CENTRE OF SOCIAL AND PSYCHOLOGICAL SCIENCES SAS

I SKILL

D3.1 – National report
SLOVAKIA

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Executive summary

Challenges stemming from the twin green and digital transitions that increase the risk of labour and skills shortages are particularly pertinent to Slovakia, a country with one of the highest risk of automation and digitisation in Europe.

Relative to other Member States, the Slovak economy is highly industrialized with a leading role in the manufacturing industry. We focus on the globally integrated automotive industry facing competitive as well as automation pressures. As the leading industry in Slovakia, the automotive sector contributes significantly to value, export and employment.

The findings presented in this report are based on (1) secondary sources underpinning the overview of the adult learning framework and the automotive sector; and (2) analysis of information from discussions during two national stakeholders' events and qualitative data gathered via semi-structured interviews with social partners, training providers, governance actors and representatives of a company case study.

The adult learning governance in Slovakia is characterised by fragmentation across multiple actors and institutions and a lack of cross-section cooperation.

Slovak trade unions do not seem to be actively engaged in existing debates about adult learning at the national level, as they continue to focus on 'bread-and-butter' issues such as wage increases and working conditions. Due to the structure of social dialogue in Slovakia, which is decentralised to companies, exceptions in union activities might exist at the plant level.

Employers are very influential in shaping the content of debates about adult learning in Slovakia but appear to fail to see the issue of adult learning in its complexity, including the role it can play in elevating the exclusion of low-skilled adults from the labour market.

Public funding for adult learners has been provided mainly in the framework of active labour market policies. There have been recurrent national projects with some of the characteristics of a voucher scheme providing access to vocational training and soft skills training for job seekers. Recently, eligibility for these projects has been extended to those employed. Otherwise, funding to employees in cooperation with employers is provided on an ad hoc basis, based on individual national projects.

The low participation rate of the unemployed seems to be at odds with the training support offered in the framework of the active labour market policies. The actual investment in active labour market policies is moderate in Slovakia compared to other EU countries and the share of the training programmes is very low.

The adult learning provision frameworks which would offer opportunities for low-skilled adults are underdeveloped in Slovakia.

Companies can be efficient in dealing with skills shortages by developing their own non-formal re-skilling and up-skilling programmes. Companies can communicate the increasing importance of supporting soft skills such as teamwork, communication skills, and problem-solving skills as well as the ability to adapt to new situations and to engage in complex projects.

Publicly funded adult learning programmes in Slovakia should be designed to be accessible and more inclusive.

More inclusive adult learning schemes could be particularly effective in addressing current labour shortages in the automotive sector in Slovakia.

1. Introduction

This report is written as part of the I SKILL (Industrial Relations to Kick-Start Inclusive Adult Learning) research project that investigates how industrial relations and social dialogue may contribute to the advancement of adult learning in the European Union (EU) by studying key mechanisms and factors that promote adult learning in terms of better access and quality. The project seeks to address challenges that stem from the twin green and digital transitions, which have been transforming labour markets across Europe and increasing the risks of labour and skills shortages or mismatches. These challenges are particularly pertinent to Slovakia, which belongs to countries with the highest risk of automation and digitisation in Europe (Machlica et al., 2017), and a strong disruptive impact on local labour markets (Majzlíková and Vitáloš, 2022). Relative to other Member States, the Slovak economy is highly industrialized with a leading role in the manufacturing industry, and automotive and electronics sectors within it, which belong to sectors with the highest pressure to transform and adapt to new technologies. This brings specific challenges and needs to individuals and companies that need to absorb this change with adaptation of skills being at the core. In parallel, the Slovak labour market is facing shortages and skill mismatches at both the high-skilled and low-skilled labour market segments (Abdul-Hamid and Ambasz, 2023).

Evidence of companies'` response to the challenges of the green and digital transitions at the workplace in Slovakia is scarce. We aim to address this gap and to provide insights into the current practices of companies in the automotive sector in Slovakia. More specifically, we analyse how companies deal with the impact of digital and green transitions on human capital in terms of the strategies for workplace learning strategies; what is the role of social dialogue in ensuring more equal access of workers to adult learning and workplace learning in this sector; and what is the role that public funding plays, or could play, in supporting adults in participating in learning more.

We focus on the automotive sector as a globally integrated industry facing competitive as well as automation pressures that have been reflected in the transition to electromobility, and clear skill adaptation requirements. At the same time, the sector is a leading industry in Slovakia, with significant contribution to added value, export and employment (Kureková, 2018), as well as one of the most heavily unionised (Kahancová, Martišková, and Sedláková, 2019).

The information presented in this report is based on secondary sources underpinning the overview of the adult learning framework and the automotive sector; the analysis of qualitative data gathered by semi-structured interviews carried out between June 2022 and April 2023 with social partners, training providers, governance actors and representatives of the company case study; and a roundtable discussion with relevant national and sectoral level stakeholders organized to validate the findings in the Spring 2023.

The ISKILL project, in different elements of its research, focuses on adult learning. In this report we empirically focus on how the micro-level engages with the practice of workplace learning as a prevailing bottom-up learning pathway in Slovakia.

Workplace learning is understood as learning which puts emphasis on 'particular contributions to individuals' learning provided and secured through engaging in work activities and interactions within workplaces or work practices.' (Billet, 2012).

As Billet (2012) further explains, the importance of the concept of workplace learning is the way workplace learning relates to occupational practices. Such learning experiences can generate knowledge which is more applicable to employees in respective occupational groups compared to knowledge generated in educational institutions. Hefler and Studená (2023)

emphasise that it is not only the individual who makes his or her choices in the particular organisational environment, but also organisations who act as agents in developing the learning strategies determining the conduciveness of learning environments.

The concepts of adult learning, adult learning and lifelong learning and their context are explained in more detail in Boyadjieva (2022) and section 1 of Deliverable D1.1 of this project (Astarita et al. 2023). In this report, we refer to adult learning usually in the context of measured participation as usually tracked for adults starting from the age of 25 years. The policy context and the terminology of adult learning as compared to lifelong learning are more difficult to delineate in the case of Slovak policy initiatives, as sometimes these have been used interchangeably. In general, debate on public funding to adult learning refers prevailingly to education and training after the initial education cycle and the actors involved in their governance and delivery.

The report is structured as follows: Section 2 reviews the adult learning context in Slovakia and provides a general data overview of adult learning outcomes based on representative data about adult learning; Section 3 provides an overview of the automotive industry and its position in the Slovak economy; Section 4 details the methodology for data collection; Findings are presented in Section 5, and conclusions are drawn in the final section.

2. National context on adult learning

In this section we provide a brief overview of the national context and the elements of the adult learning system in Slovakia which are relevant for interpreting the fieldwork results. This includes selected facts relevant to the development of adult learning policy, information on the key governance actors, selected facts about the formal education system and a short commentary on the trends in the participation of adults in learning based on available data sources.

The historical context of adult learning policy development

Slovakia is a small open economy with a relatively short state history. The path to a democratic political system with a free-market economy began after 1989 and as of 1993, the Slovak Republic was established as a new state on the European map.

The key impetus for the take-up and development of the lifelong learning agenda as a policy area in Slovakia was the process of the EU accession and the pre-accession negotiations which included bilateral consultations with the EU on lifelong learning. After 1993, the Slovaks strongly preferred joining the EU and submitted the official request to join in 1995[1]. In 1997, the European Council approved the enlargement concept, but the Slovak Republic did not meet the political criteria (human rights and democracy) and was ultimately not included in the intensive negotiations. Following the elections in 1998 Slovakia was able to join the accession process and catch up with other candidate countries. Slovakia became a party to the Bologna declaration, and the country joined and supported the consultations which led to the EU Memorandum of Lifelong Learning adopted in 2000.

