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Green and digital transitions in south-east Europe

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The ETUI conducts research in areas of relevance to the trade unions, including the labour market and industrial relations, and produces European comparative studies in these and related areas. It also provides trade union educational and training activities and technical support in the field of occupational health and safety. Through its expertise, scientific publications, specialist journals and training programmes, the ETUI provides European trade unions with the tools to participate in the European debate and to contribute actively to achieving Social Europe. Its current work programme is built around the following five priorities: worker participation, social dialogue, the Lisbon/sustainable development strategies and their follow-up, trade union renewal and the economic and financial crisis.

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Aims and objectives of the SEER Journal for Labour and Social Affairs in Eastern Europe

SEER aims to stimulate an exchange of information between researchers, trade unionists and people who have a special interest in the political, social and economic development of the region of eastern Europe.

It seeks to draw attention to new research results and the latest analysis about the ongoing process of political and social changes in the broader eastern European region, and tries to create deeper understanding of the importance of the elaboration of democratic structures within industrial relations.

SEER combines contributions from different disciplines and schools of thought into an information package intended to be of interest to policy-makers, researchers, academics and trade unionists from various backgrounds.

The editors would like to point out that it is the authors who are responsible for the content of their own articles and that neither the editors nor the publisher, the European Trade Union Institute, necessarily share the opinions of the authors whose work is featured in the SEER.

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Editorial

This first issue of the *SEER Journal for Labour and Social Affairs in Eastern Europe* for 2026 focuses on the 'Green and digital transitions in south-east Europe'. Its thematic section is devoted to relevant social and labour aspects of the green and digital transitions and to how policymakers and stakeholders in the region are dealing with them.

The article by Nataša Kovačević provides a comprehensive review of the just transition framework in Montenegro. It draws on several examples from transition communities in the western Balkans and provides a case study of Pljevlja, where there is a coal-fired power plant built to take advantage of the local fossil fuel infrastructure. The article seeks to support the perspective of a democratic, inclusive and regionally coordinated approach to the energy transition, identifying the opportunities which a just transition might provide to secure economic diversification and, while doing so, to improve local opportunities in an equitable way. The author draws lessons from successful transitions in the western Balkans and concludes with a series of recommendations embedding just transition as a viable, progressive policy tool.

Dimitar Nikoloski, Branimir Jovanovic, Marija Midovska Petkoska and Dijana Jovanoska assess the specific sectoral and cross-sectoral green skills mismatch, drawing evidence from North Macedonia. With the shift toward a greener economy, it is necessary to develop new skills and update existing ones. Based on an empirical analysis carried out on a representative sample of 530 companies in North Macedonia in 2025, the authors demonstrate how substantial green skills imbalances are affecting both sector-specific and cross-sectoral competencies. Certain industries exhibit particularly high imbalances, reflecting the uneven pace of the transition and underscoring the need for targeted policy responses. The results point to a systemic misalignment between the country's education and training system and the evolving needs of a green economy. The authors propose a set of policy recommendations for reforms to the system including as regards the insufficient integration of green content into vocational courses.

Qerim Qerimi and Bruno S. Sergi reframe the future of the western Balkans within the European Union through the perspective of the contribution that might be made by the digital and green transitions. The article notes that the EU's enlargement toward the south-east of Europe has been mostly captured through a prism of risk, potential instability and institutional fragility. The authors argue for a conceptual and strategic shift: the western Balkans should be repositioned not as a policy burden but as a contributor to Europe's competitiveness and resilience. They identify the comparative advantages in digital services, particularly in AI-related capacities, and in renewable energy potential, arguing that the region can align itself with the EU's twin green and energy transitions. They add, however, that this requires political stability and strengthened institutional capacity alongside an improved absorption of EU research and development funds and regional strategies that are better coordinated.

Based on an empirical survey, the article by Cvetan Kovač and Ivana Krišto analyses the state of and trends in platform work in Croatia during 2025. They use official data from the Ministry of Labour, Pension System, Family and Social Policy, encompassing quantitative indicators on 21,704 workers, four key digital platforms and the operations of 2,336 market intermediaries (aggregators). By implementing amendments to the Labour Act, Croatia has established an advanced regulatory model that precedes the 2024 EU Directive on improving working conditions in platform work, positioning itself as a leader in the digital transformation of the labour market. The central subject of the authors' research was the effectiveness of the Unified Electronic Labour Record (JEER) system both in ensuring transparency and real-time data monitoring and in combating undeclared work. The results highlight the significant role of technological solutions in protecting workers' rights and stabilising relations within the tripartite (platform-aggregator-worker) platform work model.

The article by Julejda Aliaj and Enkelejda Haxhiraj looks at workers' rights in the digital transition with a focus on Albania. The authors argue that, with rapid technological development, the digital transition has created new opportunities but it has also introduced considerable challenges regarding the protection of workers' rights and the provision of fair and equal working conditions. One of the most pressing issues is job insecurity, particularly for workers involved in the platform economy who often lack full rights. Furthermore, the use of digital technologies to monitor worker performance is raising serious concerns about privacy and the protection of personal data, while another major challenge is the displacement of certain jobs due to automation. The authors identify gaps in the legislative framework in Albania, emphasising the absence of an explicit, statutory recognition of the right to disconnect that further aggravates the vulnerability of remote workers. In a culture in which employees are facing intense pressures to remain constantly available, as a result of the spread and adoption of digital communication channels, the lack of clear legal boundaries is threatening the traditional structure and meaning of rest periods. They conclude that, without legal adjustments and a modernisation of trade unions to operate within the decentralised digital space, the balance of power will continue to favour employers, hindering the achievement of a fair and just digital transition.

Finally, Fabian Teichmann examines the case of cyber resilience in the western Balkans in the context of its critical infrastructure, the EU accession process and the social dimension of digital security. He points out that cyber insecurity has become a matter not only of national security but of social welfare, public service continuity and democratic trust. While the western Balkans are digitising at speed, the region is lagging behind in terms of cybersecurity governance, institutional capacity and the presence of a skilled workforce. The article therefore argues that cyber resilience should be treated as a core component of the region's European integration and of its social model, rather than as a narrow technical or law enforcement concern. Drawing on the EU's evolving cybersecurity acquis – notably the NIS2 Directive and the Cyber Resilience Act – as well as on the region's acknowledged weaknesses in the rule of law and anti-corruption enforcement, the article identifies four interlocking challenges: exposed critical infrastructure; regulatory misalignment; a governance and corruption deficit; and an acute cybersecurity skills gap. It concludes with a calibrated agenda for regional cooperation, accession-driven harmonisation, workforce development and the involvement of the social partners with the aim of making digital resilience a shared public good.

The open section of this issue carries two contributions that fit into the core interest of the *SEER Journal*: trade unions and labour rights; and the continuing relevance and importance of models of workplace democracy.

