporting the European automotive sector.

It will be important to implement further measures to improve dissemination of these and other examples moving forward.

It is through practical examples that employers, providers and other stakeholders can learn about and adopt improved practices.

The critical question therefore, is how can the work already be undertaken through the development of the DRIVES Good Practice Resource https://drives-compass.eu/good-practice-resource be enhanced and sustained after the end of the Drives Project?

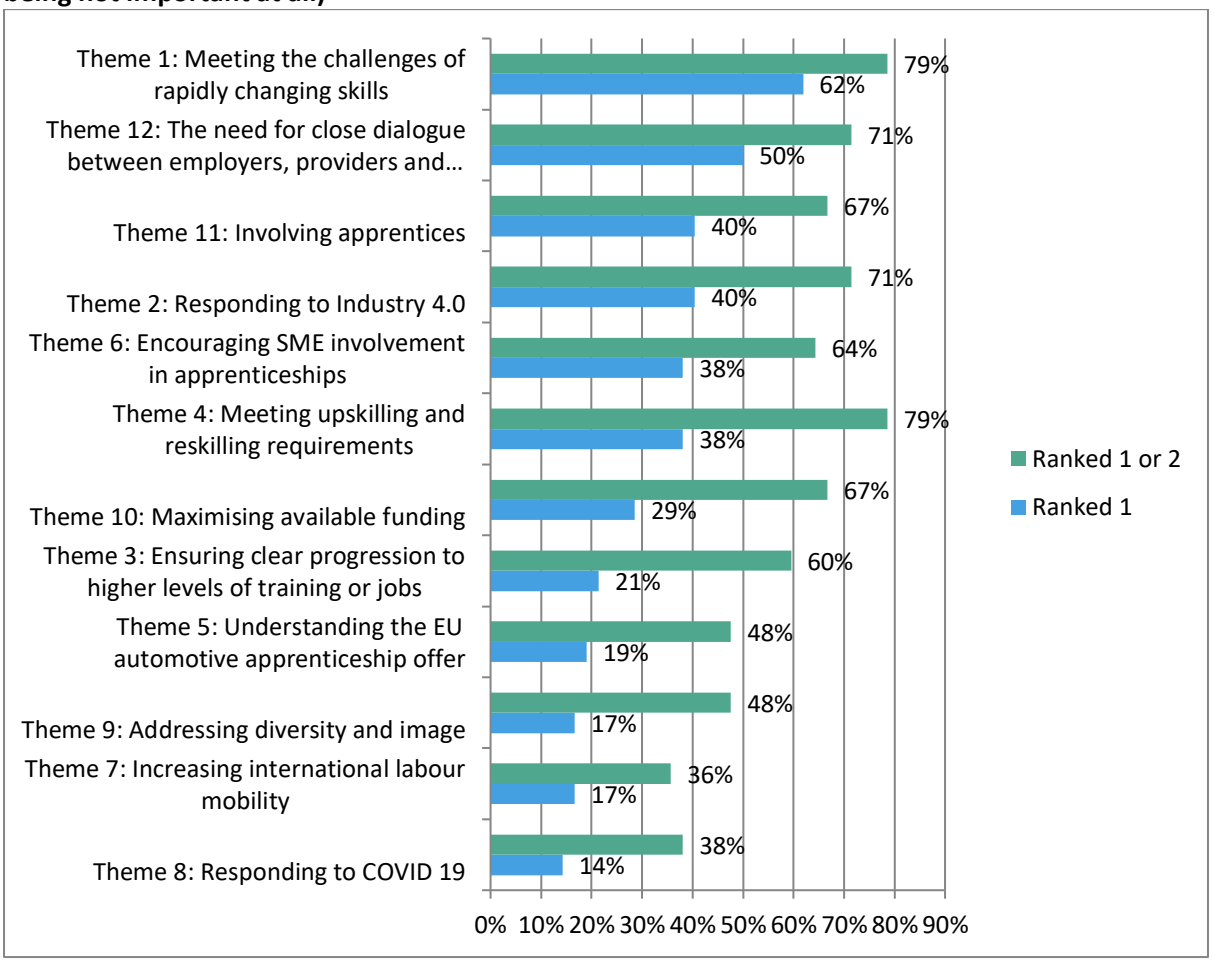
Evidence from a recent survey of apprenticeship stakeholders conducted as part of DRIVES Project points to widespread support (amongst respondents) for identification of further examples of innovative practice. When asked to indicate how useful it would be to identify further examples of innovative practice in relation to each of the themes used within the Good Practice Resource, based on a scale of 1-5 (with 1 being 'very useful'), the highest priorities were attached to:

- Theme 1: Meeting the challenges of rapidly changing skills;
- Theme 12: The need for close dialogue between employers, providers and other stakeholders;
- Theme 11: Involving apprentices;
- Theme 2: Responding to Industry 4.0;
- Theme 6: Encouraging SME involvement in apprenticeships; and
- Theme 4: Meeting upskilling and reskilling requirements.

More details of these results are set out in the chart below:

Respondents also made a number of more specific suggestions about improving the Good Practice Resource moving forward and specific suggestions of potential good practice case studies which can be followed up.

Can you indicate how useful you think it is to identify further examples of innovative practice in relation to each of the following themes (Rank 1-5 in each case with 1 being very important and 5 being not important at all)



Source: DRIVES Apprenticeship Survey 2021

It is agreed that the scope of the Good Practice Resource will be widened beyond a focus on apprenticeships to include all training and skills development issues impacting on the automotive ecosystem. This will take place after the end of the DRIVES Project and be implemented and sustained by Automotive Skills Alliance partnership[215].

[215] Automotive Skills Alliance (ASA), www.automotive-skills-alliance.eu

The rapid pace of skill change

Apprenticeships need to be designed so they are flexible enough to respond to the increasingly rapid pace of skills change.

However, the challenge is to achieve this greater flexibility at the same time as ensuring the fundamental goal of apprenticeships as a way of equipping learners with a comprehensive set of skills, knowledge and behaviours to enable entry and progression in a particular occupation is not compromised. It is also recognised that a fundamental principle of an Apprenticeship is its use for an employee, irrespective of their age, starting a new role (or job) in acquiring the full range of skills and knowledge they need for that role or job. In other words, apprenticeships need to be more than just a way of meeting the specific skill gaps employers' face.

One way of doing this is to adopt a more modular approach, with each module assessed and certified independently, in addition to accreditation linked to completion of the whole apprenticeship for those undertaking the complete programme.

This would allow updated modules that reflect recent changes in skill requirements to be 'bolted on' to existing apprenticeships without the need to change the entire apprenticeship.

It will therefore be important to identify and document examples of particular relevance to the automotive sector of where a modular approach has been successfully implemented.

Those stakeholders that design and develop apprenticeships, as well as potential apprentices themselves, need to have access to the latest information on changing skill requirements.

This has been recognised in relation to recent work relating to the role of apprenticeships in the transition to greener economies across the EU, presented at a joint CEDEFOP/OECD symposium.[216]

It was pointed out that in order to design apprenticeships to meet the skills needs of for a green transition three aspects of skills intelligence are required:

[216] https://www.cedefop.europa.eu/files/2021-10/cedefop-oecd_symposium_2021_agenda.pdf
Apprenticeships for Greener Economies and Societies; 21/22 October 2021; Reskilling for a green transition Dr Florian Egli (ETH Zurich) and Simon Schmid (skilllab)

