



Understanding the Marketplace

Key Issues Report

Deliverable 5.2 - Report on the European Automotive Apprenticeship Marketplace



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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 and 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 try and support the future-proofing of skills and allow the EU workforce to continue to compete on a global scale. Running from January 2018 until December 2021, the project brings together 24 partners from 11 EU 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
- 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.

This Report identifies a range of key issues impacting on the automotive sector that have implications for the apprenticeship marketplace serving the sector and suggests a number of practical actions to address these issues. The Full Report can be found at: [LINK](#)



2 CHANGING AUTOMOTIVE SKILL NEEDS

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 EU 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 skills¹ 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 and automotive regions is enormous; the 3.4 million high-skilled jobs in automotive manufacturing (representing more than 11% of the EU's total manufacturing employment) 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)² 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 reduced drastically, or in some cases disappear.

¹ 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/>

² European Sector Skill Council: Report, EU Skill Council Automotive Industry, 2013



This poses both challenges and opportunities for the reshaping of the apprenticeship offer across the EU. 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 GEAR 2030 Report³ provides detailed insights into the skills and wider labour force challenges facing the industry. The report also identified several steps to tackle the challenges of adapting to new technologies including the need to: support the mobility and transferability of skills; encourage non-formal learning certification; and develop a well-functioning apprenticeship market.

The development of a well-functioning apprenticeship market across the EU is identified as a key component of the package of actions required to address identified challenges facing the sector. The DRIVES project is seeking help to address this by including it as a key objective of the Project. The report 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.

Skills and wider workforce challenges highlighted in the report include:

- Increasing quantitative and qualitative shortages in suitable workers, especially in the areas of engineering, scientific, and soft skills (communication, team leading, consumer-facing skills), linked to the ageing workforce (23% are approaching retirement age)⁴
- The wide diversity of national education systems and cultures
- The ever-accelerating pace of technological change
- The cut back in recruitment as a consequence of the 2008 economic crisis has slowed down the process of substitution of workers approaching retirement age, creating a skills transfer void, as experienced workers are unable to pass on their knowledge to suitably experienced younger colleagues, before retiring.
- Mobility of talent within the entire automotive value chain is impeded by a lack of vocational qualification recognition and standardised approaches to the validation of non-formal learning among Member States, leading to limited transferability across the EU and the automotive value chain.

³ GEAR 2030, High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the EU, 2017

⁴ SWD(2016) A New Skills Agenda for Europe



- Challenges amongst SMEs (which are an important part of the European automotive supply chain) are identified, particularly in relation to greater difficulties in recruiting candidates meeting their particular needs and providing the required learning and development for their employees.
- A poorly functioning apprenticeship market, with a lack of clarity and awareness of the required job profiles

A number of skills implications associated with these changes are identified by the report. In particular:

- The move towards electrification 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.



Figure 1 Analysis of workforce skills required for Automotive Domain in 2030⁵

Other recent research⁶ provides further insights as to the changing nature of skills within the automotive sector.

The research indicates:

- In relation to skills required, automotive “hard” skills such as engineering or software development are rated as most critical to organisations success. These technical skills have traditionally been essential, but in future also alternative autonomous capabilities and ICT connectivity features are contributing to the engineering complexity.

⁵ IBM Institute for Business Values, Automotive 2030 - Racing toward a digital future, Research Insides, 2019

⁶ T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce," 2019.



- At the same time, entrepreneurial and automotive process and transformation skills are essential as companies need to change into highly efficient high tech companies.
- The automotive industry is rapidly transforming towards Industry 4.0 with massive advancements in technology development and processes. However, challenges and opportunities of technology adoption and deployment continue to arise and there are few companies that 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 respect⁷.
- 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 demands⁷.

The COVID-19 Pandemic and associated economic downturn changes in working practices are also likely to have profound changes on the demand for skills across the EU automotive sector, although at present it is too early to predict exactly what form these changes will take.