In their article, Sanja Paunović, Spomenka Paunović and Rajko Kosanović provide a comparative analysis of the state of labour rights in the western Balkans with perspectives for trade union action. They examine labour market transformation in the region, examining how economic and demographic developments are affecting the realisation of labour dignity, drawing on successive iterations of the ITUC Global Rights Index. The article combines a review of international labour standards with a comparative analysis of labour market developments, migration trends, trade union rights and institutional responses, paying particular attention to demographic decline, outwards labour migration, growing labour shortages, an increasing reliance on migrant workers and the expansion of non-standard forms of employment. For sustainable labour market development, the authors make recommendations for policies that are required to address labour shortages and to strengthen labour rights, social protection and collective bargaining institutions.

Closing the open section and this issue of the *SEER Journal*, a review by Magnus Neubert introduces the book by Anna Calori (2026) on 'Engineering global socialism: ownership, non-alignment, and corporate culture in a Bosnian company', focusing in particular on a case study of Energoinvest. The review concludes by highlighting Calori's recovery of alternative visions of global integration and her careful documentation of how those visions were betrayed, in the process offering essential resources for thinking about the more just and more democratic futures that a globalised world requires if the interests of working people are to prevail.

If you would like to add to the debate started by any articles you read in this issue, do let one of us know: we are always happy to consider for publication in these pages original articles that offer a fresh perspective on the continuing subjects of workers' rights and democratic development that are well established here. We look forward to hearing from you!

Béla Galgóczi **July 2026**
Calvin Allen

Nataša Kovačević

Just transition and the local community: the lessons of successful transitions in the western Balkans

Abstract

Montenegro is facing a complex socioeconomic and energy transformation within the framework of EU accession and decarbonisation targets from the 'Fit for 55' initiative and the Green Agenda for the Western Balkans. In this context, the concept of a just transition, ensuring that the shift toward a carbon-neutral economy is fair and inclusive, has gained in prominence. This article[1] provides a comprehensive review of the just transition framework in Montenegro and seeks to support the perspective of a democratic, inclusive and regionally coordinated approach to the energy transition. It identifies and draws on several examples of lessons from other transition communities in the western Balkans and provides a case study of Pljevlja, where there is a coal-fired power plant built to take advantage of local fossil fuel infrastructure. The article identifies the opportunities which a just transition might provide to secure economic diversification and improve local opportunities while doing so in an equitable way. It concludes with a series of recommendations embedding just transition as a viable, progressive policy tool.

Keywords: *Just transition, European Green Deal, decarbonisation, energy transition, Montenegro, regional development, public-private partnerships, social enterprises*

Introduction

In October 2017, Montenegro adopted the Law on Ratification of the Paris Agreement,[2] confirming the country's commitment to contribute towards solving the global problem of climate change. Montenegro's updated National Determined Contribution from February 2025 sets the ambitious goal of reducing greenhouse gas

1 Prepared in the first place as a detailed research and scoping study for the Green Forum – Balkan Green Policy Lab initiative. This work is included here in a specially edited form as an article, with the kind permission of both the author and the Green Forum.

2 Official Gazette of Montenegro – International Agreements, No. 9/17, Parliament of Montenegro, October 2017.

(GHG) emissions by 55% by 2030 and 60% by 2035, marking a significant increase on the previous version which targeted a 35% reduction.[3]

By signing the Sofia Declaration on the Green Agenda for the Western Balkans, the countries of the region recognised the European Green Deal as a new growth strategy for the European Union with the aim of a modern, climate-neutral and competitive economy that uses resources efficiently. One of the important elements of the Declaration is the Economic and Investment Plan, designed to achieve sustainable economic growth, the implementation of reforms necessary for progress on countries' EU paths and bringing the western Balkans closer to the EU single market. With a population of almost 18 million people, the region represents an important market for the EU. Against this background, the Commission proposed the mobilisation of up to €9bn of financial resources from the Instrument for Pre-accession Assistance (IPA III) programme for 2021-2027. In addition, a new Guarantee Instrument for the western Balkans is foreseen, which can support investments of up to €20bn.[4]

The European Commission's Growth Plan for the Western Balkans aims to expedite the enlargement process and the economic convergence of candidate countries to EU average GDP per capita, and is of crucial importance for channelling resources to support the necessary reform processes. Consequently, the implementation of the proposed measures will contribute to accelerating regional economic integration and gradual integration with the EU single market.

The Montenegrin economy faces several structural challenges. All the proposed reform measures are designed to enhance the economy's competitiveness and sustainability, focusing primarily on improving the regulatory environment, reducing informality, addressing funding difficulties for micro, small and medium-sized enterprises and improving the monitoring and management of state-owned enterprises.

The country's energy sector still relies heavily on coal, outdated technologies and old facilities. Its transformation and integration into the EU energy market, already complex and demanding, will be made more difficult by new increased decarbonisation ambitions and demands for deep transformation, with short deadlines.[5] Montenegro's draft National Energy and Climate Plan (NECP) plans to abandon the use of coal by 2041 (or between 2035 and 2037, as it is not clear). However, the draft

3 UNDP website: Presented Updated Nationally Determined Contribution (NDC) of Montenegro for 2030 and 2035, February 2025, accessed 29 May 2025 at: https://www.undp.org/montenegro/news/presented-updated-nationally-determined-contribution-ndc-montenegro-2030-and-2035.

4 For further details, see: https://ec.europa.eu/neighbourhood-enlargement/sites/near/files/factsheet_wb_boosting_connectivity_en.pdf.

5 Ekotim: 'Sveobuhvatna analiza strateškog i zakonodavnog okvira u oblastima relevatnim za Zelenu agendu' ('Comprehensive analysis of the strategic and legislative framework in areas relevant to the Green Agenda'), August 2023.

did not provide clear guidance for achieving climate neutrality by 2050, despite the political commitment in the Sofia Declaration.[6]

The country has significant potential for sustainable renewable energy. Hydropower already provides two-thirds of total energy production, but a strong degree of diversification from this source is needed: in 2022, droughts led to €100m in losses for hydroelectric power generation (Todorović 2022). Energy produced from wind can reach up to 25% of annual energy consumption, with the coastal regions and mountainous terrains offering high average wind speeds, with estimates suggesting a technical potential of 4.2 TWh per year; i.e. nearly four times the country's current electricity consumption.[7] Nevertheless, wind energy accounts for just 9.11% of Montenegro's electricity production (ESG News 2023). The average annual number of sunny hours is more than 2,000; construction of the first large solar power plant (4.4 MW) has been finalised although further development of solar facilities is lagging behind and the sector contributes only 1.14% of the country's electricity production. The utilisation of industrial heat pumps for heating and cooling is in its nascent stages, while geothermal energy and thermal electricity storage remain under exploration and no significant projects are operational. The adoption of the country's Law on the use of energy from renewable sources underscores Montenegro's commitment to EU energy and climate targets and aims for a 50% share of renewables in gross final energy consumption by 2030.