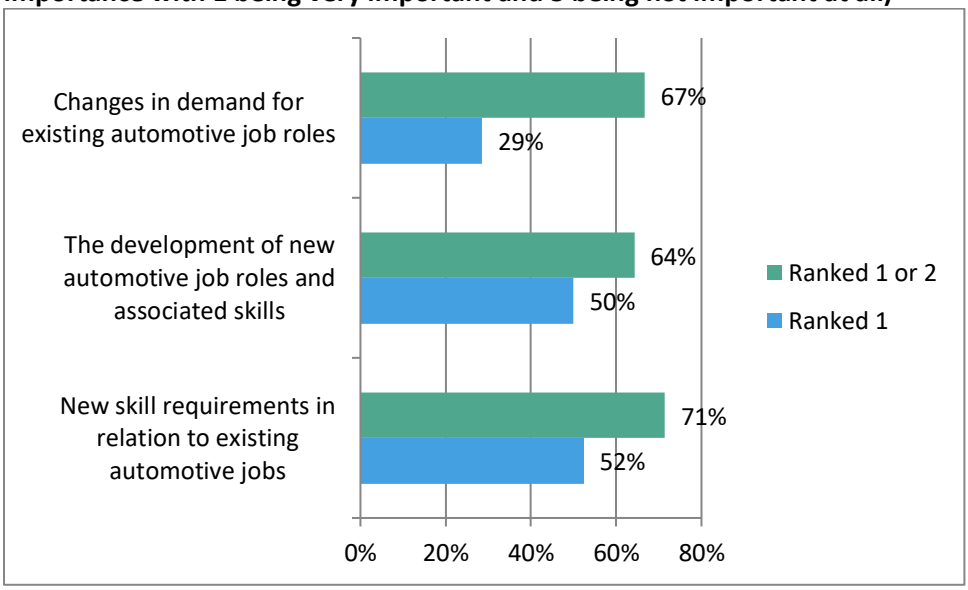
- In-depth knowledge about the expected growth and decline of different occupations in a green transition;
- An understanding of the skills that are associated with these occupations; and
- Knowledge about the likely unequal geographical distribution of affected jobs across the EU in order to identify problem zones and potential (re-)training bottlenecks.

The same is true in relation to the development and/or adaption of all automotive related apprenticeships.

Evidence from a recent survey of apprenticeship stakeholders conducted as part of the DRIVES Project indicates that amongst respondents to the survey there is recognition of the need to improve current skills intelligence to support apprenticeship development/updating. When asked to indicate how useful it would be for up to date information on different aspects of skills intelligence, based on a scale of 1-5 (with 1 being 'very useful'), more than 60% of all respondents ranked all three aspects of skills intelligence included in the survey as either 1 or 2 in terms of levels of importance (See chart below) , and for half or more of respondents, two aspects of skills intelligence were ranked 1 (very useful), these being up to date information on:

- New skill requirements in relation to existing automotive jobs; and
- The development of new automotive job roles and associated skills.

How useful do you think it would be for up-to-date information on the following in relation to apprenticeships supporting the European Automotive sector: (Rank 1-5 in terms of level of importance with 1 being very important and 5 being not important at all)



Source: DRIVES Apprenticeship Survey 2021

This presents a major challenge, particularly in relation to trying to assess future skill requirements.

One practical step forward would be to develop and publicise a simple guidance system (as is already in place in certain countries) to indicate likely relative levels of demand for different occupational areas (high, medium, low) rather than attempt a detailed quantification of demand.

It would also be useful to document and disseminate innovative approaches to skills foresighting/intelligence gathering.

One example already highlighted in the Good Practice Resource is the High Value Manufacturing Catapult. This is a structured process in the UK of engaging with research organisations and employers to understand new organisational capabilities needed in the automotive sector in the next 3 to 5 years and then engaging with employers and educators to identify the competencies (knowledge and skills) needed to implement these capabilities.

Some progress has been made as part of the work of DRIVES to make use of available vacancy data (relating to the UK) in order to track changes in demand for different occupations/job roles.

This approach could be expanded to encompass the use of vacancy data across the EU, not only to track changes in demand by occupation/job role, but also provide valuable insights into changing demand for skills within particular job roles across the sector.