The same year Slovakia joined the EU, in 2004, the Government adopted the Lifelong learning framework (Act No. 157/2004) followed by the Lifelong learning strategy 2007 (adopted for

[1] Already in 1991, Cecho-Slovak Federal Republic, signed the Association Agreement. However, the division of the common state in 1993 suspended the integration process.

the period 2007-2013). This was followed by the first comprehensive legislature, the Act on Lifelong Learning (Act No. 568/2009), adopted in 2009[2]. An updated Lifelong learning strategy was adopted by the Government in 2011 as a response to the slow progress made on the 2007 Strategy. The Ministry of Education, Science, Research and Sport (further referred to as the Ministry of Education) assumed the role of the national contact point for lifelong learning and became responsible for the Action plan 2011-2014 linked to the new strategy (MŠVVŠ SR, 2011). A national forum of life-long learning was created to play a further role in fostering life-long learning in practice. Several activities during tis period focused on raising awareness, building networks, reviewing relevant European policies, and assessing their transferability.

Within the framework of the first LLL Strategy, the Ministry of Education established the National Lifelong Learning Institute, with the main goal that this Insitute would act as the key organisation developing and supporting activities in lifelong learning in Slovakia. The National LLL Institute, as one of its first and major initiatives to develop and significantly contribute to the ecosystem of adult learning in Slovakia, launched a two-year project titled 'Further Education and Guidance for Adults as a Tool for Better Enforceability at the Labour Market' in 2013. This project was chiefly centred on creating structures at the (sub-) regional level, 25 'Adult Guidance Centres' had been created, as well as on developing training for adult guidance services tutors, and describing and accrediting 44 specialised professional profiles. The project was critically assessed already in its initial stages, and the objections of a wider community of experts and stakeholders proved justified. The Institute operated on a policy copying basis, with limited communication with stakeholders and practitioners. The project's implementation and financial management had been so critical that its failure led to the closure and dissolution of the National Lifelong Learning Institute in 2019. After the Institute of LLL was closed, its competencies were transferred to the State Institute for Vocational Training (ŠIOV) which has since managed EU initiatives in VET and adult education.

Overall, by following EU initiatives in lifelong learning since the nineties, including the development of benchmarking indicators for participation in adult education, Slovakia has been able to benefit to some extent from policy learning. Some actors however still promote policy development characterized by policy copying and policy delivery remains limited.

The formal education system and its limited role in adult learning in Slovakia

At the secondary level, formal vocational education and training play an important role in the Slovak skills development framework from the perspective of work-based learning. Slovakia belongs to the countries with a traditionally strong school-based VET system which is predominantly youth-centered (Duman and Kureková, 2012; Fazekas and Kureková, 2016). Since the nineties, there has been some decline in VET participation and a shift to general secondary schools. Recent developments similarly evidence a decline in VET participation, especially in the case of the lower-secondary VET track, which does not provide access to higher education.

To address labour and skill shortages and to better align skill provision with need, a dual system of VET was (re)-introduced in the mid-2010s (Fazekas and Kureková, 2016, Šćepanović, 2020). Despite the public funding and strong promotion of the dual VET and the

[2] Act no. 568/2009 Coll. About lifelong learning and amending and supplementing certain acts (Zákon č. 568/2009 Z.z. o celoživotnom vzdelávaní a o zmene a doplnení niektorých zákonov) https://www.slov-lex.sk/pravnepredpisy/SK/ZZ/2009/568/20150901

generous fiscal incentives available to enterprises involved in dual VET, dual education has not reversed the decline in interest in studying VET, nor has it significantly improved the gaps in VET quality (Fazekas and Kureková, 2016). Some formal secondary VET schools engage in cooperation with employers, but this remains limited despite labour supply shortages. We discuss dual education in more detail in the section covering the automotive industry and the role of social partners therein.

Slovakia is one of the countries where participation in formal education is undertaken mostly by learners up to the age of 25 years, as shown by Habodaszova and Studena (2019). In 2016, the average age of adult learners was the lowest in the EU (slightly above 26 years old) while at the same time, Slovak adults spent fewer hours in formal education than adults in other EU countries. Habodaszova and Studena (2019) suggest that the tradition of acquiring education only up to 25 years of age in the formal education system relates to the generally low participation of adults in (formal and non-formal) learning after the age of 25 years. This in turn can be related to a limited variety of formal education programmes and/or their limited adaption to the needs of learners in different stages of life. These are some of the important barriers to higher participation of adults in formal adult learning in different age groups.

Low-skilled adults have particularly weak prospects in terms of employability in Slovakia. Therefore, a prospective stream of formal adult education could be represented by second-chance education programmes offering opportunities to gain formal degrees later in life. Due to rising school drop-out rates, the need for these programmes is likely to grow (Rigová et al., 2021). As per system design, second-chance education programmes can be provided by elementary or secondary schools. In practice, secondary schools have prevailed in the past in providing second-chance education in distance-learning form. The current research on second chance education (Rigová et al., 2021) shows these programmes are insufficiently funded and that schools lack both information and overall expert support from other institutional actors about how to implement them effectively. At the same time, early school leavers encounter manifold barriers in access to second-chance education. These include financial barriers related to commuting; the absence of stipends for socially disadvantaged students; a lack of information about existing opportunities; or a lack of work-life balance policies that would enable parents to participate in second-chance educational programmes (Ibid.) Dispositional barriers can be crucial, as early school leavers exit formal education with varying levels of skills' gaps and could need preparation to enter second-chance education programmes. Such support is provided in other EU countries by non-formal basic skills' programmes, but in Slovakia such programmes exist only to a limited extent[3] (Studená and Gállová, 2021). Financial barriers are also important on the side of unemployed adult learners[4].

The importance of second-chance education has increased in the last decade as the percentage of early school leavers rose from 5.3 % in 2012 to 7.4 % in 2022 (compared to EU27 average 11.8 % in 2012 and 9.6 % in 2012)[5].

[3] For more information see Policy Brief of the project BLUESS or other outputs at: https://zakladnezrucnosti.sk/projekt-bluess/.

[4] For illustration, participation in daily second chance or other formal qualification programme would work better for adults with larger skills gaps. Slovakia has one of the largest rates of low skilled long term unemployed, many are form marginalised Roma communities. The unemployed who are registered as job seekers would lose this status if they got enrolled in formal education programme and would need to pay their health security payments which is covered by state for job seekers, or traditional students.

[5] Eurostat 2020; [edat_lfse_14]

Key governance actors in adult learning in Slovakia

The adult learning governance in Slovakia is characterised by fragmentation across multiple actors and institutions. Two national ministries have had important roles in the adult learning system in Slovakia in the past decades, the Ministry of Education and the Ministry of Labour, Social Affairs and Family (further referred to as the Ministry of Labour). The Ministry of Education and its directly governed agency, the State Institute for Vocational Education (ŠIOV), are formally responsible for adult learning at the national level. The Ministry of Education sets out the main legal and policy framework and is responsible for the accreditation of adult education programmes. The State Institute for Vocational Education is directly governed by the Ministry of Education and assumes the role of the national coordination point for adult learning and implements EU projects in adult learning.

The Ministry of Labour has been the key national actor in developing funding schemes for training within the active labour market policies targeting unemployed workers. These have included national projects which (with some modifications) developed some features of training voucher schemes for jobseekers. More details about these schemes are provided in the following sections.

In 2020, the Ministry of Investments, Regional Development and Informatization (further Ministry of Regional Development) was established in Slovakia and assumed activities and competencies in adult learning in connection with informatization and digital skills. Recently it has launched national projects implemented as investments within Component 17 (Digital Slovakia) of the Recovery and Resilience Plan of the Slovak Republic 'Digital Seniors' and 'Digital Pupil'[6] in 2023.