Montenegro has an operational emissions trading system (ETS) for industry and power sectors and it is expected that decarbonisation will be further facilitated by this in the medium and long term, with a significant impact on coal-dependent power generation. The ETS is expected to play a pivotal role in the transition towards more sustainable energy sources, bringing opportunities for economic growth through new investments in natural renewable energy and green technologies.

Problem definition

Montenegro's energy transition challenge is most visible in Pljevlja, the country's only coal mining region and the location of the only coal-fired power station in Montenegro, commissioned in 1982. With a generation capacity of 225 MW, it produces about one-third of the country's electricity, highlighting its critical role in national energy supply. The continued operation of the plant is legally and environmentally problematic, however: it has exceeded its legally permitted 20,000 operating hours under the Energy Community Treaty as of 2020 and is currently therefore operating without a valid integrated environmental permit, in violation of the EU Industrial Emissions Directive. As a result, an infringement procedure has been launched against Montenegro (Energy Community Secretariat 2023). Despite this, the facility

6 The final version of the NECP was adopted in December 2025. However, it remained as a draft while the research for this article was being undertaken and it is references to the draft, not the final version, that are contained herein.

7 The Energy Circle: 'Montenegro, a small, young country with a growing green energy potential', accessed 3 June 2025 at: https://www.energycircle.org/articles/montenegro-a-small-young-country-with-a-growing-green-energy-potential.

remains operational, contributing high levels of sulfur dioxide, nitrogen oxides and particulate matter that are continuing to affect public health in the region severely. Even with a proposed retrofit, the plant is unlikely to meet Annex V, Part II of the Directive, while its CO_2 emissions would still render it nonviable under the EU's Carbon Border Adjustment Mechanism.

Furthermore, the region around the plant is heavily dependent on fossil fuels, creating structural economic, social and demographic vulnerabilities. The workforce is homogenous, with skills predominantly tied to mining and energy production, while the community faces limited economic diversification, weak entrepreneurial activity and infrastructural bottlenecks. This dependence has created a complex web of vulnerabilities as the region must navigate the planned phasing out of fossil fuels, a process that is confounded by national energy policies that lack clarity on decommissioning timelines and by social protection systems which are ill-equipped to manage a large-scale industrial transition.

The region's heavy reliance on coal is quantified by the presence of no fewer than 1,258 coal-related jobs, while the sector contributes approximately 20% of Pljevlja's GDP and 3-4% of national GDP. Demographic data reveals a critical trend of depopulation, with the population declining from 30,000 in 2011 to 24,134 in 2023, especially among young people, with 49% of residents being over the age of 50. Social data indicates that 14-30% of households in the north of the country surrounding Pljevlja face energy poverty, with one-quarter spending over 10% of their income on energy.

The emigration of young people is high due to limited employment outside coal. Rural areas in general are facing depopulation, underdeveloped infrastructure, limited healthcare and education, and higher poverty rates. The regional workforce is largely male with secondary vocational education dominant and few higher-educated or retrained workers. Some 62% of workers at the Pljevlja power plant and mine are aged over 40, and a clear skills mismatch exists between local education and green economy needs. There is thus a critical need for tailored reskilling and upskilling programmes for the green economy, systematic economic diversification and strengthened social protection to support a just transition in Pljevlja. Heavy dependence on a single sector is creating economic and social vulnerability, while limited retraining programmes and inadequate social safety nets are exacerbating the transitional risks. The primary effects of this dependence are multifaceted and severe, while weak social protection mechanisms are exacerbating these vulnerabilities. A just transition is therefore a socioeconomic necessity to avoid deepening inequalities, requiring urgent, coordinated action:

- establishing a definitive timeline for decommissioning and the replacement of fragmented plans
- creating robust, tailored social protection instruments in the form of wage subsidies and large-scale reskilling programmes
- making strategic investments to diversify the local economy.

The significant sustainable renewable energy potential presents a clear opportunity, but realising it depends on overcoming institutional delays and regulatory barriers. Carefully designed support measures, including strengthened safety nets and stronger incentives for renewable investments, are essential to ensure an equitable and resilient future for the region.

Yet the draft NECP provides only a modest and vague roadmap for the decommissioning of Pljevlja and managing the socioeconomic impacts. Clear just transition measures, particularly as regards retraining programmes, regional economic diversification and targeted social support, are poorly addressed. A transparent, timely and well-resourced just transition plan remains urgently needed to ensure communities and workers are not left behind in Montenegro's path toward a sustainable energy future.

A just transition in energy should aim at the restructuring of current local economies dependent on coal in a manner that is in line with sustainable development goals and European climate and energy policies, while its implementation should facilitate economic diversification, i.e. a strengthening of the economy by making it less vulnerable via the launch of other economic activities, increasing the resilience of local communities. There are numerous opportunities to kickstart a new economic cycle in economies dependent on coal; nevertheless, there is a risk of significant job losses in the first place, not only in the mines but also in related industries such as transport, equipment maintenance and support services. This job loss could have a wide-ranging impact on the local community, leading to a reduction in consumer demand and income for local businesses, affecting a range of sectors and further complicating the transition process. Consideration needs therefore to be given to how to support and reorient the local economy in a way that minimises the negative economic impact and enables sustainable development.

A key challenge in Pljevlja is the identification and establishment of new industries that can replace coal as the basis of the local economy. This requires significant investment, innovation and workforce reskilling. It is necessary to explore which new industries could be viable in the region, such as sustainable renewable energy, tourism or advanced technologies, and to develop strategies for their implementation. Diversification is essential to mitigate the risks and ensure long-term economic development and, for that to be successful, it is necessary to create an environment that encourages investment and the growth of new industries. This includes a stable political and legal structure, favourable tax policies and the availability of finance and other forms of support for small and medium-sized enterprises.

Legislative and policy framework

Montenegro has established a foundational legislative and strategic framework for its energy transition, demonstrating political commitment through its EU candidacy and membership of the Energy Community, and has adopted key laws. However, this framework is characterised by significant internal contradictions, most notably a misalignment between the ambitious 55% GHG reduction target by 2030 and a draft NECP that prescribes a coal phase-out as late as 2041. Although the draft NECP sets out some sort of roadmap for a just transition, there is no detailed action plan with financial estimates and a clear timeline. Crucially, the state lacks an identified governmental sector that should lead and coordinate all the processes involved in a viable roadmap and implement an associated action plan in practice.

This has created a policy environment where the country's high-level ambition is not yet supported by clear, actionable and integrated strategies, leaving critical gaps in governance and implementation capacity.