The automotive sector across the EU is facing a common set of skills challenges. It is the scale of impact in different areas of automotive supply chain that is likely to differ in each country, linked primarily to differing composition of national and regional automotive supply chains. The common skills challenges faced across the EU automotive supply chain further underline the importance of improving mobility of labour through improved qualification recognition between Member States and in the case of apprenticeships, through the potential development of a single market for apprentices across the EU by linking regional, national and European apprenticeship initiatives.

More details on the EU Automotive sector can be found at: [HYPERLINK](#)

More details on skills changes impacting on the EU Automotive sector can be found at: [HYPERLINK](#)

⁷ T. Fiorelli, K. Dziczek und T. Schlegel, "Automation Adoption & Implications for the Automotive Workforce", 2019.



3 UNDERSTANDING THE EU AUTOMOTIVE AND WIDER APPRENTICESHIP MARKETPLACE

This chapter focuses on understanding different apprenticeship models adopted across the EU and the implications of these different approaches for the automotive sector.

In order to do this the chapter focusses on those countries with a significant concentration of automotive sector activity.

For the purposes of this analysis this has been defined as the ‘top 10’ EU countries based on direct automotive employment in 2017. These ten countries are listed below:

Direct Automotive Employment – 2017

- Germany (870,000 jobs)
- France (223,000)
- Poland (203,000)
- United Kingdom (186,000)
- Romania (185,000)
- Czech Republic (177,156)
- Italy (162,876)
- Spain (157,610)
- Hungary (97,688)
- Sweden (79,600)

Figure 2 Direct Automotive Employment – 2017⁸

In order to identify the different apprenticeship models in operation in these ten counties, the chapter draws on a wide range of research undertaken by CEDEFOP. In particular, a major cross nation review was published in 2018 that established a framework for categorising different apprenticeship approaches by country⁹.

⁸ The Automobile Industry Pocket Guide 2019-2020, ACEA

⁹ Apprenticeship Schemes in European countries – A cross-nation Review – CEDEFOP 2018



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'*¹⁰.

The analysis indicates that there are wide variations across these 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.

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

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. 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.

The assessment is based on available evidence and points generally higher scores in Germany and the UK reflecting the relatively formalised apprenticeship infrastructures in both countries and somewhat lower scores in the Czech Republic, Spain and Sweden. However, it should be noted these

¹⁰ Apprenticeship Schemes in European countries – A cross-nation Review – CEDEFOP 2018

assessments should only be treated as a guide, given the current difficulties involved in the assessment process based on information available.