Other national and regional actors assume a range of competencies which have direct or secondary relevance for policy measures for adult learning. The Ministry of Interior is responsible for the further education of public sector employees. The Ministry of Health is responsible for the further education of physicians and other professionals in the health sector (OECD, 2020). Other ministries are assigned competencies and responsibilities for further education of professionals in regulated professions which fall within their competencies. Activities and programmes targeting specific areas of adult skills are also covered by national actors, for illustration, activities targeting support for the critical life skills of the population are carried out by the National Bank of Slovakia (financial literacy) and the Ministry of Economy (consumer decisions and consumer safety).

Cross-sectoral coordination has been identified as one of the key areas where improvements could be particularly beneficial for progress in the delivery of measures supporting participation and effectiveness of adult education in several studies (OECD, 2020; Studená and Gállová, 2021).

Social partners in adult learning governance

Employers have acted as an influential voice in debates about skill development and Slovakia's education system. Due to skill and labour shortages repeatedly faced by firms in Slovakia, most interventions led by employer associations focused on formal education, its quality and its (poor) structure (i.e., resulting in the introduction of dual VET). Employer associations have

[6] The project is a funding scheme distributing 350 euro as a contribution for notebooks/digital equipment to all students who are in material need and to all students in their first year of study.

been also the key actors in the revitalization of Sectoral Councils established in the past in the framework of the National Framework of Occupations as forums for specifying sectoral qualification needs and standards. The project brings together, on a regular basis, all relevant actors - different sectors, employers, unions, third sector, and ministries. It creates a unique and much needed platform for communication and to specify what is needed in the labour market in respective sectors. In its activities, it focuses mostly on adaptations of formal education, rather than developing a sustainable framework for recognition of qualifications and for validation of skills, which are crucial elements for a systemic functioning of skills agenda. It faces challenges with respect to its sustainability and lack of capacity to bring systemic change in a fragmented environment of actors (Baiocco, Simonelli and Westhoff, 2020).

More recently the debate has also focused on non-formal education and its role in responding to fast-changing skill needs. Employers, together with some other actors (e.g., education providers), have been pushing for the adoption of universal tools which would enhance the level of adult learning and workplace learning, such as individual learning accounts (OECD, 2020). While employers are very influential in shaping the content of debates, they might be blind to social problems and fail to see the issue of adult learning in its full complexity, including the role it can play in the exclusion of low-skilled adults from the labour market. Labour unions are passive observers rather than active shapers of existing debates about adult learning at the national level, as they continue to focus on 'bread-and-butter' issues such as wage increases and working conditions. Due to the structure of social dialogue in Slovakia, which is decentralised to companies, exceptions in union activities might exist at the plant level.

Trends in participation rates of adults in learning

Slovakia has been positioned among the weak-performing countries within the EU in terms of participation of adults in learning. According to Labour Force Survey data, which measures participation of adults in a learning activity in the past four weeks, the participation rates of adults in the age group between 25 and 64 years old has remained consistently low with only minor changes: the rate would vary slightly from between 3 to 4 % and in 2020 was only at 2.8 %. 2021 brought a more significant rise in participation rates to 4.8 %, but figures remain some of the lowest in the EU.

The statistical picture based on measured participation in at least one learning activity in the past 12 months (Adult Education Survey, 2016) seems to be different from the picture based on the measurement of learning activities in the past 4 weeks. When comparing the results for Slovakia to other EU countries, the total participation of Slovak adults was 46.1 % in 2016, which was more than the EU average of 44.6 %. However, the number of hours in education and training was one of the lowest in the EU according to AES, and therefore we suggest that the overall participation and culture of adult learning is underdeveloped and weak in general in Slovakia.

The increase in participation rate based on the past 4 weeks increased in 2021 to 4.8 % and this was followed by a significant increase to 12.8 % according to the Labour Force Survey data in 2022, which is above the EU average in the same year. This increase has been mostly realised in job-related education and training. So far, we do not have research evidence which would offer a valid explanation for this increase, other than the effect of a modification on the context information added to the survey question on the learning activity in the Slovak questionnaire[7]. This came into place in 2021 in the form of a new hint including the explicit

[7] Slovak LFS questionnaire 2021 VZPS/B 1-04 2021, available at https://zber.statistics.sk/en/data-collection/

example of Occupational health and safety trainings as an example of learning that could be reported by the respondent. Slovakia is one of the countries with a regulatory requirement imposed on all employers, namely that their employees take part in an Occupational health and safety training upon starting the job or changing position within the company at least every two years. Another effect contributing to this increased participation could have been connected to employment trends, such as job turnover, however this hypothesis would need to be further researched[8]. In terms of policy measures put in place, public funding for education and training within ALMPs has not increased and the participation rate of unemployed persons has been close to zero or not available due to the low reliability of the LFS data. The nature and cause of the increase needs to be further researched, but there has been no visible shift in implemented policy measures or available funding which could otherwise explain the rise in participation rate.

Recent developments in the adult learning policy area

From the economic perspective, adult learning is currently perceived as a key driver for boosting adults' skills, which is particularly important for Slovakia (OECD 2020; Abdul-Hamid and Ambasz, 2023), and can generate a range of personal, economic, and social benefits. However, this has not yet been reflected in patterns of participation based on available statistical sources, nor in the policy toolkit and resources needed to support the adult learning development.

Public funding for adult learning programmes has been provided in recent years in Slovakia within the framework of ALMPs designed and implemented by the Ministry of Education and its subordinate bodies, including regional labour offices. Projects REPAS, REPAS+ provided funding for participation in vocational skills training courses whereas KOMPAS, KOMPAS+ funded general/soft skills training courses[9]. This type of adult learning is enshrined in the Lifelong Learning Act as continuing education and the rationale for launching the programmes was the need for re-skilling in connection with skill obsolescence resulting from past industrial restructuring. These ALMP training programmes bear some characteristics of training vouchers.

To further strengthen the implementation framework for a more general group of adults, a new programme was launched in 2021 which extended the eligibility of participants in training schemes, also to employees, based on the implementation framework used within the schemes REPAS and KOMPAS. The project has been named ‘Do not lose [your] job, educate yourself’ [Nestrať prácu, vzdelávaj sa][10]. Employees who are interested in participating in the scheme can apply at a labour office, and, if approved, can undertake a training of their choice in their free time.

Funding for the training of employees in cooperation with employers was provided on an ad hoc basis in the past, based on individual national projects. These schemes have been described in more detail in section 2.6 of the I SKILL deliverable D1.1. Working Paper on an

[8] Cedefop provides and overview of the job turnover development by occupations https://www.cedefop.europa.eu/en/tools/skills-intelligence/job-turnover?year=2020&country=EU#1

[9] For a brief review of studies evaluating these programmes, see Chapter 7 in Baiocco, Simonelli and Westhoff, 2020.

[10] Description of the proposal for the national project ‘Nestrať prácu vzdelávaj sa.’ is available in Slovak at: https://www.partnerskadohoda.gov.sk/data/files/3338_oplz_2019_11_11_zamer-np-nestrat-pracu_vzdelavaj-sa_-po-komisii.pdf

analytical framework on industrial relations and social dialogue for adult learning in a changing Europe by Astarita et al. (2023).

ALMP training schemes are also used for specific ad hoc national projects. For the automotive industry, a project called 'Read for Work' [Pripravený na prácu] offered more targeted support to job seekers to facilitate their transition to employment in the automotive industry. The project included two rounds of training. The first round of inclusive training was available for low-skilled job seekers who would be prepared to be then trained for the lower positions in the automotive industry for the positions of operators[11] (COLSAF, 2021).