Cedefop have established a new system to collect and analyse vacancy data across different EU countries[217] and have released information based on the collection and analysis of online job vacancies in seven EU Member States.

At present the information released is not very detailed at a sector level but the Automotive sector might provide an interesting pilot case study to refine the analysis at a detailed sector level.

Apprenticeships are designed and developed nationally, with each country having its own structures for involving different stakeholders in this process. It is important therefore that if measures are put

[217] https://www.cedefop.europa.eu/en/publications-and-resources/publications/4172

in place to improve the skills intelligence that is collected, that this is readily available to the different Apprenticeship bodies across different countries involved in Apprenticeship design.

Practical measures therefore need to be put in place to ensure enhanced skills intelligence on the automotive sector is disseminated to those bodies involved in Apprenticeship design in different countries.

Industry 4.0

The rapid transformation of the automotive industry towards Industry 4.0 (i4.0) is linked with massive advancements in technology development and processes. These developments are associated with significant productivity increases. This highlights not only the need to ensure the content of relevant apprenticeships reflects changing skill requirements, but also, the need to maximise the innovative use of digital technology to deliver at least some aspects of apprenticeships.

In particular, advances in digital technology increases possibilities for the innovative use of such technology through delivery methods such as e-learning, mobile apps, and virtual and augmented reality.

In recognition of the scope for the use of digital technology for work-based learning a new tool #SELFIE_EU has been developed that helps VET schools and companies improve their use of digital technologies in their training programs.

The Good Practice Resource has highlighted one example of the successful application of digital technology in relation to welding training.

More relevant examples need to be documented to encourage greater adoption of apprenticeship delivery techniques involving digital technology across the sector. The recently launched DAMAS[218] project established to test virtual training and mobility in the automotive sector may provide a useful source of such examples.

[218] https://www.earlall.eu/fostering-digital-mobility-in-vet-damas-project-kicked-off/

Ensuring progression to all levels

The Report has highlighted the need for apprenticeships supporting the automotive sector at all levels including higher levels, but also how the apprenticeship offer in many countries focusses on lower and intermediate levels.

There is a need to use examples from countries such as Germany, France and the UK where higher level apprenticeships are common-place to promote the more widespread development of this level of apprenticeships serving the automotive sector across Europe as a whole.

There is also a need to highlight and disseminate further good practice examples of initiatives successfully providing clear progression pathways from lower and intermediate level to higher level training/employment.

Upskilling and reskilling

The Report highlights the scale of upskilling and reskilling challenges faced across the European Automotive sector.

The 'Automotive Pact for Skills' has set out ambitious targets for the upskilling and reskilling of the workforce within the European automotive ecosystem.

A key objective of the Automotive Skills Alliance (ASA)[219] is to pave the way to member states/regions/industry for the massive up-/re-skilling agenda.

We would argue that Apprenticeships need to support upskilling of existing employees as well as provide training for new entrants and that Apprenticeships can play a significant role in fulfilling these re-skilling and upskilling ambitions.

[219] Automotive Skills Alliance (ASA), www.automotive-skills-alliance.eu

We are not suggesting apprenticeships should replace other existing training to support upskilling and re-skilling of the workforce but that this provision should sit alongside other forms of training and be flexible enough to offer an alternative upskilling/reskilling route where this is appropriate.

At the same time, if a more modular approach is adopted towards apprenticeships, it will be important not to lose sight of a key objective of providing a basis for new entrants to develop a career in their chosen occupations rather than a focus on simply acquiring a set of specific skills.