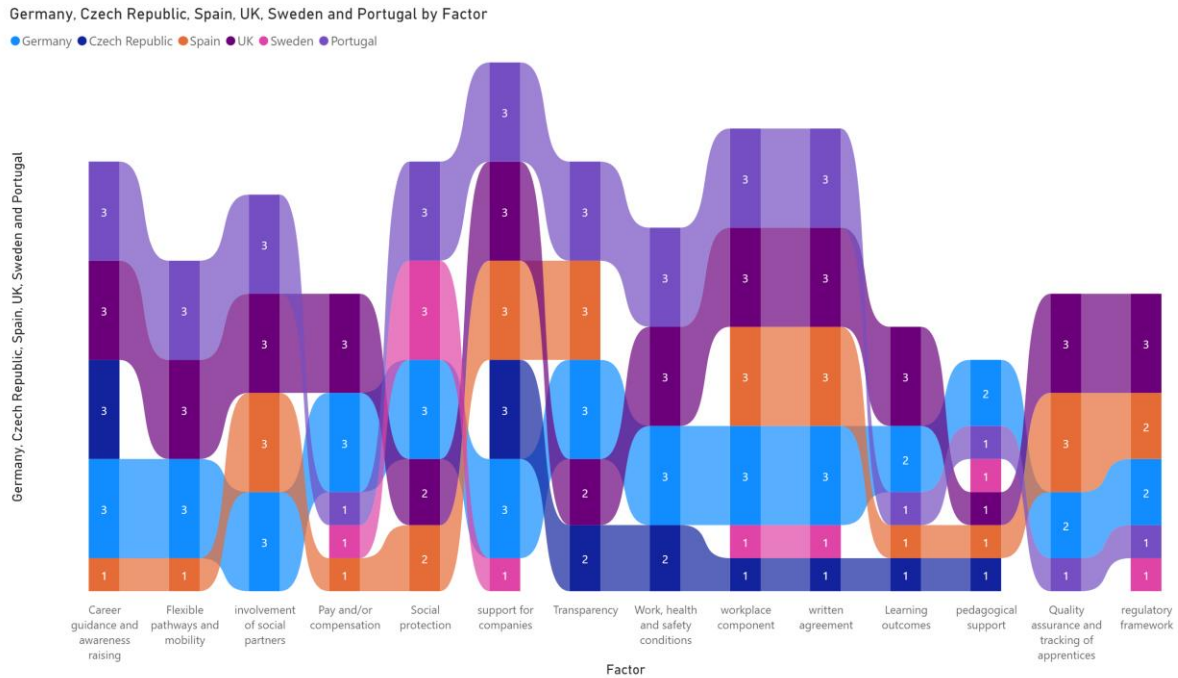


Figure 3 Benchmarking the apprenticeship systems from six different countries

More details on the EU Apprenticeship marketplace can be found at: [HYPERLINK](#)

More details on the EU Automotive Apprenticeship marketplace can be found at: [HYPERLINK](#)



4 IMPLICATIONS FOR APPRENTICESHIPS

4.1 KEY THEMES

The chapter below summarises the key issues impacting on the Automotive Apprenticeship marketplace using 12 key themes, these being:

- The pace of skills change
- The impact of skills change on different educational levels
- The importance of upskilling and reskilling of existing employees
- The specific nature of skill changes
- Apprenticeships need to reflect employer needs
- The implications of Industry 4.0
- The need to improve the image of the sector
- The need to encourage greater workforce diversity
- The confusing nature of the current apprenticeship offer across different nations
- Challenges faced by SME's
- The global nature of the automotive industry versus the local focus of apprenticeships
- The need to encourage learning from good practice

Against each of these issues the Report sets out more detailed initial ideas on practical actions designed to tackle the specific issue and/or case studies highlighting innovative ways which have been put in place to try and tackle the issues highlighted.

4.2 THE PACE OF SKILLS CHANGE

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.

This underlines the need for the apprenticeship offer to be flexible enough to respond to these changes. These changes also imply:

- It is difficult for providers to keep abreast of changing skill requirements
- Future skill requirements are difficult for employers to predict



It has also been pointed out that across a wide range of different sectors the pace of technological change highlights the need to adapt learning programmes to reflect the critical importance of an interdisciplinary approach to innovation in the workplace¹¹.

Case study 1 in the Main Report provides a good example of how apprenticeship training for Automotive Business Administrators in Germany has recently been updated to reflect fast changing skill requirements. Case study 1 can be found at: [HYPERLINK](#)

Case study 2 in the Main Report provides an example of how a company in Austria ensures training of students (potential future employees) involves learning about the latest technologies and challenges facing the company. Although this is not an apprenticeship scheme it has been included to highlight how one company is ensuring students are equipped with up to date skills required by the company. Case study 2 can be found at: [HYPERLINK](#)

4.3 THE IMPACT OF SKILLS CHANGE ON DIFFERENT EDUCATIONAL 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 lower/intermediate level (EQF levels 2-4).

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 6 and 7)¹² as a core component of the apprenticeship¹³. 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.