However, the low participation rate of the unemployed seems to be at odds with training support offered in the framework of the active labour market policies. The actual investment in active labour market policies is moderate in Slovakia compared to other EU countries and the share of the training programmes is very low (Hidas, Vaľková and Harvan, 2016). To illustrate, in 2019 total investment in ALMPs in Slovakia was slightly below 0.6 % of GDP compared to the EU27 average of 1.651 %[12]. This explains and corresponds with the observed low participation of the unemployed in training. It is also important to take into consideration that only registered job seekers have access to funded training courses, and the unemployed in the LFS data may represent a larger group.

ALMP training schemes have been promoted by some national actors as a type of individual learning scheme. Habodászová (2021) reviews the features of an individual learning scheme, referring to the expected implementation of an individual learning accounts (further ILA) scheme included in the LLL Strategy 2021-2027. She expects that the ILA scheme in Slovakia would be determined by a combination of specific, selected goals, the existing structure of the overall educational system, and the availability of public funding. Habodászová recommends that the voucher scheme be introduced as a pilot with the main goal of popularising this tool as an important signal of state support for individual motivation to maintain and build skills throughout the entirety of adult working life (Ibid.).

Employer associations have also been actively debating and supporting the development of ILA schemes. The National Union of Employers (RUZ, 2018) has proposed its own version of an ILA scheme suggesting that funding of the scheme should be based on contributions to the training earmarked from the state budget, arguing that the state should 'compensate' employers for the skills shortages. In any case, in the debates concerning ILA or support for adult learning in general, employers insist on having an important role in the governance of the schemes and are perceived as important stakeholders in the process.

In connection with the development of ILA in Slovakia, the Alliance of Sector Councils was established in 2022[13]. The Alliance is expected to assume a substantial range of expert activities[14], including anticipating trends in the labour market, addressing employer skills shortages, and governing adult learning. The Alliance has ambitions to become the key

[11] The project has been implemented by two specific providers, but more information on actual implementation is not available.

[12] Based on LMP_EXPSUMM available at: https://webgate.ec.europa.eu/empl/redisstat/databrowser/view/lmp_expsumm/default/table. In 2020 and 2021, the total ALMPS investments were exceptionally high in Slovakia, 1,6 % of GDP in 2020 and 2 % of GDP in 2021. However, this increase has been accounted for by the Out-of-work income maintenance and support, i.e., these were temporary measures during the COVID lockdowns.

[13] By amendment of the Act on Employment Services (5/2004) from 6 December 2022

[14] https://www.employment.gov.sk/sk/uvodna-stranka/informacie-media/aktuality/aliancia-sektorovych-rad-pomoze-zosuladit-potreby-trhu-prace-vzdelavanie-obcanov.html

governance body in adult learning, including through implementation of the ILA scheme in Slovakia.

To date, however, Slovakia has not introduced a universal scheme or measure to support participation in adult learning. The training programmes developed in the framework of active labour market policies have targeted individuals to allow reskilling or upskilling, but in practice, reskilling or upskilling dimensions or the vulnerability of adults to the effects of automatization have not yet been addressed.

3. The dominant and leading role of the automotive sector

Before presenting the findings of the case study in the automotive industry, we provide a brief overview of the sector's role in the economy, its key challenges, and the functioning of social dialogue.

The automotive sector is the leading industrial sector which has been traditionally anchored in the Slovak industrial structure (Kureková, 2012). It is currently home to four key OEMs: Volkswagen (Germany), Groupe PSA (France), Kia (South Korea) and Jaguar Land Rover (UK/India). The country is a world leader in per capita production of personal vehicles with the average figure in recent years looming around 1 million cars annually. It is a highly foreign investment and export driven industry, with a concentrated location in the western part of the country. Among the key attractiveness factors which have incentivized a stable inflow of large FDI volumes to this sector over time are skilled and docile labour and a generally supportive industrial policy, including openness to adapt the country's broader institutional framework (i.e., education and labour market policies) to the needs and requirements of key automotive producers (Duman and Kureková, 2012; Hillebrand, 2023; Šumichrast and Bros, 2023)[15]. Yet, observers of socio-economic development highlight the peripheral and dependent position of the Slovak economy, pointing to its vulnerability stemming from strong economic integration in foreign markets, a large share of foreign ownership in key sectors, and its low capacity to innovate (Pavlínek, 2022; Bohle and Greskovits, 2012). Human capital management is seen as one of the key bottlenecks to further growth and stability of the automotive sector in the future (Kureková, 2018; Šćepanović, 2015; Abdul-Hamid and Ambasz, 2023).

Main challenges facing the automotive sector

The key challenges facing the automotive industry in Slovakia are shared with broader industrial and global trends and include the twin transition to a digital and green economy. These trends are more specifically reflected in the transition to production and consumption of electric cars, which has been slower in Slovakia and the CEE region than in Western European countries (Pavlínek, 2023; Hillebrand, 2023). The processes of automation and digitisation are reflected also in one of the highest risks of automation facing Slovakia, namely, skill obsolescence and job destruction (Arntz et al. 2016; Nedelkoska and Quintini, 2018; Majzlíková and Vitáloš, 2022; Abdul-Hamid and Ambasz, 2023).

Alongside these global challenges, a key issue for the Slovak automotive industry and its economy more generally is an insufficient supply of qualified labour. The automotive sector has, for the past several years, repeatedly reported skill and labour shortages, at times acute (Rutkowski, 2007; Šćepanović, 2020). While skilled labour inherited from an industrially

[15] Other key factors include: a good geographical position; access to key consumer markets and supplier networks; political and fiscal stability, including euro and the EU membership.

oriented socialist economy originally represented a key asset, new plants and the growth of supplier networks have brought additional pressures on a well-qualified and available workforce. Further mid-term challenges lie in rapid demographic change and workforce ageing (Machlica et al. 2017, Bleha et al. 2020), exacerbated by high levels of emigration and relatively low levels of incoming immigrants (Kureková, 2018; Bleha and Šprocha, 2020).

Social partners, including unions, have made active steps to ensure that the provision of the workforce improves. First, employers - mainly through key employer associations and foreign chambers of commerce - have lobbied for the (re)introduction of dual education based on active cooperation between schools and employers. Dual education vocational schools are organized with the key element of workplace training in the form of an apprenticeship in a specific field (Fazekas and Kureková, 2016; Šćepanović, 2020). Second, various legislative changes to the Labour Code were introduced. This includes the introduction of 'flexikonto' following the German example of flexible working time arrangement. Another key feature of the labour supply model embodies a fairly lenient regulation related to agency work, including employment of immigrant labour, which enables a flexible response to fluctuations in the production cycle, with less oversight over working conditions and worker rights (Šumichrast and Bros, 2023).

These efforts take place in the backdrop of poorly developed adult education in Slovakia, with few national-level opportunities in terms of well-accessible training schemes or funding which would incentivize adult learning and enable adaptation to changing skill needs (Machlica et al. 2017; Fazekas and Kureková, 2016). We thus find it highly relevant to study company-level training practices and the role that social partners play in shaping these.

Social dialogue at the sectoral level

In an eco-system with fairly weak social partnerships and declining membership, both fragmentation and coordination describe existing social partnerships in Slovakia. Union density declined from 32 % in 2000 to 13 % in 2015, with bargaining coverage at about 22 %. employers' association rates have been higher and more stable, at above 30 % over the past two decades (Kahancová and Martišková, 2023, Kahancová, Martišková and Sedláková, 2019). A tripartite social dialogue was set up in 2000 bringing major labour unions and employer associations representatives together regularly with the government. The role and competences of the tripartite dialogue have changed over time, and since 2021 more unions have been allowed to take part in negotiations with government and employer associations. The dialogue is still however mainly consultative in nature (Šumichrast and Bors, 2023; Kahancová and Martišková, 2023).