On top of the draft NECP, the strategic framework in this area consists of the National Climate Change Strategy (NCCS) and the Energy Development Strategy (EDS), both with target backstop dates of 2030. The NCCS provides a methodology and detailed sectoral projections for key emission sectors, along with a sensitivity and uncertainty analysis. In addition, it provides potential GHG savings, along with climate change adaptation measures and their associated costs, and provides for compliance with EU climate change legislation. The EDS determines long-term development goals and guidelines for the development of energy supply and meeting energy consumption, and provides directions for the development of energy infrastructure and measures to encourage the use of sustainable renewable energy sources and increase the efficiency of energy use.

In terms of labour issues, Montenegro's commitment to the European Green Deal and the Green Agenda for the Western Balkans necessitates a transformation of its labour market and skills systems, especially in sectors like energy, construction, transport, waste management and tourism. This shift implies the creation of green jobs, for which a responsive vocational education and training (VET) system is critical. Vocational training programmes do currently exist, but they are not specific to green jobs and green skills integration remains limited: higher education offers environmental programmes, yet links to labour markets are weak; lifelong learning and reskilling opportunities in emerging green sectors are ad hoc; and careers guidance for young people and vulnerable groups is underdeveloped.

Furthermore, labour and education policies have not yet been adapted to transition needs and key challenges persist, including skills mismatch (especially between vocational education and labour demand), low female participation in certain sectors; the emigration of skilled workers and high unemployment in the country's northern region. In particular, several policy measures are missing or inadequate to deal with the need:

- there are no dedicated just transition social protection mechanisms (e.g. severance packages, early retirement schemes)
- there is limited integration with employment services and skills development programmes
- the fiscal space for expanding social transfers or introducing new social guarantees is weak
- there are insufficient data and targeting mechanisms to support region-specific or sector-specific transitions
- local services provision and the capacity to manage rising social needs during transition is underdeveloped.

Financial considerations

Montenegro faces a significant financial challenge in advancing a just transition. Fiscal estimates show that the overall cost of transition between 2025 and 2035 could amount to €1.1bn, including €100-150m for labour market and social support,

€80-120m for regional economic diversification, €70-100m for remediation and up to €500m for renewable energy deployment and grid modernisation. Currently, funding is fragmented across modest instruments such as the Eco Fund (€5-7m annually) and scattered state allocations without a dedicated budget line aimed at delivering just transitions. International support remains underutilised, largely due to Montenegro's limited administrative capacity and the lack of a formal Territorial Just Transition Plan (TJTP), a key requirement for accessing the EU's €17.5bn Just Transition Fund (JTF) and broader associated mechanisms.

The JTF finances projects that alleviate the socioeconomic costs for regions across the EU that are heavily dependent on fossil fuels and need to diversify their local economies, and will provide much-needed support to businesses and workers at local level.

The consequences of this insufficient financing are stark: a loss of municipal revenue from coal-related activities; a fiscal gap in pensions and healthcare systems; and high risks of outmigration and local economic decline.

Social considerations

Transition impacts differ across social groups, requiring equality-based policies. Women and minorities remain underrepresented in the energy sector, with less than 20% holding positions of managerial leadership, while the coal workforce is ageing. A substantial portion of households as facing the risk of energy poverty, which disproportionately affects single-parent families, pensioners and vulnerable groups such as Roma, the elderly and the disabled.

The transition will therefore have different effects across population groups, and social equality, gender inclusion and stronger protections must be central to just transition design. Women are largely absent from energy decision-making, yet they can be integrated into new roles in sustainable renewable energy, sustainable tourism, household efficiency programmes and local energy cooperatives. Young people, often excluded from legacy industries, have high potential in green entrepreneurship, ICT innovation and small businesses tied to the energy sector, if supported through tailored training and financing.

By embedding gender-responsive financing, targeted subsidies for vulnerable households, inclusive training schemes and stronger participatory governance, Montenegro can not only protect those most at risk but also unlock the untapped potential of women and young people. This would transform the need for transition into a dual opportunity: advancing climate neutrality while fostering a more resilient and socially inclusive society.

Households headed by women, as well as rural, Roma and elderly populations, often face lower incomes, limited energy access and barriers to energy efficiency upgrades, which is why they are disproportionately affected by energy poverty. Energy transition measures – such as price reforms, carbon taxes and renewable energy investments – can exacerbate these inequities if subsidies, financing and training programmes are not designed with gender and social inclusion in mind. Without proactive measures, green jobs programmes may reinforce occupational segregation and women may be excluded from sustainable renewable energy opportunities due to land ownership or financing constraints. Training initiatives risk low participation unless they account for care responsibilities, mobility and timing constraints, while increased energy costs could disproportionately burden low-income and single-parent households. Currently, Montenegro's draft NECP and energy strategies lack gender or social impact assessments and clear mainstreaming provisions; while data disaggregation by gender, ethnicity and disability remains weak, limiting the ability to design targeted interventions that would ensure an equitable and inclusive green transition.

Transition planning for the Pljevlja complex has not been accompanied by a published just transition roadmap. There is no publicly available job-to-job transition strategy, retraining fund or social protection floor targeting mine and power plant workers. Furthermore, trade union participation in drawing up the draft NECP and investment planning is both non-systematic and non-binding. There are a number of social effects arising from this lacuna:

- the risk of reinforcing existing labour market segregation if green jobs programmes are not inclusive
- indirect job losses in retail, care and public services in coal regions, affecting mostly women
- underutilisation of human capital as women, young people minorities and the disabled remain excluded from many opportunities in the energy sector
- disproportionate energy poverty among single-parent households, pensioners, Roma, elderly and the disabled
- marginalisation in decision-making – women and vulnerable groups are under-represented in local and national transition planning
- intergenerational risks – current policies may pass environmental and fiscal burdens to younger generations if not reformed
- worker protection gaps – no guaranteed retraining funds, weak integration of unions in transition planning and early retirement policies being only ad hoc, not systematic.

Best practice from the western Balkans

Comparative lessons demonstrate the importance of inclusive governance, reskilling and innovative financing, including from within the wider EU and, from our perspective here, also from the western Balkans where there are several early stage positive practices, one of the best examples coming from mining communities in North Macedonia and which could serve as inspiration for Montenegro.

For Montenegro, the data reveals the presence of specific, actionable plans oriented towards nature-based solutions, sustainable tourism and low GHG intensive industrial production. A key opportunity lies in the innovative repurposing of Pljevlja's industrial sites. The power plant itself is a prime candidate for conversion into a sustainable renewable energy zone featuring solar PV and advanced battery storage, while the coal mine and the ash dump at Maljevac offer the potential for landscape recontouring, reforestation and the development of a public park or controlled and environmentally acceptable wetland, directly mirroring successful models for example in Slovenia. The coal mine already has ambitious proposals for diversification into construction, solar power, IT and agri-business, which provides a strong foundation for this transformation. Included among the proposals already being taken forward are:

- an engineering school of science that popularises and promotes engineering sciences and aims to expand the scientific spectrum in Pljevlja, which is considered the centre of energy potential in Montenegro
- opening a Creative Hub for young people, which represents a place for those who are interested in developing entrepreneurial skills and creating new jobs.