¹¹ The Future of Work Jobs and Skills in 2030; UKCES; Z_punkt and the Centre for Research in Futures and Innovation (CRI-FI)

¹² This is equivalent to EQF levels 6 and 7

¹³ <https://www.allaboutschooleavers.co.uk/articles/article/298/what-is-the-difference-between-a-degree-apprenticeship-a-higher-apprenticeship>



A range of higher level apprenticeships of relevance to the automotive sector are now either in place in England or under development. The introduction of Degree Apprenticeships in England (UK),¹⁴ together with those Degree Apprenticeships of particular relevance to the automotive sector is set out as case study 3 in the Main Report. Case study 3 can be found at: [HYPERLINK](#)

4.4 THE IMPORTANCE OF UPSKILLING AND RESKILLING OF EXISTING EMPLOYEES

Upskilling of existing employees is at least as important as support for new entrants. This implies the need for appropriately tailored training but also the need to maximise the potential for apprenticeships to support upskilling and provide clear learning pathways between different levels to facilitate continuous upskilling and reskilling¹⁵.

Case study 4 in the Main Report provides an example of an innovative approach to encouraging smooth progression from entry level through to higher Apprenticeship levels. Case study 4 can be found at: [HYPERLINK](#) The Advanced Engineering, Pathways to Apprenticeship Study programmes were introduced across Wales (UK) from 2012 as a pilot initiative introducing an intensive, Further Education College (FEC) option for young people preparing them for an apprenticeship placement with an employer and providing them with the opportunity to fast-track them through a UK Level 2 Apprenticeship Framework, allowing seamless progression directly into a UK Level 3 or Level 4 Apprenticeship under an employed status.

A recent international study into workforce development and its links to innovation led by the UK High Value Manufacturing (HVM) Catapult¹⁶ concluded that the rapid pace of technological change demands more modular and flexible training courses that can be used to upskill and reskill the existing workforce, sometimes alongside full-time learners. The report also emphasised that training resources must be suitable both for new workforce entrants and to upskill and reskill those already in work.

¹⁴ The Apprenticeship offer together with governance and regulatory arrangements differ in each nation of the UK

¹⁵ There is evidence that traditional pre-conceptions that apprentices can only be entry-level school leavers or labour-intensive workers are already evolving. See for example <https://www.findcourses.co.uk/inspiration/apprenticeships/using-the-apprenticeship-levy-to-train-existing-staff-13125>

¹⁶ Manufacturing the future workforce; High Value Manufacturing (HVM) Catapult, November 2019



4.5 THE SPECIFIC NATURE OF SKILL CHANGES

A number of specialist skills are emerging as technology changes within the industry. This implies employers need tailored; **often bite sized solutions to meet their needs**, which in turn have implications for the design of apprenticeships, with a degree of flexibility required¹⁷.

Case study 5 in the Main Report provides an example of a university in Austria working with employers to help employees meet the particular challenges each employer faces through Life Long Learning for university-level continuing education in engineering and science subjects. Case study 5 can be found at: [HYPERLINK](#) Courses are designed by focusing on the needs of target groups in an industrial context and developing innovative subjects and formats to meet these needs. Training is also designed to use up-to-the-minute teaching and learning technologies developed at TU Graz to create flexible learning settings on site¹⁸. Although the example is not an apprenticeship scheme the case study does provide an insight into how workforce skills development can be delivered flexibly in order to ensure this keeps abreast of fast changing technologies.

4.6 APPRENTICESHIPS NEED TO REFLECT EMPLOYER NEEDS

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**. Case study 6 provides an example of the Automotive Trailblazer Employer Group in England established to drive the design of apprenticeships to meet the specific skill requirements of the automotive sector. Case study 6 can be found at: [HYPERLINK](#)

¹⁷ The Future of Work Jobs and Skills in 2030; UKCES; Z_punkt and the Centre for Research in Futures and Innovation (CRI-FI)

¹⁸ Technical University of Graz: <https://www.tugraz.at/en/studying-and-teaching/degree-and-certificate-programmes/continuing-education/life-long-learning/>



Case study 7 in the Main Report provides an example from Belgium of an apprenticeship programme serving the Belgian automotive aftersales sector that involves close dialogue between schools, automotive retailers/dealerships, major automotive brands and a specialist provider. Case study 7 can be found at: [HYPERLINK](#)

4.7 THE IMPLICATIONS OF INDUSTRY 4.0

The likely impact of **Industry 4.0** on overall changes to skill requirements has already been highlighted (See Chapter 2). 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 changes¹⁹. 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 digitalisation²⁰.