Collective bargaining in Slovakia is organised primarily at the sectoral (industry) and company (plant) level, with the growing relevance of the latter (Kahancová, Martišková and Sedláková, 2019). While a few sectoral-level agreements covering the private and public sectors exist in Slovakia, company-level bargaining dominates within the automotive industry (Hašková, 2017; Šumichrast and Bors, 2023; Martišková, 2019). The automotive industry belongs to a leading manufacturing sector in terms of organized social dialogue, with labour unions active in all four major automotive plants, but the intensity and character of social dialogue vary across them (Šumichrast and Bors, 2023). The highest union coverage exists in VW Slovakia where cooperative labour relations have been pointed out as good practice. In addition to traditional themes of wages and working time, training programmes have also been part of the company-level social dialogue (Haipeter and Jo, 2021). The remaining plants are also unionised, typically with two different labour union bodies active within the company: traditional labour union OZ

KOVO, and newly established unions MOV [Moderný odborový zväz] (Šumichrast and Bors, 2023).

Generally, labour unions in Slovakia prioritise political action and changes to legislation over collective bargaining as their dominant strategy to improve worker conditions (Kahancová and Martišková, 2023). Some observers have argued that acute labour shortages improve the strategic position and power of labour unions in the automotive industry (Haipeter and Jo, 2021), who have in the past, for example, bargained for the right of requalification for redundant employees (Martišková, 2019). It is therefore reasonable to expect that social dialogue is one of the effective mechanisms in shaping and improving adult learning opportunities. This study sets out to investigate this further by means of semi-structured interviews with national level stakeholders and company-level respondents in a range of automotive (supplier) plants.

4. Methodology and analytical approach

The methodology of this report study combines several methods of data collection: (1) desk research covering national legislative and strategic documents relevant for adult learning as well as other documents on social dialogue in the automotive sector; (2) primary data collected via semi-structured interviews with key stakeholders from the private and public sector; (3) observation of the workplace at the company; (4) a roundtable that served to discuss and validate the preliminary results of the empirical research with key stakeholders.

Semi-structured interviews

Primary data was collected through 16 semi-structured interviews that followed a unified methodology developed within the project consortium, with minor adjustments introduced by the researchers to reflect the national context and its specificities. Some of the interviews were group interviews, hence, the total number of respondents was 19 (Table 1). The interviews were carried out with the representatives of three main categories of stakeholders: (1) trade union organisations at the company, sectoral, and peak levels; (2) employers and employers' organisations at the sectoral level; and (3) training providers (see Table 1). Additionally, one informant interview with an expert and researcher on the green transition in the automotive sector in CEE was conducted to obtain contextual information about the recent trends in the sector, the national landscape of industrial relations, and to receive recommendations for potential respondents, prior to interviews with stakeholders.

The interviewees were selected as relevant social dialogue stakeholders and training providers based on desk research and researchers' previous fieldwork experience, complemented by recommendations provided by the key informant. Afterwards, further respondents were selected based on the snowball method when interviewees were asked to provide further recommendations. The interviews were carried out either online (Zoom, MS Teams) or in person between June 2022 and April 2023, observing all research ethics standards.

Within the empirical research we covered two dimensions: sectoral insights and the company case study. In this respect and within the already described sample, for the company case study, the interviews were carried out with the representative of the company-level trade union, the employee, the Head of the production unit, the Head of the research and development (R&D), the Production manager, the Head of the human resource (HR) Department, and Training Specialist. Besides carrying out seven in-person and online interviews, the research also conducted observation at the workplace where the researchers were provided with a guided tour by the Production manager through almost all the phases of

production, accompanied by provision of the contextual information regarding how automation has evolved over time and how it has affected the skill needs of the company, training strategies, and other measures.

The company identified for the case study is located in Central Slovakia and is a part of a larger multinational with branches in and out of Europe. More details about the company are available in the following section.

Table 1: Overview of semi-structured interviews

No.	Type of organisation	Position of the respondent	Date	Interviewers
1.	Academic/expert community	Researcher on just transition automotive industry	17.6.2022	IS, LK, LMK
2.	Employers` organisation – sectoral level	General Secretary, vice-president, and Head of the Educational Committee (group interview)	20.7.2022	IS, LK
3.	Trade union – peak level	International Secretary	25.7.2022	IS, LK
4.	Trade union – peak level	Vice-chairman	29.7.2022	IS, LK
5.	Trade union – sectoral level	Head of Educational Department	5.9.2022	IS, LK
6.	Trade union – company level	Local representative	19.10.2022	IS, LK
7.	Employer	HR Technical centre	19.10.2022	IS, LK
8.	Employer	Head of production unit	3.11.2022	IS, LK
9.	Employer	Production manager	3.11.2022	IS, LK
10.	Employer	HR Training specialist	10.11.2022	IS, LK
11.	Employee	Sales department	14.11.2022	IS, LK
12.	Trade union – company level	Local representative	15.11.2022	IS, LK
13.	Employer	Director of R&D	16.11.2022	IS, LK
14.	Chamber	Experts on education and training	12.12.2022	IS, LK

15.	Employer	Head of the HR Department	2.2.2023	IS
16.	Training institution	Lecturers (group interview)	28.4.2023	IS, LK

National roundtable

The roundtable engaging stakeholders took place in March 2023 in Bratislava. It was organized in collaboration with, and on the premises of, the State Institute for Vocational Education, the Ministry of Education. In total, twenty participants attended the meeting, including the representatives of a trade union, training providers, and non-governmental and state organisations that are involved in education sector (Table 2). The discussion was preceded by a short presentation of preliminary findings presented by researchers that resulted in questions for discussion. The key discussion themes were as follows: (1) barriers in adult learning and learning at the workplace; (2) nature of novel skills responding to the needs of digital and green transition; (3) the needs of the employers in reskilling and upskilling; (4) the role of social dialogue for up-skilling and adult learning at the workplace; (5) design of public schemes supporting adult learning and upskilling; (6) the impact of digital transformation on work-life balance, mental health, and well-being of employees.

Table 2: Overview of the roundtable participants

No.	Type of organisation	Position of the attendee
1.	Public sector organisation	Expert on EU policies
2.	Public sector organisation	Expert in life-long learning
3.	Public sector organisation	Expert on educational policies
4.	Public sector organisation	Expert on educational policies
5.	Public sector organisation	Consultant on educational policies
6.	Association of career guidance and counselling service providers	Chairperson
7.	Trade union	Company level representative
8.	Career guidance and counselling organisation	Coordinator and lecturer in counselling services
9.	Ministry of Education	Civil servant – further education
10.	Public sector organisation	Civil servant – human capital

11.	Association of training providers - adult learning	President
12.	Public sector organisation	Programme coordinator of educational policies
13.	Public sector organisation	Programme coordinator of educational policies
14.	Training provider	Lecturer
15.	Public sector organisation	Project coordinator – life-long learning
16.	Public sector organisation	Project coordinator – life-long learning
17.	Research institute	Senior researcher
18.	Research institute	Senior researcher
19.	Research institute	Researcher
20.	Research institute	Junior researcher

5. Case study

General insights from semi-structured interviews with the stakeholders at the peak and sectoral level

Both the employer's organisation on the sectoral level and the peak-level trade union organisation pointed out that the skills of newly admitted workers do not generally fulfil the needs of employers, specifically in the automotive sector.

