DRIVES

Development and Research on Innovative Vocational Education Skills

D5.2 Understanding the Marketplace UPDATE Report – Economic Context and Recent Developments

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

D5.2 UNDERSTANDING THE MARKETPLACE UPDATE REPORT

Report Title:	D5.2 Understanding the Marketplace Update Report – Economic Context and Recent Developments		
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Version Control				
Version	Name	Partner	Changes	Date
0.1	Mick Feloy	Enginuity	Draft	20-9-21
0.2	Mick Feloy	Enginuity	Draft	15-10-21
0.3	Mick Feloy	Enginuity	Draft	1-11-21
1.0	Mick Feloy	Enginuity	Final	26-11-21

Document data:	File name:	D5_2_UPDATE REPORT – RECENT DEVELOPMENTS		
	Pages:	23	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:	07/12/21
Keywords:	Apprenticeship market, automotive market, automotive skill needs			
Reviewed by:	Neill Goodliffe (ENGINUITY)		07/12/21	
Approved by:				

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1 INTRODUCTION

A key aim of the DRIVES project[1] 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[2].

Since the publication of the DRIVES 'Understanding the Marketplace' Report in 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 the UPDATED 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. This section of the Report focusses on the changing economic context of the European automotive industry and recent developments across the European apprenticeship marketplace.

The Full UPDATED Report can be found at: INSERT LINK
The Executive Summary can be found at: INSERT LINK
Innovative practice in relation to automotive apprenticeships can be found at: INSERT LINK
Practical implications and next steps ca be found at: INSERT LINK

[1] https://www.project-drives.eu/en/home
[2] The report summarising key issues from this research can be found at: Key Issues Report
The Full Report can be found at: LINK (https://www.project-drives.eu/Media/Publications/157/Publications_157_20200825_104825.pdf)

2 CHANGING ECONOMIC CONTEXT

2.1 WHY DOES THE AUTOMOTIVE INDUSTRY CONTINUE TO BE IMPORTANT?

The automotive industry remains crucial for Europe's prosperity.[3] 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'[4] 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%.[5]

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

[4] 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.

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

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 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. [6]

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.[7]

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.[8]

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

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

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

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

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.[9]

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.[10]

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.[11]

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

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

[11] https://www.statista.com/statistics/1105196/volume-index-of-motor-vehicle-production-in-europe/

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.[12]

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 Volvo, 14,600 at Renault and closure of the Nissan factory in Barcelona with 3,000 direct job losses and 25,000 indirect jobs. [13]

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;[14]
- In November 2020 the **Germany** government agreed a €4 billion automotive industry stimulus package.[15] 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);

[12] https://think.ing.com/articles/automotive-sector-update-recovery-under-way-stirred-but-undetered/

[13] 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

[14] https://www.dw.com/en/france-unveils-stimulus-plan-worth-8-billion-for-car-industry/a-53578294

[15] https://autovistagroup.com/news-and-insights/germany-increases-financial-support-its-automotive-industry

- 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;[16]
- 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;[17]
- 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[18]
- 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.[19]

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.[20]

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.

[16] https://europe.autonews.com/automakers/italy-help-auto-sector-minister-says

[17] https://www.gov.uk/government/publications/a-plan-for-jobs-documents/a-plan-for-jobs-2020

[18] https://www.lw.com/thoughtLeadership/COVID-19-EU-State-Aid-Granted-to-the-Automotive-Sector

[19] https://theicct.org/blog/staff/economic-recovery-covid-19-ev-europe-aug2020

[20] 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

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'. [21]

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.

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.[22]

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%).[23]

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.

[21] https://ec.europa.eu/info/strategy/recovery-plan-europe_en

[22] https://auto.economictimes.indiatimes.com/news/industry/electric-vehicle-sales-surge-in-eu-amid-covid-slump/80690036

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

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.[24]

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:

- ***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[25] and nearly 550,000 electric vehicles in the EU 27 (including Iceland, Norway and the UK). [26]

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.[27]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 vehcles 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[28]
- 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

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

[25] https://www.iea.org/reports/global-ev-outlook-2020
[26] https://www.eea.europa.eu/data-and-maps/indicators/proportion-of-vehicle-fleet-meeting-5/assessment
[27] 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/
[28] https://www.jato.com/wp-content/uploads/2021/09/European-regs-August-by-fueltype.jpg

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.[29]

- ***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.[30] Expectations of the China Association of Automobile Manufacturers[31] 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.[32] 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 [33] 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.[34]