The need to adapt the Apprenticeship offer to meet these changing skill requirements has been recognised in Australia through the introduction of the Industry 4.0 Higher Apprenticeship Programme²¹, which trains technicians to a higher skill covering topics including:

- Advanced manufacturing processes
- Automation and robotics
- Internet of Things
- Cloud computing
- Advanced algorithms
- Smart sensors

Two case studies in the Main Report (8 and 9), one from Spain and one from Finland provide good examples of initiatives developed to tackle the growing need for digital skills within the automotive industry within the EU.

¹⁹ Apprenticeships and 'future work': are we ready? Erica Smith, 2019 <https://rdcu.be/bQRlx>

²⁰ 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

²¹ <https://www.industry.gov.au/funding-and-incentives/manufacturing/industry-40>



- Case study 8 provides an example of an international learning programme for current workforce upskilling and young graduate digital talent attraction in the automotive industry, based in Spain. Case study 8 can be found at: [HYPERLINK](#)
- Case study 9 provides an example of a digital academy established in Finland (MERINOVA Digitalisation Academy²²). It runs an interdisciplinary programme for university students at VAMK, Novia and University of Vaasa on their last year of studies, seeking internships and thesis work with an emphasis on the Energy Cluster and Digitalisation. The Academy is a unique regional programme managed by universities, digitalisation companies and large international organisations from the local energy cluster EnergyVaasa. It offers students a very interesting programme that enables them to learn from professionals in the energy industry and get the latest knowledge in digitalisation. Case study 9 can be found at: [HYPERLINK](#)

Although both these case studies are not apprenticeship schemes they do provide innovative examples of programmes designed to tackle the growing need for digital skills within the automotive industry.

There are also significant implications of digitalisation in relation to the way apprenticeships should be delivered in the future, in particular the increased use of digital technologies as part of apprenticeship programme delivery. In some countries there has already been a rapid increase in such approaches. For example, evidence indicates that about 1 in 4 companies in Germany already engage intensively in the digitalisation of VET²³.

The same research²³ also highlights the scope for adopting a more strategic approach to the digitalisation of apprenticeships. It is pointed out that

- Cooperation between learning venues need to be improved;
- There is significant need for orientation / support (in particular in relation to SMEs); and
- Increased dissemination of examples of good practice can motivate more companies to engage in the digitalisation of their apprenticeships

²² Digitalisation Academy: <https://www.digitalisationacademy.fi/about-academy/>

²³ 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



Case study 10 in the Main Report provides a good example of the innovative use of e learning in relation to two apprentices within a German metalworking company. Case study 10 can be found at: [HYPERLINK](#)

4.8 THE NEED TO IMPROVE THE IMAGE OF THE SECTOR

It is well documented that the **automotive sector suffers from a poor image** amongst young people in a number of EU countries²⁴. A range of innovative solutions are required to address this. Case study 11 in the Main Report highlights how a national campaign in the UK, encourages more young people to consider a career as a technician. The campaign links up with World Skills UK to showcase jobs young people may not have considered in order to try and attract young people into the automotive and other industries employing technicians. Case study 11 can be found at: [HYPERLINK](#)

4.9 THE NEED TO ENCOURAGE GREATER WORKFORCE DIVERSITY

It is also clear that there is a **gender imbalance across the automotive sector as a whole and particularly in relation to certain occupations** and that more could be done to ensure the industry is an attractive option for all groups²⁵. **If the industry is to tackle changing future recruitment and skills challenges effectively it will be crucial that steps are taken not only to tackle the gender imbalance but also to ensure the skills of all demographic groups are maximised.** Case study 12 in the Main Report provides an example from Germany of a programme to successfully encourage refugees into the automotive industry. Case study 12 can be found at: [HYPERLINK](#)