One of the reasons for the shortage of qualified workers is, as they claimed, the underdeveloped nexus between business and educational systems. A lack of cooperation between companies and the education sector is critical mainly for small companies for which the training system might be costly. In addition to less-skilled workers, medium-sized and large companies face a shortage of workers in the high-skilled professions particularly in R&D where demand has been increasing. In the context of digitalisation, the demand is rising also for skills related to data management and analytics, and cyber security. In this respect, the sectoral level employer's organisation has started its own initiatives (e.g., via cooperation with the dual academy) but calls for further support in enhancing support to R&D in smaller companies.

The employment of foreign workers has become a complementary strategy in filling existing labour and skill gaps. Employers commented that the recruitment of foreign workers is challenging. A range of issues arise related to broader integration support (e.g., housing), which is underdeveloped at national and/or local levels, thus raising various problems at the

workplace and in the communities. Employment of foreign workers demands the provision of language courses and requalification or training courses in their native language, which further increases costs for companies.

Another problem of adult learning identified at the company level by both the employers' organisation and the peak-level trade union stems from generally low awareness about adult learning and its benefits for participants in Slovakia. According to the union representative, companies do not work with the motivations of the workers systematically; they claim that further learning should be promoted not merely by the pay bonus mechanism but also by promoting the self-development of the workers.

Training schemes and skill needs are not an integral part of the social dialogue either on the company or sectoral level. According to the sectoral employers' organization, in collective bargaining, the trade unions act as a control mechanism since they usually ask about procedural aspects of training rather than other dimensions.

The representative of the peak-level union organisation pointed out that there is a lack of a systemic approach to adult learning and awareness raising about workers` self-development. In this respect, companies could implement a motivation system to incentivize activity not only through pay bonuses but also through intrinsic motivation in terms of personal improvement.

As in the case of the company level, the peak-level union representatives reiterated that the Slovak trade unions must be more engaged in collective bargaining and policy discussions about adult learning and that this agenda must become an integral part of the unions' activities. The peak-level union organization representative confirmed that education is not the highest priority due to the constraints on the capacities of experts' and unions' personnel:

> *'If we, representatives of trade unions, don't participate in this [adult learning for digital transformation], we are at a great disadvantage, and when we wake up, it may be at a time when the whole thing will bypass us. We should already be pointing out problems at this stage.'*
>
> *(Trade union representative)*

Insights from semi-structured interviews at the company level

The case study company presents a supplier company in the automotive sector with a regional location. It produces a key safety component for vehicles, including electric vehicles, for almost all major automotive companies in the country and abroad. The company is a part of a corporate group with international ownership that has branches in 57 countries with around 200 000 employees across three continents. According to the manager of the R&D, mechanical engineering has a long tradition in the region where the company operates. ^

Company characteristics

The company entails R&D as well as manufacturing units that include all the phases of product development and production. At the time of conducting the fieldwork, almost all the production phases were partially or fully automated.

The company is engaged in product development, product design, testing, and production itself. Hence the enterprise entails an R&D department with over 250 employees and production units with about 750 employees. The company has three main production units: (1) machining; (2) electroplating (surface coating); (3) assembly; and additionally, logistics. In addition to R&D employees, workers can be grouped into three main categories according to

occupations: (1) machine adjusters, (2) operators, and (3) maintenance workers. Machine adjusters perform work tasks that are relatively more demanding and require technical skills, such as the ability to work with technical blueprints or 3D measurements. Operators usually carry out manual work including assembly.

In recent years, the company has undergone an intensive technological transformation as well as the green transition that increased further incentives to invest in innovations fostering competitiveness in the global market; comply with green standards; and meet strict safety regulations (primarily within the EU legislative and regulatory framework) related to the safety of its central product. All company activities, including research, data collection, and analysis, product design, assembly line work, training and learning at the workplace, sales, administrative work, and internal and external communication, among others, have thus already been exposed to the impact of technological transformation and digitalisation. In this respect, most of the assembly lines have been recently automated, including some parts of the logistical activities.

Due to a diverse portfolio of activities, the company employs workers with diverse skills and educational backgrounds. According to the HR manager, most of the workers are educated and trained in mechanical engineering, but also information technologies, and electrotechnics. Software engineering and programming skills also present a group of core skills in the company while data analytics (including data processing) is recognised by the representatives as a set of skills with a growing potential for the company's development and future operations. It is also anticipated by the HR respondent that categories of skills will be changing due to upcoming green transition developments and future regulations regarding clean technologies.

In this respect, the company has implemented a so-called Strategic Workplace Planning used for comparing skills current employees hold with forecasts of categories of skills that will be needed due to the above-mentioned global trends. These skill forecasts and assessments are being prepared at the global corporate level; however, local companies have their own activities around the skills (talent) development of their employees.

Workplace learning practices

The company has developed various innovative learning and upskilling approaches, which sometimes have multiple objectives, beyond training and learning *per se*.

To train workers, the company usually combines e-learning and in-person training. The training package for an individual worker is based on an onboarding plan (for newly employed workers) and a long-term plan. The company has even recently established its own e-learning platform which provides employees access to e-learning materials, online courses, and exams in proximity to their workstations so that the employees can undertake small learning sessions during the workday. The platform offers e-learning materials including necessary regulations and legislative documents, instructional videos, and other multimedia. As stipulated by the management representatives from HR, R&D, and production units, the transition to online learning was accelerated not merely by the pandemic but also by the intention to make knowledge-sharing and learning more systematised and effective. E-learning platforms are now implemented for all categories of workers.

Some of the employees appreciate that they may take e-learning training and testing (within a certain designated time) as it makes learning more flexible vis-à-vis the work schedules of individual workers and their work-life balance needs.

On the other hand, in the studied company as well as some others, workers communicated a preference for in-person training forms due to a need for social contact with team workers that was strictly restricted during the most intensive pandemic waves in the country. The training specialist also admits that the effectiveness of some courses, such as those fostering social skills (presentation skills, teamwork), is less effective if they are conducted online or in a hybrid form. In-person learning at the workplace is required for acquiring specific skills such as for the usage of certain technical appliances.

In-person training and learning consists of training programmes both for new workers or those who transit between job positions vertically or horizontally, as well as cross-move and job rotation programmes supporting mobility throughout the projects. Job rotation is supported by a job portal which openly posts information about job positions, based on which team leaders may decide whether rotation of certain workers is necessary. Job rotation serves not only for upskilling purposes but also to mitigate single sourcing occurring when employees cannot be substituted due to the unique skill set they acquire.

The company also utilises virtual reality programmes developed in cooperation with university students as programmers. In the virtual learning tool, operators provide information and assistance in the process of manipulating robotic appliances. This approach is particularly useful for operators who are supposed to gain technical skills and find ways for potential cooperation between operators and machine adjusters. According to the HR representative, this process also accelerates the adjustment of robots, which is typically time-consuming and can delay the production process.

Inhouse, non-formal and highly individualised requalification programme

Due to a shortage of candidates for the position of machine adjuster, the company decided to design its own requalification programme, lasting approximately four months, for either already employed workers or other job applicants. Those who have graduated from technical vocation schools (mostly electrotechnics) are particularly encouraged to apply for the role of machine adjusters. Standard practice is that if these candidates fail in the admission process for the position of machine adjuster, they may be offered the job of operator and later they potentially re-trained for the role of machine adjuster. The course entails general skills, technical skills, mathematics, and logical thinking. After being admitted, a mentor provides guidance throughout the training. At the same time, peer-to-peer support can be observed in the company when a more experienced machine adjuster provides a newly employed adjuster with mentorship during the first months of employment. Well-experienced adjusters are also offered more advanced courses such as courses on performance monitoring, rebuilding the robot, and maintenance courses.