In order to achieve this increased flexibility and broaden the upskilling/reskilling potential of apprenticeships serving the automotive sector we would suggest:

- **An audit of existing apprenticeship provision serving the automotive sector in order to identify specific barriers in place in particular countries restricting use of apprenticeships for upskilling/reskilling the existing workforce, including age restrictions and funding limitations. Where these are in place steps need to be taken to address these issues;**
- **Promote the potential and practical benefits of apprenticeships as a mechanism for upskilling/reskilling the workforce more widely. This includes development of marketing material to address current misconceptions relating to apprentices** (They are only for young people, for new entrants or for those in specific occupations);
- **Promote the increased adoption of a 'modular' approach to apprenticeships in order to improve flexibility and use for upskilling/reskilling. This could be done by:**
  - Promoting practical examples of where this has been achieved (Such as Austria);
  - Ensuring mechanisms for Accrediting Prior Learning of existing employees is in place in order that existing employees can opt in to the specific components of an apprenticeship and 'top up' only those skills they require, where this is the most appropriate vehicle for achieving this; and
  - Ensuring each module is accredited and assessed separately (rather than having to take the whole apprenticeship before accreditation). This could be linked to the development and adoption of micro-credentials, learning from the experiences of the DRIVES development of digital badges for bespoke VET courses.

Understanding the Apprenticeship Offer

This Report has already set out the current difficulties in:

- Accessing information on the current apprenticeship offer supporting the automotive sector in different nations
- Comparing this offer across different nations

In order to try and address this, a key recommendation in the first DRIVES Apprenticeship Marketplace Report was to establish an Automotive Apprenticeship Comparison Tool (ACT) to enable comparison of relevant automotive related apprenticeships in different European countries in one place for use by both employers and individuals https://drives-compass.eu/home
The tool was launched in Q4 2021.

Moving forward we suggest:

Use of the ACT should be monitored.

If it is found to be useful by employers and other stakeholders it should be maintained beyond the lifetime of DRIVES and expanded to include other key automotive EU nations not so far represented. This is also a topic for the further collaboration on apprenticeships within the Automotive Skills Alliance.

Assessing the adequacy of current provision

We would argue that if the future design of apprenticeships is really going to adequately meet the fast-changing requirements of the automotive sector then, as a minimum, those stakeholders involved in apprenticeship development need access to information on:

- What the current demand for different job roles is and some idea of what the future demand is likely to be?
- What the current profile of skills is in relation to different job roles and some idea of likely future changes?
- How does current provision match demand?

- What are the gaps and weaknesses in current provision and how can these gaps and weaknesses be rectified?

Recommendations in relation to the development of enhanced 'demand' related intelligence have been addressed already under 'The rapid pace of skills change'.

The ACT provides a tool for comparing current provision based on a defined set of criteria. What it does not enable is an assessment of the adequacy of current provision. For this to happen, in addition to up to date information on changes in demand for particular occupations, job roles and associated skills, up to date information on current provision, including numbers of apprentices undertaking training in relation to different occupations, job roles and associated skills would be required.

While the ACT provides information on the nature of provision by occupation, job role and skills for specified countries, it does not include information on numbers of learners. This is a critical omission and was not included because of the difficulties encountered in accessing this information.

Results of a recent survey of apprenticeship stakeholders conducted as part of the DRIVES Project indicates that amongst respondents to the survey, nearly half would find this useful. When asked to indicate how useful it would be for up-to-date information on numbers of automotive apprentices by country and specific apprenticeship, 45% ranked this aspects of skills intelligence either 1 or 2 in terms of levels of importance (based on a scale of 1-5, with 1 being 'very useful')

For any assessment of the adequacy of current provision, mechanisms need to be put in place for intelligence on numbers of automotive related apprentices to be collected systematically over time.

Any assessment undertaken could be enhanced further through use of the recently adopted European Framework for Quality and Effective Apprenticeships (EFQEA) recommendations.

These recommendations provide a more detailed accepted framework against which the current automotive Apprenticeship market place within selected countries can be benchmarked. The feasibility of adopting this criterion as part of a structured mechanism for assessment of current provision supporting the automotive sector has been piloted as part of the DRIVES Project in relation to 6 key EU automotive countries, selected to highlight divergences in approach to apprenticeships, these being Sweden, Spain, Portugal, Czech Republic, Germany and the UK.