²⁴ GEAR 2030, High Level Group on the Competitiveness and Sustainable Growth of the Automotive Industry in the EU, 2017

²⁵ <https://www.motortrader.com/motor-trader-news/automotive-news/driving-better-gender-balance-motor-business-15-03-2018>



4.10 THE CONFUSING NATURE OF THE CURRENT APPRENTICESHIP OFFER ACROSS DIFFERENT NATIONS

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

- Some overall apprenticeship models are likely to encourage greater inter-industry mobility than other models. In relation to the countries focussed on in this Report it is possible to split apprenticeship models into two broad types²⁶ 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).
 - 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.
- 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.
- Based on research undertaken as part of the DRIVES project it is clear that within individual EU 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. Understanding and comparing different apprenticeship offers across different EU countries is currently a significantly more difficult challenge.

These challenges require innovative solutions to help both employers and trainees maximise the value of apprenticeships in meeting fast changing skill requirements.

²⁶ See Apprenticeship Schemes in European countries – A cross-nation Review – CEDEFOP 2018



4.11 CHALLENGES FACED BY SME'S

The EU apprenticeship market poses particular challenges for automotive SME's (which are vital to the efficient functioning of the automotive supply chain) both in relation to greater difficulties in recruiting candidates which meet their particular needs and providing the required learning and development for their employees.

Specifically, SME's often struggle to provide apprenticeship opportunities. Some of the most common reasons cited for this include: a lack of training infrastructure and personnel to supervise apprentices, as well as insufficient expertise and capacity to manage complex rules, employment law and administrative requirements²⁷. This implies the need for the development of innovative approaches to help SME's attract apprentices and support to ensure the capability to provide the required training support.

Recent action research undertaken as part of the EU Erasmus funded COTRAIN project²⁸ 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 whole²⁹.

In relation to challenges faced by SME's trying to train apprentices alone the research³⁰ highlights issues relating to the:

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

²⁷ Services for Apprenticeships (SERFA) Erasmus Plus Project Transnational Report; Apprenticeships across eight European countries: Current situation, best practice and SMEs' needs Prepared by Roland Löfflerand and Martin Mayerl (öibf) May 2017

https://www.serfa-project.eu/sites/default/files/upload/projet/transnational_report_final_version.pdf

²⁸ 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

²⁹ 2019 joint Cedefop and OECD symposium: The next steps for apprenticeship; 7 October 2019, Paris: 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

³⁰ Creating Collaborative Training - Methodological guide; Edited by Isabelle Michel(CEPAG, Be)

https://www.cepag.be/sites/default/files/pages/methodological_guide_-_final_version_1.pdf



Given the complex nature of supply chains associated with the companies in the automotive sector, it is also clear that SME's in particular are often quite specialised and therefore cannot provide apprentices with the range of skills in a work environment that might be appropriate to complete particular apprenticeship programmes.

The position of SME's undertaking vocational training in an industrial context using a 'one-company' vocational training system is summed up as³¹, either SMEs cannot train apprentices, or if they train them, part of the training programme will not be covered on a real production line, with the necessary time to practice, repeat gestures and acquire skills.

The same research³¹ also highlights how SME's (and other companies) can improve their training and education capacity through shared arrangements with other companies. In particular, such arrangements can make it possible for apprentices to gain a complete knowledge and awareness regarding the entire work process, from design to production and maintenance. Two case studies highlight different ways of trying to address these issues:

- Case study 13 in the Main Report 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 trainee³¹. Case study 13 can be found at: [HYPERLINK](#)
- Case study 14 in the Main Report 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. Case study 14 can be found at: [HYPERLINK](#)

³¹ Creating Collaborative Training - Methodological guide; Edited by Isabelle Michel(CEPAG, Be)
https://www.cepag.be/sites/default/files/pages/methodological_guide_-_final_version_1.pdf



4.12 THE GLOBAL NATURE OF THE AUTOMOTIVE INDUSTRY VERSUS THE LOCAL FOCUS OF APPRENTICESHIPS

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 apprenticeships³² 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.