> *'Not everybody is brave enough to apply for a position. He/she can apply via [company's online platform] anonymously and will be assigned training by a trainer. We started with operators and machine adjusters, but we develop and apply it [this procedure] also for mechanical maintenance workers.'*
>
> (Head of the Production Unit)

As pointed out by the respondent, supporting mobility cannot be imposed in this way on all categories of workers and trainings. For illustration, for technicians in electrical maintenance, training requirements are strictly regulated and defined.

To support internal mobility within the company, managers organize regular interviews with employees as a part of so-called Talent Management. Such an assessment serves to evaluate the performance of the employee and in cooperation with HR management (each department

has its own ‘HR partner’), the production unit or R&D managers decide whether the employee may be promoted or moved to another job position. These meetings also serve to encourage people who are not ambitious to apply for a higher position themselves. Talent Management was a policy transfer from the German headquarters and adjusted to some extent to the Slovak context. The Slovak company was the first within the corporation to adopt the practice for workers in production.

As one of the main challenges for advancing progress in up-skilling and acquiring new skills, the managers in both the production unit and R&D identify low motivation on the side of employees. For instance, the training department organizes an *open forum* in which any employee is entitled to one consultancy meeting per month with a lecturer to foster specific skills (such as presentation, leadership, to acquire competences in mental well-being). Although such a lecture is free of charge, the employees scarcely utilise these opportunities due to lack of interest or dense work schedules. All the training programmes are free of charge except for language courses which are co-financed by the employee. According to the representative of the HR department, a language course is now offered as a benefit to the employee with partial funding from the employer to incentivise the learner in his or her attendance of the course.

The management representatives aspire to create a learning environment in which each employee would be motivated to learn based on their own initiative, while the intervention of team leaders in this manner would be decreasing.

> *‘It depends on the personality of the employee. Those employees who want to make a progress, would be given the opportunity. They may apply [for a position] because we internally offer various job positions. People are different and some of them want to remain in a position of adjuster and simply go home after seven hours of work. At the same time, several adjusters enter the positions in technical workers in R&D or in logistics.’*
>
> (Head of the Production Unit)

The head of the production units also anticipates that due to a shortage of workers, the company will need to recruit foreign workers which may present another challenge, especially due to language barriers.

The managers of the company do not put a strong emphasis on formal education as a requirement for admitting or promoting employees. As mentioned above, the company has its own training policies that enable it to train workers within the company's capacities. These policies allow workers to move vertically from lower qualified positions to higher positions (usually from the operators to machine adjusters) either based on a manager's invitation or on their own initiative.

Managers also encourage workers to be enrolled in higher education programmes to acquire skills needed for work. The training specialist points out however that programmes of formal education are often ineffective, obsolete, and do not meet their high standards; as a result, whenever possible, employees are recommended to attend shorter courses in which they can acquire specific skills rather than formalised study programmes.

Additionally, both the managers at the R&D and manufacturing units reiterate the need not only to adapt to new technologies and needs stemming from the green transition, but also to the social skills required in project-based work. According to the managers, graduates of secondary schools and universities often lack social skills which, as they argue, is caused by a lack of exposure to project-based activities and other activities that would enhance teamwork skills and communication. Additionally, the managers point out that flexibility, adaptation to

new tasks, and critical thinking are gaining further importance for performance and the future world of labour, as they complement hard/technical skills.

Pressure on global competitiveness reflects on product development and innovations and generates an additional need for upskilling. Particularly in research and development, the managers perceive that employees will soon need to take responsibility for more complex projects and tasks to sustain competitiveness in global terms.

> *As we move further into greater uncertainty, we need people to be willing to accept a greater risk in research tasks. A greater degree of pressure is associated with this. This is a desirable personal trait, for people who are willing to take a risk.*
>
> (Head of the R&D)

The HR representative claimed that more attention must be given to the assessment of the effectiveness of training and learning programmes. Team leaders must usually fill in the form on the quality of the programme, but nevertheless, company representatives claimed that the whole assessment procedure needs to be systematised and refined.

Flexible work arrangements

According to all respondents, including representatives of the case study company, the pandemic accelerated workers' engagement in telework initially due to a need to reduce risk of exposure of workers to the corona virus in the workplace. Nevertheless, as reiterated by most of the respondents among the management representatives, telework has subsequently become an integral part of company policy, especially in R&D and for high-skilled workers, even after the most severe pandemic waves ended.

The respondents identified several challenges related to telework. First, as communication transitioned online, some workers (outside the company case study) encountered obstacles in approaching colleagues to ask for advice, with face-to-face communication at the workplace perceived as more natural. In the online setting, employees cannot, for instance, find out whether a colleague is busy or available to talk, creating a barrier to communication.

Second, as claimed by R&D managers, telework is not suitable for all job positions. At the same time, not all employees work effectively from home and some fail to fulfil their duties. As a result of difficulties that emerged when teleworking, in some departments, team leaders held a regular meeting, for example once a month, to foster teamwork and maintain personal contact. Another practice was the introduction of a 10-minute coffee break during online meetings each morning, during which time teleworking employees could informally chat with colleagues.

Third, flexible work arrangements led to unwanted provisions that were imposed on workers. According to the respondent from the sales department in another automotive company, the company management dramatically limited working places in the office, leaving them as shared spaces for limited physical presence only. As a result of this provision, employees could come to the office merely once every two weeks; the rest of the time they were asked to work from home. In cooperation with the local trade union representative, employees who did not agree with this provision articulated their objections against these working conditions including the fact that they were required to bear the expenses for equipment and utilities; especially burdensome due to rising inflation.

The HR department and other departments reacted flexibly to emerging teleworking needs and did not ask employees to cease teleworking after the pandemic-related restrictions ended.

Telework is utilised mainly by R&D employees, when currently about 60 % of 250 R&D employees work from home. They are allowed to work 50 % of the time from home, if approved by a team leader.

Within the company, telework was embraced mainly by workers with parental responsibilities, those with the intention to foster work-life balance, and those who intended to reduce commuting time either to spare time or for ecological reasons. Telework additionally allows some employees to live further afield, which some consider a benefit.

The well-being of workers

Automation and technological change at different levels of production and development seem to bring challenges vis-à-vis mental health and well-being related to the increasing burden of responsibility, especially for machine adjusters.

According to the production manager, even a minor failure in the adjusting process may lead to significant material damage. While workers are not responsible for the financial costs incurred by a mistake, the position naturally comes with excessive levels of stress.

> *To adjust a robot setting is a very precise job. We are progressing with new programmes on the assembly line and there the problem starts. They do not have problems with computers but (they struggle) with learning to operate a new programme.*
>
> (Head of a Production Unit)

The increased mental burden related to technological transformation and change in job tasks was also identified as a reason being the fact that some operators, despite having the opportunity to move to the position of machine adjusters (resulting in a wage increase), tend to choose to remain at the position of manual workers.

Role of trade unions in-company training

In the case study company, there is an active and functional social dialogue at the plant level. However, general findings indicate that trade unions are thus far not actively engaged in training and learning agendas at the workplace. The trade union plays a rather traditional role in collective bargaining, while training and upskilling are not included in social dialogue at the company level. Currently, the active company-level collective agreement does not include any specific clauses on training and education at the workplace. Company-level social dialogue issues are shaped by the preferences and needs of unionised workers relating to wages and working conditions.

While formal arrangements have not transpired, discussions at the level of social dialogue between management and workers' representatives include training and learning issues. Management and the union share an understanding of rapidly changing skill needs and the benefits of up-skilling policies, including job rotation.

The company management anticipates that training could be a part of a renewal of the collective agreement. In this respect, however, HR aspires to establish a fund for education where trade unions would financially contribute to covering the expenses of re-training and up-skilling programmes.