Realising this vision is contingent on establishing successful public-private partnerships (PPPs) and deploying innovative financing models. Montenegro must actively develop PPPs for workforce development and land repurposing; while financing must move beyond mere grants in the competition to attract private capital. However, it is important to stress that grassroot ideas and vision has to be respected, while ensuring that groups understand the environmental, economic and social impacts of their proposals, especially those that are GHG intensive and that may bring additional economic and environmental burdens due to CO_2 emissions and taxation. Apart from the legal and financial operational framework, the state has to provide good infrastructure and fast connections to the region and on a cross-border basis (roads, railway, digital network) to ensure that the area does not remain isolated.

Slovenia

The centre of the Savinja-Šalek coal region is Velenje, the youngest city in Slovenia, founded in the 1950s with the goal of exploiting fossil fuel resources. Slovenia plans to decarbonise its energy sector in full by 2033, but the Šoštanj power plant (1,029 MW) will be forced to close before even 2030 due to Slovenia's ambitious goals to which it has become committed via its NECP. This represents a real challenge for coal workers in the region, numbering 2,244 workers, while the Šoštanj power plant employs a further 306.

To implement just transition in this region, several instruments have been adopted, the most important being a formal TJTP for the Savinja-Šalek coal region, the regional development plan of the Savinja-Šalek region and the operational programme for the implementation of EU cohesion policy. The Savinja-Šaleška coal region has mobilised approximately €174m out of a total allocation of €250m covering both Slovenian coal areas (Government of Slovenia 2023).

Velenje is committed to the phasing out of coal by 2033, in alignment with Slovenian national strategy, and aims to become climate-neutral by 2030 as part of the EU's '100 Climate-Neutral and Smart Cities' mission (European Commission 2022a). Governance is structured through the model of a just transition centre, engaging local authorities, NGOs, industry, trade unions and educational institutions in a bottom-up model that encompasses:

- repurposing degraded coal infrastructure into business incubators, SME zones, innovation hubs and training centres in clean and zero-carbon technologies (Slovenia Times 2025)
- support for coal-sector workers with lifelong guidance and retraining programmes issued under the TJTP (European Commission 2022b).

As part of Slovenia's phasing-out of coal, Velenje is repurposing its post-mining landscape for sustainable tourism, recreation and nature-based development. One good example is the lake at Velenjsko, formed by ground subsidence from lignite mining and once symbolic of ecological damage but which now features watersports (paddle boarding, windsurfing, sailing) and an award-winning beach promenade, while surrounding trails support birdwatching and cycling. Visitors can descend 160 metres into a coal mining museum[8] then explore the lake by boat, including through a digital storytelling of the submerged village of Škale, an initiative awarded the BIG SEE Tourism Design Award 2022. Its revitalised shores now host sports events, fitness zones and educational trails, fostering local entrepreneurship, the engagement of young people and new jobs in the service economy.

North Macedonia

As part of its commitment to a just and sustainable energy transition, North Macedonia has secured a total of $85m (€75m) in funding from the Climate Investment Funds facility through its Accelerating Coal Transition Investment Programme. This particular programme seeks to support the transition from coal in the Kičevo and Bitola regions and is being implemented by the government of North Macedonia in conjunction with the EU, European Bank of Reconstruction and Development (EBRD) and the UN Development Programme (UNDP). This investment plan supports three strategic project areas:

- the largest share, $56.8m (€50m), is allocated to Project 1 – Retiring Coal Assets and Repowering with Renewable Energy, which includes power plant retirement, mine remediation and investments in grid modernisation and solar education and training
- Project 2, with $14m (€12.3m), targets the socioeconomic regeneration of coal-dependent regions such as Pelagonia and the southwest, focusing on SME support, industrial zone revitalisation and climate-smart economic development
- Project 3 invests $14.2 million (€12.5m) in energy efficiency, clean heating and distributed generation, with dedicated components to empower coal communities through renewable lending and community-centred clean energy solutions.

This comprehensive investment package represents a leading regional example of how targeted international climate finance can directly support the phasing-out of coal alongside the presence of inclusive, regionally tailored just transition strategies. Its key elements are a multi-level stakeholder platform for coal transition planning; early preparation of just transition roadmaps for affected municipalities; worker-focused reskilling programmes for the renewables and energy efficiency sectors; and the piloting of solar deployment on former ash disposal sites.

The lessons it offers are based on strategic foresight, integrated social and economic dimensions and a process that is both transparent and locally co-owned.

8 'Underground adventure in the coal mining museum of Slovenia', https://www.visitsaleska.si/en/saleska-valley/underground-adventure-in-the-coal-mining-museum-of-slovenia/, accessed 28 July 2025.

Serbia

In Serbia, a community-led air quality and energy transition dialogue in Lazarevac, a suburb of Belgrade, offers the example of participatory transition planning in a coal-dependent community, led by BOŠ (Belgrade Open School), supported by the EU, the Friedrich-Ebert-Stiftung and Climate Action Network Europe (CAN 2021).

Its key elements are:

- community forums and school workshops on coal and air pollution
- citizen science (low-cost air sensors distributed to schools)
- the inclusion of youth voices and teachers in energy dialogue
- advocacy for energy diversification and worker dialogue in the Kolubara basin.

The lessons it offers are based on strong local ownership, the empowerment of young people and ground-level data leading to and supporting local advocacy.

Bosnia and Herzegovina

In Bosnia's Tuzla Canton, a just transition diagnostic has been developed to provide a socioeconomic map of the area. It is supported by UNDP, with support from the EU Green Agenda for the Western Balkans.

Its key elements include:

- socioeconomic and environmental baseline mapping in coal areas
- worker profiling and an employment risk index
- the identification of retraining and entrepreneurship opportunities
- public roundtables involving civil society and business.

The key lessons it offers include a foundation in a robust approach to data collection, the early identification of transition risks and a framework for targeted policy design.

Kosovo

In Kosovo, the Sun for Kosovo communities programme, implemented by local NGOs in conjunction with Gesellschaft für Internationale Zusammenarbeit (German Society for International Cooperation) works to establish renewable energy cooperatives offering youth employment in rural and peri-urban areas.

Its key elements are:

- training of unemployed young people and women to install and maintain solar systems
- community reinvestment from cooperative profits
- energy access and gender equity combined.

The lessons that it offers are based on green jobs with an equity lens, scalability and replicability, and a focus on linking energy access and inclusion.

Montenegro

Within Montenegro itself, and also in the region of Pljevlja, a riverbank restoration programme is being piloted by UNDP which aims to examine the possibilities provided by nature-based solutions in tackling environmental damage.