This underlines the importance of developing a single market for automotive apprentices across the EU by linking regional, national and European apprenticeship initiatives.

Further work undertaken in Germany³³ has examined the different training strategies adopted by German companies operating in other countries. Case study 15 in the Main Report provides an example of how one German multinational automotive company has approached this issue by rolling out their German apprenticeship model to their operations in Mexico. Case study 15 can be found at:

[HYPERLINK](#)

³² Apprenticeships and 'future work': are we ready? Erica Smith; First published: 21 January 2019
<https://doi.org/10.1111/ijtd.12145>

³³ Fachkräftesicherung deutscher Unternehmen im Ausland –Erfahrungen bei der Übertragung dualer Ausbildungselemente Unterstützt durch die Robert-Bosch-Stiftung
Körbel, Markus; Pierenkemper, Sarah; Zibrowius, Michael
Institut der deutschen Wirtschaft Köln



4.13 THE NEED TO ENCOURAGE LEARNING FROM GOOD PRACTICE

The work undertaken as part of this Report indicates that the apprenticeship offer relating to the automotive sector varies significantly across different EU countries, as do approaches to the design and delivery of apprenticeships. It is also clear that there are many examples of innovative practice that others could benefit from that at present are not widely known about. This underlines the need to encourage greater learning from such examples across national boundaries.



5 CONCLUSIONS AND MOVING FORWARD

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

A number of potential practical actions to try and tackle the issues identified in the Report are suggested, which can be summed up under four main headings:

1. Set up a centralised resource with examples of good practice

A number of examples of innovative practice have been highlighted in the Report including in relation to dealing with the challenges faced by SME's, implementing apprenticeships across national borders, initiatives aimed at tackling diversity issues, and responding to Industry 4.0. A range of easily accessible examples of particular relevance to the automotive sector located on one site would provide a valuable resource for employers, providers and others involved in trying to develop and implement apprenticeships to meet the fast changing requirements of the sector.

Setting up such a centralised resource clearly has potential links with the DRIVES Apprenticeship LinkedIn Group (DAAN)³⁴ and would need to build on and be undertaken in collaboration with the European Alliance for Apprenticeships (EAfA)³⁵ and CEDEFOP³⁶ to ensure existing resources are maximised.

The Report includes both examples of apprenticeships and examples of relevance to apprenticeships within the automotive sector. It will be important to agree the basis for further collection of good practice examples moving forward.

³⁴ The DRIVES WP5.1 DAAN LinkedIn Group has been established in order to share ideas, approaches and activities pertaining to apprenticeships in the EU's automotive sector. This forum welcomes contributions that relate to both youth and adult apprenticeships.

<https://www.linkedin.com/groups/8814397/>

³⁵ The European Alliance for Apprenticeships (EAfA) is a multi-stakeholder platform aiming at:

- Strengthening the **quality, supply and image** of apprenticeships in Europe
- Promoting the **mobility of apprentices**

These aims are promoted through [national commitments](#) and [voluntary pledges](#) from stakeholders.

<https://ec.europa.eu/social/main.jsp?catId=1147&intPageld=5235&langId=en>

³⁶ <https://www.cedefop.europa.eu/en>



2. Establish an intelligence service to track skills changes for employers and providers and act as an accessible resource for both employers and providers.

The difficulties faced by both employers and providers in identifying how automotive sector related skills are changing and the implications of these changes for provision is well documented in this report.

An important aspect of work being undertaken as part of the DRIVES Project is to identify how key outcomes from the Project can be sustained after funding ceases. Establishing self-sustaining, forward looking automotive skills intelligence service needs to be an important component of DRIVES sustainability plans. This would help employers, providers and other stakeholders identify how the training needs to adapt to meet changing skill requirements and could provide a valuable resource for those specifically involved in trying to develop and implement apprenticeships in the sector

Although each country has its own established processes for apprenticeship development we are suggesting that an intelligence service focussed on identifying changing automotive skills could feed into these different processes.