- ***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.[35]

[29] https://think.ing.com/articles/automotive-sector-update-recovery-under-way-stirred-but-undetered/
[30] Energy vehicles include battery, plug-in hybrid and fuel-cell models
[31] https://www.spglobal.com/marketintelligence/en/news-insights/latest-news-headlines/tesla-faces-growing-competition-in-china-after-smooth-ride-in-2020-62258555

[32] https://asia.nikkei.com/Spotlight/Electric-cars-in-China/Surging-EV-sales-put-China-ahead-of-government-targets2
[33] 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.
[34] https://www.epicflow.com/blog/2021-automotive-industry-challenges-and-trends/

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

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.[36]

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.[37]

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.[38] [39]

- **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.[40]

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

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

[38] https://www.theguardian.com/environment/2021/nov/10/cop26-car-firms-agree-to-end-sale-of-fossil-fuel-vehicles-by-2040

[39] https://ukcop26.org/cop26-declaration-on-accelerating-the-transition-to-100-zero-emission-cars-and-vans/

[40] https://www.insidemazda.co.uk/2020/03/30/mazda-backs-carbon-neutral-biofuel-research-2/

- **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.[41]

- ***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. [42] The company officially applied to manufacture battery cells at the Berlin Gigafactory in June this year[43]. 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.[44]

- ***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.[45]

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[41] https://www.motorauthority.com/news/1131057_jaguar-land-rover-looks-to-boost-ev-range-by-reducing-weight-with-composites

[42] https://www.teslarati.com/tesla-4680-giga-berlin-battery-plant-two-years/

[43] https://electrek.co/2021/06/04/tesla-officially-applies-build-battery-cells-gigafactory-berlin/

[44] https://www.automotive-iq.com/electrics-electronics/articles/top-five-ev-battery-factories-in-europe

[45] https://www.leasefetcher.co.uk/guides/car-technology/what-is-android-auto

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:

- 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;[46]
- At the same time, entrepreneurial and automotive process and transformation skills are essential as companies need to change into highly efficient high tech companies;[47]
- 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

[46] T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce," 2019.
[47] T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce," 2019.

educational institutions and industry to partner with one another to close this talent gap for the future workforce is highlighted in this respect;[48] 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:

- 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;[49]

- 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;[50] and

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

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

[49] https://www.pwc.com/us/en/library/covid-19/coronavirus-impacts-automotive.html

[50] https://www.pwc.com/us/en/library/covid-19/coronavirus-impacts-automotive.html

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.[51] 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'.[52] It is reported that economic recovery is forcing organisations to 'reimagine' their operations with manufacturing companies reconfiguring their supply chains and their production lines;[53]
- **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 COVID-19 pandemic.[54] On the one hand this reduces numbers shop-floor workers but on the other increases the need to upskill remaining workers[55] 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).[56] 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

[51] https://www.mckinsey.com/featured-insights/coronavirus-leading-through-the-crisis
[52] https://www.mckinsey.com/featured-insights/leadership/the-future-is-not-what-it-used-to-be-thoughts-on-the-shape-of-the-next-normal
[53] https://www.mckinsey.com/business-functions/operations/our-insights/building-the-vital-skills-for-the-future-of-work-in-operations

[54] https://www.mckinsey.com/business-functions/operations/our-insights/building-the-vital-skills-for-the-future-of-work-in-operations

[55] https://www.automation.com/en-us/articles/january-2021/manufacturers-adapt-workers-skills-covid-recovery
[56] 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

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.[57] 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:

- 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.

[57] 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

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.[58]

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.[59]

This led to serious disruptions in the delivery of work-based learning, including apprenticeships over this period.[60] 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

[58] https://www.acea.auto/news/coronavirus-covid-19/

[59] https://fortune.com/2020/03/17/coronavirus-impact-shutdown-european-auto-sector-volkswagen/

[60] 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

not assessing learning outcomes related to practical skills developed in workshops or laboratories, or through work-based learning and apprenticeships.[61]

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

In April 2020, Cedefop community of apprenticeship experts[62] launched an internal consultation about how European countries were managing apprenticeships during the COVID-19 crisis.[63]

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.

[61] 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

[62] https://www.cedefop.europa.eu/en/events-and-projects/networks/cedefop-community-apprenticeship-experts

[63] 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.[64] 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.[65]

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.[66]

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

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

[66] 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.[67]

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:

[67] 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.