Its key elements are:

- reforestation and riparian zone stabilisation near ash dumps
- the engagement of Pljevlja vocational schools in restoration work
- the piloting of integration in municipal green infrastructure plans.

The lessons it offers are based on a cross-sectoral (environment and education) approach, the building of local capacity and its applicability to other degraded mining areas.

Facilitating a just transition in Pljevlja: a case study

Table 1 identifies the common features of successful transitions drawing on the examples highlighted in the previous section.

Table 1 – Common success factors

Success factor	**Description**
Multi-stakeholder governance	Active engagement of workers, young people, NGOs and the business community
Data-driven planning	Use of diagnostics, mapping and monitoring tools
Social dimension focus	Reskilling, job creation and social support mechanisms
Environmental restoration	Nature-based and ecosystem approaches to changes to land use
Local ownership	Community empowerment and participatory processes

The most evident elements of these programmes which have relevance for both Pljevlja and Montenegro more widely are as follows:

- consider how an environmental approach might trigger an effective change of land use and support a diverse regeneration (Velenje, Slovenia)
- replicate the involvement of community-based forums to monitor air quality (Lazarevac, Serbia)
- adopt worker profiling and reskilling plans (Tuzla, Bosnia and Herzegovina)
- pilot sustainable renewable energy cooperatives (Kosovo)
- expand the footprint of the river restoration project nearby in Pljevlja
- build a municipal just transition taskforce (Kičevo, North Macedonia).

Governance

Ultimately, a just and inclusive transition away from coal in Pljevlja will depend on the extent of social support – and that means the development and implementation of governance structures that are participatory, accountable and capable of integrating diverse stakeholder interests.

The lead institutions at governmental level are the Ministry of Energy, which takes care of the strategic oversight of the phasing-out of coal and energy diversification; the Ministry of Ecology, Sustainable Development and Northern Development, which oversees environmental and climate planning; and the Environmental

Protection Agency, which coordinates strategic environmental assessments and environmental impact assessments, and conducts protective monitoring.

At local governmental level, the municipal authority in Pljevlja delivers local decision-making on land use, social services and economic development and manages public consultations on urban and energy planning. Throughout Montenegro, however, municipalities lack dedicated just transition coordination bodies, although a local energy and climate committee has been proposed while some degree of coordination takes place through involvement in the EU's Instrument for Pre-Accession Assistance as well as via regional cooperation mechanisms.

Tools for civic participation do exist, including via the Social Council of Montenegro – a tripartite body for labour, government and employer dialogue, although this is not specific to just transitions. However, the consultations that do take place tend to be reactive, not part of any strategic, agreed approach to a co-design principle, and most of them are not located in Pljevlja but rather in Podgorica, the capital of Montenegro. In addition, technical documents demonstrate poor accessibility (via language and complexity), while there is a lack of gender-sensitive and youth-focused participation formats. In addition, there is no formal grievance or appeal mechanism for transition-related decisions.

Financing

The lack of a dedicated TJTP means that Montenegro is not yet a formal recipient of the EU Just Transition Mechanism. However, projects in Pljevlja can qualify for support through a wide range of other mechanisms:

1. Western Balkans Investment Framework (WBIF): the main EU-led platform for blending grants with loans from the international financial institutions, including the European Investment Bank (EIB), the EBRD, KfW, World Bank, etc. Funds can be used for infrastructure, environment, energy, climate resilience and just transition measures
2. IPA III is the main EU financial tool for candidate countries like Montenegro, whose lifetime is foreseen under the 2021-2027 multiannual financial framework. This includes several flagship initiatives and funds pilot projects, policy reforms, capacity building, etc. Part of IPA III can support just transition-related reforms and investments
3. the Green for Growth Fund (GGF), focused on energy efficiency and renewable energy in the region, offers loans and technical assistance for private and public sector projects
4. the Regional Energy Efficiency Programme, implemented by EBRD and funded by the EU, Austria and Germany, supports energy transition, especially in buildings, SMEs and municipalities
5. the European Climate, Infrastructure and Environment Executive Agency (CINEA) finances climate and environmental projects under programmes like LIFE and the Connecting Europe Facility. It may be used to open up opportunities for regional cooperation and provide support via multi-country programmes.

These are in addition to technical assistance providing pilot financing through a variety of institutions other than those already mentioned, including the programmes of UNDP, OECD, etc. However, to access the full benefits, Montenegro must operationalise inclusive governance models aligned with the EU's Just Transition Guidelines, ensuring a Territorial Just Transition Plan in alignment with the NECP.

Social issues

Transitioning to a low-carbon economy requires targeted, inclusive and future-proof reskilling to avoid job losses among the workers in and dependent on the Pljevlja site, as well as social exclusion and emigration among the wider residential population. A range of existing retraining programmes already exists, including some with international backing in cooperation with the Pljevlja Vocational School, where some curricula have been modernised (electricians, mechanical tech). However, there is no comprehensive worker transition registry, skills assessment is systematically lacking, alignment with the national NECP and transition roadmap is only weak, women and young people are underrepresented in retraining initiatives and there is no targeted support for older or under-educated workers.

Community engagement

In principle, the effective engagement of the local community is a cornerstone of just transitions, ensuring legitimacy and trust in transition processes, the inclusion of vulnerable and marginalised voices, the delivery of locally relevant solutions aiming at conflict prevention, and the social ownership of the decisions taken on the phasing-out of coal, as well as on land repurposing and the establishment of viable economic alternatives.

Locally, however, there is no community engagement strategy tied to a just transition roadmap, while engagement is not embedded in governance structures and often takes place on a one-off basis. In addition, there is a lack of multilingual or accessible formats (e.g. visuals, local dialects) and no system exists for the tracking and reporting of feedback.

Repurposing the former mining and industrial sites in Pljevlja offers a powerful opportunity to lead Montenegro's just transition through creative land use, community-driven design and low-carbon innovation; and there is no shortage of viable ideas of what can be done in terms of economic and social regeneration. To succeed, however, these projects must combine technical, environmental and social dimensions, backed by large-scale, phased and sustained investment and clear and transparent governance as well as the involvement of multiple actors, each with a clearly defined role. Here, capacity-building for local institutions in Pljevlja is key to ensuring an inclusive, sustainable and long-term transition.

Three complementary delivery approaches can share the load and, in conjunction, can sequence early wins (skills, site repurposing, pilots) and crowd-in larger investments over time.

1. public-private partnerships (PPPs) to mobilise capital and technology for infrastructure and industry
2. cooperative and social enterprise models to anchor local ownership and community benefits
3. public sector leadership to set direction, protect people and invest where markets will not.