We recommend that adoption of the EFQEA criterion more widely would further enhance the quality of apprenticeship assessment mechanisms in the future.

Encouraging SME engagement with apprenticeships

The challenges faced by SMEs in relation to engagement with apprenticeships have been well documented in this Report.

The Good Practice Resource has already highlighted two particular innovative approaches to supporting SMEs in this process.

More practical examples of initiatives supporting SME engagement with apprentices, together with tips on implementation need to be added to the Good Practice Resource over time.

A further practical initiative to be launched shortly as part of the work undertaken through DRIVES is an SME Apprenticeship Toolkit. This is being developed to support SMEs through each stage of the process of apprenticeship engagement, right through from initial workforce analysis, recruitment and selection to on-boarding of apprentices.

A viable plan for sustaining the Apprenticeship Toolkit after funding through DRIVES is needed. This is also a topic for the further collaboration on apprenticeships within the Automotive Skills Alliance.

Centres of Vocational Excellence (CoVEs) are designed to act as catalysts for local business investment, and ensure supply of high-quality skilled workers, but also support entrepreneurial initiatives of their learners (incubators), and act as knowledge and innovation hubs for companies (in particular SMEs).

A further practical step that would enhance the support available to SMEs within the automotive sector would be to explore the potential for the establishment of an Automotive Centre of Vocational Excellence (CoVE).[220]

[220] https://ec.europa.eu/social/main.jsp?catId=1501

Increasing labour mobility

The factors restricting labour mobility of those undertaking automotive related apprenticeships has already been set out in this Report.

It is clear that in practice the development of a 'single market' across Europe for automotive apprentices is not going to be achievable in the foreseeable future. A more pragmatic approach is therefore required.

One successful example that is proven in practice is the approach of 'dual certification'. One automotive related example of this is documented on the Good Practice Resource.

Practical steps to publicise the benefits of the dual certification approach more widely need to be put in place, together with steps to support wider adoption by other companies and across other countries.

Other practical initiatives that have proven to be successful in increasing labour mobility through apprenticeships also need to be identified and documented on the Good Practice Resource.

Responding to COVID 19

COVID 19 has led to a major shift in approaches towards the delivery of apprenticeships, in particular, a significant increase in digital delivery.

Available evidence indicates that some of these changes in delivery approaches may be permanent.

The Good Practice Resource documents one example of the successful assessment of apprentices via mobile phones.

Documentation of other examples of innovative practice highlighting both the benefits and potential pitfalls of different approaches to respond to COVID 19 would help providers and employers determine the most appropriate balance of delivery methods moving forward.

Diversity and Image

While steps have been taken to try and address the continued under-representation of women and minority groups within the European Automotive sector these issues still remain, with significant improvements in the image and perceptions of the sector needed if it is to become fully inclusive and maximise the available talent pool.

We would argue that it will be important to put in place additional measures to further improve the diversity balance within the sector.

There are numerous examples of automotive employers taking steps to address diversity issues, a number of which have been documented on the Good Practice Resource.

As part of the steps taken to improve the intelligence available on automotive related apprenticeships it would be useful to build up a much clearer picture of the diversity profile (Gender, ethnicity, disability) of automotive related apprentices and put in place procedures to monitor how this profile changes over time.

Maximising available funding

The widely varying ways in which apprenticeships are funded across Europe has been set out already in this Report, as have the difficulties in accessing detailed information allowing comparison of funding available to support automotive related apprenticeships.

While some information is available through the CEDEFOP apprenticeship funding related database https://www.cedefop.europa.eu/en/tools/financing-apprenticeships and also through the DRIVES Apprenticeship Comparison Tool (ACT), both lack the level of detail required for detailed analysis of funding within the automotive sector.