How this works in practice will need to be specified in detail as part of the ongoing DRIVES Project, but a dynamic two way process of information to and feedback from key labour market stakeholders will need to be built in as an important aspect of this. Given the ambitious nature of this objective it may be more practical to focus in particular on key local and regional clusters of automotive activity including regions with smart specialisation strategies (S3)³⁷ in relation to the automotive sector. Establishing links with Centres of Vocational Excellence will also be important as will developing links with the ‘Pact for Skills’ recently announced by the EU “to generate new concrete commitments to invest in up- and re-skilling”.³⁸

³⁷ Smart specialisation is an innovative approach that aims to boost growth and jobs in Europe, by enabling each region to identify and develop its own competitive advantages. See https://ec.europa.eu/regional_policy/sources/docgener/guides/smart_spec/strength_innov_regions_en.pdf

³⁸ See <https://all-digital.org/eu-commissioner-pact-for-skills-at-all-digital-event-ilas-in-the-2020s/>



3. Establish an Apprenticeship comparison tool to try and help both employers and individuals to navigate the apprenticeship landscape and compare offers in different countries.

As this report has identified, such comparison is very difficult at present. A key component of the DRIVES Project is the establishment of an online brokerage tool to source training serving specific new and evolving job roles within the EU automotive sector. The purpose of this tool is to simplify the search and matching of training with the needs of the automotive sector and to widen access to all stakeholders. This is termed the DRIVES Framework. It has been agreed that the scope of the Framework will be extended to encompass apprenticeships in order to help comparison of different apprenticeship offers. It is envisaged this will enable simple comparison between different apprenticeships in relation to:

- EQF level
- Job role(s) covered
- Occupation(s) covered
- Relevant skills/skills domains
- Duration of apprenticeship
- Countries apprenticeship is available
- Provider type/location

We would argue that a tool that enables comparison of relevant apprenticeships in different countries in one place would be of value to both employers and individuals:

- From the point of view of an individual, at the moment it is difficult to identify how an automotive related apprenticeship taken in one country would improve labour market prospects within the automotive sector in other countries.
- From the point of view of an employer, the automotive market is international with many companies having a footprint operating across several different countries, with the implication being that the company has to engage with a number of different apprenticeship systems.

We would suggest that the proposed Apprenticeship Comparison Tool will help both individuals and employers address these issues.



We are currently piloting a methodology for presenting and comparing the specific apprenticeship offers serving the automotive sector using data from Germany and England to test how this can work in practice, with a view to extending this to other countries.

4. Adopting more innovative ways of designing apprenticeships such as ensuring increased flexibility, just in time design to respond to rapid skill changes, and making sure the apprenticeship offer supports upskilling of existing employees as well as new entrants to the sector. As a basis for discussion we have put forward one suggestion in the Main Report highlighting how the design of apprenticeships could be improved by adopting an approach comprising self-contained modules which would make it easier for employers and trainees to opt into the specific skills they require. A full outline of this practical suggestion can be found at: [HYPERLINK](#)

It will be important to document and disseminate other innovative models in order to help address the skills issues facing the automotive sector now and in the future through improved apprenticeship design.

Moving Forward:

We are using the dissemination of this 'Key Issues Report' and the associated 'Main Report' as a way of provoking discussion and feedback and as part of a further process of information and ideas gathering.

By clicking on the link below we plan to gather a much wider set of feedback on:

- The proposed recommendations contained in this Report
- Other suggestions of practical action to improve the current apprenticeship offer serving the automotive sector
- Examples of good practice

We are proposing that the results of this will be published as a separate report in 2021, once this process is completed.

We would be grateful if you could spend a few minutes to provide your feedback on the information and ideas set out in this Key Issues Report and/or the associated Main Report by clicking on the link below:

<https://drives-survey.vsb.cz/s/f5a356f2d9ae4222>