Both employer and company-level trade unions communicate the potential for greater cooperation in terms of involvement of social dialogue in the topic of up-skilling and supporting

increased participation of employees in learning. Both employees and trade unions perceive the lack of motivation of employees to participate in upskilling and reskilling as a serious barrier to organisational development.

The challenges faced by organisations and individuals are well understood by employers and trade union representatives. Rapid changes in the labour market related to technological, green, and broader demographic transformations continuously general new challenges to the well-being of individuals and the competitiveness of organisations.

Perceptions of the existing public schemes

The company has not participated in any public scheme that would support the education and training of its employees. The only experience with publicly funded programmes involves participation in the dual vocational education and training (VET) programme. This however concerns only students between the ages of 15 to 19, and thus is relevant only for initial VET. The company offered apprenticeships to 120 students in the electrotechnical, IT, and mechanical engineering study programmes.

In terms of experience with the company's participation in the dual VET, the company is active in the local business community and, according to their training specialist, feels a responsibility to support other local companies. Thus, in collaboration with the Self-governing Region of Banská Bystrica [*Banskobystrický samosprávny kraj*], the company organizes regular meetings with principals of local secondary schools to encourage their participation in dual learning, where other local companies are invited as well.

When assessing the benefit of participation in the dual VET programme, the company shares its concerns. In both production units and R&D, only a minor portion of individuals transit into full-time employment after graduation. A lack of interest among young graduates presents a challenge for the company (encountering already a shortage of workers in the region). The investment of the company's human capital (mentors, supervisors etc.) is perceived as substantial from the point of view of the company management, but with limited positive impact on the labour supply in terms of young graduates.

Besides this national programme, the company does not participate in any other existing public schemes. Findings from the fieldwork indicate that managers do not seek any support from public schemes, lack information, and/or do not consider existing schemes as beneficial for the company. Instead, they focus on developing and refining internal training strategies within the local company or within the corporate group.

According to the HR representative, the company should foster cooperation with universities along the same lines as its cooperation with secondary schools in the dual VET programme. An example of such potential cooperation are professional baccalaureate [profesijný bakalár] study programmes as a higher education VET alternative. The company had initiated such cooperation, but efforts to convince universities with IT programmes to cooperate in this form have thus far failed. The management finds that the universities do not have sufficient interest in developing these programmes in cooperation with companies.

6. Conclusions

As a result of digital transformations and green transitions, the Slovak labour market encounters various challenges in labour and skill shortages, which situates adult learning as a top policy priority. The dual transition strongly affects the leading industrial sector in Slovakia: the automotive industry. The processes of automation and digitisation significantly impact

Slovakia, which faces one of the highest risks of automation, skill obsolescence, and job destruction relative to other developed economies.

Despite these challenges, Slovakia is one of the countries with consistently low rates of adult learning participation. An increase = in measured participation up to 12.8 % in 2022 may be only technical in nature, and not reflective of significant improvement with respect to the inequality dimension. Inequality in participation is one of the key problems facing the adult learning system in Slovakia. While the Strategy for Lifelong Learning and Guidance 2021-2030 was approved by the Government in November 2022, and includes measures that could address upskilling, actions and implementation frameworks have not yet been developed to deliver on the goals of the strategy.

Public funding for, and the practice of adult learning programmes, this is provided mainly in the framework of active labour market policies which include training programmes intended as a route for upskilling for the registered job seekers. Access to training programmes has been recently extended to include employees. The rationale for the provision of funding to employees is based on the expected destruction of current jobs due to automatization. However, the scheme is universally provided to all employees with no specific support for low-skilled adults in terms of supported training offers. The scheme might be successful in terms of increased participation, but can also result in increased inequity.

There is limited progress in addressing the specific needs of low-skilled adults, including early school leavers.

Trade unions remain less involved in collective bargaining over adult learning in the workplace in Slovakia, but acknowledge that this is a key area to be integrated into their priorities.

Social partners emphasise the need to foster cooperation between the education system and the business sector to foster adult learning. Trade union organisations perceive that skill development and increasing the resilience of employees at the workplace should go hand in hand with work-life balance policies, given that adapting skill sets can put further pressure on workers' well-being.

Large employers, and the employer associations representing them, are very influential in shaping the content of debates about adult learning in Slovakia, but seem to fail to see the issue of adult learning in its full complexity, including the role it can play in alleviating the exclusion of low-skilled adults from the labour market.

Due to dynamically changing labour market skill needs, companies understand the increasing role of reskilling and upskilling. They rely on their own solutions and develop non-formal in-house training courses with individualised approaches and open career paths to any motivated employee. Companies communicate that the motivation of workers to continuously learn is generally weak.

Companies also understand and emphasise the need to foster not only hard skills, but communicate the increasing importance of supporting soft skills such as teamwork, communication skills, problem-solving skills, as well as abilities to adapt to new situations and to engage in complex projects.

Management is aware of the growing pressure on the resilience and mental well-being of their employees. Strong competitive pressures, however, limit the extent of support of employers to all workers in soft skills or well-being. Company representatives also see a space for improvement in the implementation of adult learning programmes by means of better cooperation between formal educational institutions and the business sector.

One of the crucial aspects of learning at the workplace appears to be workers' motivation to learn. Management seeks to put in place organisational practices supporting workers to engage in self-learning and to build their individual intrinsic motivation to learn.

Overall, we find that labour and skills shortages provide more opportunities at the workplace for reskilling and upskilling, regardless of the qualification background of the job seekers or employees.

From the economic perspective, adult learning is perceived as a key driver for boosting adults' skills, which is particularly important for Slovakia and can generate a range of personal, economic, and social benefits. The adult learning system in Slovakia has a long way to go. It needs to target the most vulnerable learners more effectively, especially low-skilled adults and the unemployed. In this respect, adult learning programmes should be accessible, inclusive, and accompanied by welfare and other supportive measures that would mitigate obstacles to accessing the labour market. This could additionally be an effective support for addressing current labour shortages in the automotive sector in Slovakia.

7. Recommendations

The Adult learning system in Slovakia needs to enhance support for the development of soft skills for adults, including social skills and critical thinking, for both formal and non-formal education and training programmes.

While public funding for adult learning provides good opportunities for some learners, the design of the schemes does not address inequality. Different types of support to low-skilled adults need to be developed by the state so that low-skilled adults with disposition barriers to learning can profit from current opportunities in terms of workplace learning and the upskilling and reskilling routes.

The role of social dialogue in supporting equity is very limited and social partners would welcome support to foster their expert and personal capacities so that they could really be engaged in shaping adult learning programmes.

Employers can be very innovative and efficient in solving their upskilling and reskilling needs in connection with the digital and green transitions. It is not clear however if public funding schemes for adult learning can be flexible enough to support companies amid a dynamically changing business environment in Slovakia.

The experience of public schemes reveals limitations in dealing with the skills challenges in Slovakia in terms of both efficiency and outreach at the employee level.

In view of increasing labour shortages and polarisation, attention to low-skilled adults needs to be intensified, as they represent an untapped labour source. Social dialogue could play a more active role.

Employers, schools, and other relevant local stakeholders would benefit from more intensive cooperation in the area of adult learning programmes at all skill levels or age categories. To this end, improved information for employers and schools about possibilities to implement programmes for adults would be beneficial, including e.g., second-chance education programmes, micro-credentials, professional baccalaureate programmes, and so on.

To develop an adult learning and lifelong learning culture in Slovakia, learning opportunities need to be individualised, accessible, and flexible for adults.

Inclusive training opportunities for low-skilled adults are underdeveloped in Slovakia. Outreach to low-skilled adults is best achieved when it is linked with the delivery of support services, such as social work and employment services.

Enhancement of adult learning provision frameworks to offer more equal opportunities for all adults regardless of their skills or education level could lead to significant improvements in the local and regional labour supply.

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