To support employers' access and maximise the use of available funding relating to automotive related apprenticeships it would be useful to:

- **Document relevant available funding in detail on an ongoing basis and outline how this can be accessed;**
- **Identify and document further examples of how the funding that is available has been utilised in innovative ways; and**
- **Identify what apprenticeship funding is available for use by employers to upskill/reskill existing employers and how this can be accessed.**

Involving apprentices

This Report has highlighted the benefits of involving apprentices in the development, updating and improvement of apprenticeships.

A number of innovative examples of how apprentices have been successfully involved in this process are also highlighted in the Good Practice Resource including:

- The Azubi Car initiative which is an example of a programme at the Skoda Vocational School in the Czech Republic that gives learners the opportunity to design and manufacture their own concept car;

- Zukunft.lehre.österreich in Austria which is an example of how apprenticeship involvement is encouraged through the establishment of an Apprenticeship Alumni-Club; and

- The JA3B initiative in Spain which is an example of an innovative approach to capturing the views of automotive apprentices and feeding these back to key stakeholders.

It would be useful to add further examples to to the Good Practice Resource of how apprentices have been successfully involved in the development, updating and improvement of apprenticeships that others can learn from.

Closer dialogue between stakeholders

Apprenticeships need to balance the need for equipping apprentices with the skills required for successful careers in the automotive industry with the need to meet employers' specific changing skill requirements.

As changing skill requirements within the automotive industry become more complex and the rate at which these skill changes take place increases, the role played by different social partners in ensuring the appropriate balance between these two aims will also become more challenging.

It will be useful to identify and document further examples of successful models that fully involve different social partners at the same time as being flexible enough to respond to fast changing skill requirements of employers.

The role of the Automotive Skills Alliance (ASA)

The work of the Automotive Skills Alliance and associated Working Groups provides an obvious framework in which to implement a number of the above recommendations.

The mission of the Automotive Skills Alliance (ASA) https://automotive-skills-alliance.eu/ is to bring together different kind of stakeholders involved in the Automotive ecosystem and to ensure continuous, pragmatic and sustainable cooperation on the skills agenda in the ecosystem.

Recommendations relating directly to the Automotive Skills Alliance (ASA) are summarised below:

Good Practice Resource (GPR): ***It is proposed that responsibility for sustaining and enhancing the Good Practice Resource over time is transferred to the ASA. It is also recommended that the scope of the Good Practice Resource is widened beyond a focus on apprenticeships to include all training and skills development issues and that the protocols for the collection and documentation of innovative practice are streamlined with those being developed through the ASA.***

Apprenticeship Comparison Tool (ACT): ***The Automotive Skills Alliance could potentially provide an umbrella structure for taking forward and sustaining the ACT over time.***

Skills intelligence: ***The Automotive Skills Alliance (ASA) could play a central role:***

- ***As a repository of information on changing skill requirements within the automotive sector;***
- ***By providing a mechanism to disseminate skills intelligence to appropriate Apprenticeship bodies and others involved in apprenticeship and other training development across the sector. (This potentially could be coordinated through Working Group 4 of the Automotive Skills Alliance (ASA));***
- ***By coordinating the documentation of innovative practice in relation to both skills intelligence gathering and modular/other flexible approaches to apprenticeship design that enable 'just in time' adaption to changing skill requirements;***
- ***The ASA should involve and mobilise CEDEFOP to use the automotive sector as a pilot to test more detailed analysis of vacancy data relating to job roles and associated skills; and***
- ***Each region represented through the ASA WG4 should commit to accessing and providing an agreed minimum set of data on numbers of apprentices undertaking training in relation to the automotive sector. This would enhance the ability to assess the adequacy of current provision serving the sector.***

Strengthening links with key Apprenticeship networks and stakeholders: ***As part of the work undertaken through DRIVES on Apprenticeships links have been established with a number of Apprenticeship stakeholders, in particular the European Alliance for Apprentices (EafA). It is recommended that the ASA continue to build on these links moving forward.***

Explore available funding to continue work relating to Apprenticeships: ***The ASA partnership interested in apprenticeships should identify potential sources of funding to continue to take forward the above work relating to Apprenticeships.***