Public-private partnerships

Public-private partnerships (PPPs) can translate national transition goals into bankable projects by pairing state de-risking and regulation with private capital, know-how and execution. The priority PPP domains for Pljevlja include renewables, grid upgrades, brownfield repurposing and workforce retraining hubs. Table 2 sets out some of the areas in which PPPs could play a significant local role:

Table 2 – The potential for PPPs in Pljevlja

Design element	What it might look like in Pljevlja / wider region
Use cases	■ Utility-scale and community-linked solar/wind ■ Smart grids/cross-border interconnections ■ Industrial decarbonisation ■ Land repurposing to establish green tech parks/tourism ■ Workforce PPPs and small business accelerators co-located with industrial parks to foster green tech ventures
Governance and roles	■ Government sets frameworks, safeguards and guarantees ■ Private partners deliver and operate ■ Local government ensures community benefits. The social partners need to be involved in oversight committees while small businesses should be engaged as innovation partners in PPP consortia
Financing instruments	■ Blended finance (EU JTF/IPA, loans from international financial institutions, and private equity) ■ Green bonds ■ Energy service company/energy performance contracting ■ Pay-for-success/social impact bonds for training/health outcomes ■ Seed-grant windows
Risk and mitigation	■ Institutional capacity gaps → technical assistance ■ Social backlash → benefit-sharing and participation ■ Project risk → guarantees and phased milestones ■ Grid constraints → parallel grid investments ■ Small business fragility → incubator support and venture co-investment
Early priorities	■ Pilot energy performance contracting in municipal buildings and plant-adjacent facilities ■ Launch employer training PPP ■ Structure a brownfield redevelopment PPP pipeline ■ Designate a small business zone in Pljevlja's Creative Hub linked to PPP projects

KPIs	■ MW installed/modernised ■ Euros mobilised per public grant ■ Number of workers retrained/placed ■ Percentage of contracts with local suppliers ■ Number of small businesses incubated or partnered in PPPs ■ Community benefit share ■ Avoidance of generation of GHG

Cooperative and social enterprise models

Energy-based worker cooperatives can embed local ownership, distribute the returns and build the social licence for sustainable renewables and circular economy activities to take root. In coal regions, they can complement large PPPs by creating inclusive, smaller-scale jobs and reinvesting surpluses in community priorities. Table 3 explores what this might look like in Pljevlja:

Table 3 – The potential for co-operatives and social enterprises

Design element	**What it looks like in Pljevlja / wider region**
Use cases	■ Community-owned solar/wind ■ Worker co-ops in forestry, agriculture, eco-tourism, reuse/repair ■ Social enterprises delivering retraining and services ■ Site repurposing with co-management (e.g. agri-solar, cultural/creative hubs) ■ Small business-cooperative hybrids in agri-tech, food processing, eco-tourism
Governance and roles	■ Member-owned co-ops with municipal facilitation ■ Technical providers as partners ■ Co-designed benefit-sharing rules ■ Small businesses supported via cooperative incubators or joint ventures
Financing instruments	■ Small business grants (EU JTF/IPA) ■ Concessional loans/guarantees ■ Revolving community funds ■ Rooftop PV credit lines ■ Modest equity from members/diaspora ■ Angel/seed finance blended with cooperative capital
Risk and mitigation	■ Limited skills and capital → incubation, technical assistance ■ Market access → purchase agreements with municipalities/SOEs ■ Governance risk → bylaws and audits ■ Small business exit risk → mentoring and integration with co-ops
Early priorities	■ Establish a municipal community energy desk ■ Pilot community solar co-ops ■ Convert select services into worker co-ops ■ Tie co-ops to VET curricula ■ Support small business bootcamps inside the Creative Hub with co-op linkages

KPIs	■ Number of co-ops formed ■ Member count and diversity ■ kW installed ■ Euros reinvested locally ■ Number of trainees hired by co-ops ■ Number of small businesses launched via co-op or hub support ■ Resident satisfaction

Public sector-led solutions

There is a clear role for the state and the local municipality in anchoring the transition: setting timelines for the phasing-out of coal and establishing safeguards; funding social protection; and investing where private returns are weak (district heating, health, schools). Public leadership also de-risks private investment and ensures inclusion. Table 4 identifies the areas in which the public sector will be needed to play a key role:

Table 4 – Importance of the public sector

Design element	**What it looks like in Pljevlja / wider region**
Use cases	■ National/municipal just transition fund ■ District heating upgrades ■ Health facilities and school modernisation ■ Social protection (income support, wage subsidies, early retirement bridges) ■ Grid upgrades for sustainable renewable energy supply ■ Publicly funded small business grants and competitions in clean energy, IT and agri-food
Governance and roles	■ Setting NECP-aligned plans ■ Coordinating ministries/municipality/power industry ■ Running social dialogue ■ Monitoring impacts ■ State-owned enterprises acting as transition leaders ■ Public agencies partnering with incubators/accelerators to support small businesses
Financing instruments	■ Budget reallocations ■ EU JTF/IPA ■ Concessional loans from international financial institutions ■ Performance-based transfers ■ Startup/small business seed funds and innovation vouchers administered by municipality
Risk and mitigation	■ Fiscal/capacity gaps → phased investments ■ Stakeholder fatigue → structured participation ■ Policy delays → action plans and reporting ■ Startup/small business sustainability risk → follow-on support and procurement access

Early priorities	■ Adopt a national Territorial Just Transition Plan and municipal roadmap ■ Create an investment taskforce ■ Modernise social registries ■ Launch public works ■ Roll out a municipal small business challenge fund
KPIs	■ Number of beneficiaries of social measures ■ Percentage of displaced workers re-employed ■ Worth of assets renovated ■ Just transition funds disbursed ■ Number of small businesses supported via public programmes ■ Transparency score

Just transition challenges and opportunities

Montenegro's journey towards a just transition in Pljevlja is fraught with interconnected challenges but also presents a unique opportunity to forge a more resilient, diversified and sustainable economy. The extensive analysis undertaken and summarised in this article reveals a complex web of challenges, however, that threaten to derail a fair and effective transition:

1. policy and governance fragmentation: the most critical challenge is the profound misalignment between national ambitions and implementation plans. The ambitious GHG reduction target of 55% by 2030 is directly contradicted by the draft NECP's proposal to extend coal operations until 2041. The absence of each of a definitive date for the phasing-out of coal, a detailed and costed TJTP and a clearly designated government body to lead the process creates a vacuum of leadership and certainty, while also deterring investment and leaving communities in limbo
2. socioeconomic vulnerability: Pljevlja's economy is a monoculture built around coal. The direct and indirect employment of over 1,200 individuals, contributing 20% of local GDP, creates an extreme dependency. This is compounded by a rapidly ageing local population, the continuing exodus of young people and a workforce with skills which are highly specialised in a dying industry. The existing social protection system, with short-term, low-value unemployment benefits and a lack of targeted retraining programmes, is simply inadequate to cushion the shock of large-scale industrial restructuring
3. financial and institutional constraints: Montenegro lacks a dedicated budgetary line for just transition, relying on fragmented and modest instruments like the Eco Fund. The country's limited administrative capacity hinders its ability to access and absorb available international finance from mechanisms like the EU's Just Transition Mechanism, for which it is eligible but which requires a TJTP to be prepared. The impending loss of municipal revenue from the coal sector further strains local fiscal capacity
4. environmental and health legacy: decades of mining and coal combustion have left a severe legacy of land degradation, air pollution (causing over 250 premature annual deaths in Pljevlja alone) and the contamination of the Ćehotina River. The ongoing operation of the Pljevlja power plant without a valid envi-

ronmental permit not only continues to damage public health but is also exposing Montenegro to infringement procedures by the EU's Energy Community
5. inclusive governance deficits: transition planning has thus far lacked meaningful, structured participation from affected communities. Women, young people, minorities and workers are not adequately represented in decision-making processes. This top-down approach risks designing solutions that do not address local needs and realities, fostering distrust and resistance to change.

Despite these formidable challenges, Montenegro possesses significant assets and opportunities to navigate a successful transition:

1. abundant sustainable renewable energy potential: Montenegro's significant, and largely untapped, potential in solar and wind energy presents a clear pathway for replacing coal-fired generation. Projects like the planned Briska Gora solar plant (200 MW) and existing wind farms (at Krnovo, Možura) already demonstrate the feasibility. Repurposing degraded mining lands and ash dumps for solar PV installations represents an optimal land-use solution
2. economic diversification and innovation: the transition is a catalyst to break Pljevlja's economic monoculture. There is strong potential in sectors such as sustainable agriculture (e.g. value-added products like Pljevlja cheese), eco-tourism (leveraging its proximity to the Durmitor national park, the planned regional natural park around the Ćehotina River), sustainable wood processing, the production of efficient technologies (heat pumps, batteries) and the establishment of a creative digital economy, as evidenced by the newly opened Creative Hub. The coal mine's own proposals for diversification into construction, IT and agri-business provide a foundational vision on which to build
3. international support and EU alignment: as an EU candidate country, Montenegro has access to crucial financial and technical support. Learning from successful EU transition models (e.g. Slovenia's Velenje) and regional pioneers like North Macedonia can accelerate Montenegro's own planning and implementation
4. community resilience and identity: the deeply rooted industrial identity of Pljevlja, often seen as a challenge, can be transformed into a strength. The community's technical skills, work ethic and cohesion are valuable assets that can be redirected towards building, operating and maintaining new green infrastructure, fostering a sense of pride in a new, sustainable future
5. health and environmental co-benefits: phasing out coal and remediating contaminated sites will yield immediate and massive public health benefits, reducing healthcare costs and improving the quality of life. Ecological restoration of the Ćehotina River and mining areas can enhance biodiversity, create recreational spaces and support new economic activities like nature tourism.

Conclusion and recommendations

Montenegro stands at a crossroads. The choice is not whether to transition away from coal, but how to manage this inevitable process. Continuing on the current path, characterised by policy ambiguity, delayed action and inadequate social preparedness, will inevitably lead to a disorderly and unjust transition. This would result in severe economic disruption in the north of the country, accelerated depopulation, long-term unemployment and the entrenchment of deep social and regional inequalities. It would also place Montenegro at odds with its international climate commitments and EU accession goals, potentially incurring financial and political costs.

Conversely, by embracing the transition as a strategic national priority, Montenegro can turn a significant challenge into a transformative opportunity. A proactive, well-managed just transition is the only viable pathway to secure a sustainable future for the citizens of Pljevlja and the nation as a whole. It provides a chance to modernise the energy sector, diversify the economy, improve public health and align with the European Green Deal. Success, however, hinges on taking urgent, decisive and coordinated action. The government must move from drafting ambiguous plans to implementing hard-edged measures, ensuring that the people and communities most affected by the change are supported and are active participants in building their new economic reality.

To navigate a just and sustainable transition, the following targeted recommendations are proposed, structured by key pillars of action.

Governance and policy coherence

- G1. Adopt a clear date for the phasing-out of coal: immediately revise the NECP to set a definitive and ambitious coal phase-out date for no later than 2030, aligning national policy with climate targets and providing certainty for investors and communities.
- G2. Formalise a just transition governance structure: establish a high-level national just transition taskforce, led by the Office of the Prime Minister, with mandatory representation from relevant ministries (Energy, Economy, Labour, Environment), the Pljevlja municipality, trade unions, business associations and civil society to coordinate all transition efforts.
- G3. Develop and fund a TJTP for Pljevlja: finalise a detailed, costed action plan, developed through a participatory process. This plan must include specific projects, timelines, responsible entities and a clear financing strategy, serving as the key to unlocking funding from the EU's just transition measures.

Social protection and inclusive labour market measures

- S1. Establish a just transition social buffer: create a dedicated support package for affected workers, including:
  - S1a. Wage subsidies for employers hiring displaced workers.
  - S1b. Bridging pensions for workers within five years of retirement.
  - S1c. Relocation and mobility grants.
- S2. Launch a comprehensive green skills academy in Pljevlja: develop and implement a large-scale, tailored reskilling and upskilling programme in partnership with vocational schools, the University of Montenegro and private sector

employers, focusing on sustainable renewable energy installation, energy auditing, sustainable agriculture, circular economy management and eco-tourism.

- S3. Expand and better target energy poverty programmes, integrate social services and ensure all transition policies are accompanied by gender and social impact assessments to protect vulnerable groups.
- S4. Establish a legal definition of energy poverty and a register of vulnerable households.
- S5. Target energy efficiency investments in high-risk zones (north, rural) and integrate energy audits with social services in municipal operations.
- S6. Link building renovation plans to NECP and just transition funding.
- S7. Explore off-grid and sustainable renewable energy-based solutions for remote areas.
- S8. Modernise and integrate social registries to target support by occupation, region, income and transition exposure.
- S9. Strengthen the link between social protection and activation: automatically refer unemployed or displaced workers to reskilling/entrepreneurship programmes.

Economic diversification and investment

- E1. Incentivise private investment in green sectors: establish a 'Green Pljevlja' economic zone with tax incentives, streamlined permitting and support for SMEs and startups in sustainable renewables, energy efficiency, sustainable forestry/agriculture and circular economy businesses.
- E2. Repurpose degraded land innovatively: mandate and fund feasibility studies for the repurposing of the power plant site and coal mine for:
  - E2a. Large-scale solar PV and battery storage facilities.
  - E2b. Eco-industrial parks and recycling hubs.
  - E2c. Agri-voltaic projects and nature restoration zones.
- E3. Develop sustainable tourism: invest in infrastructure and marketing to promote Pljevlja's cultural heritage and natural assets (e.g. the Ćehotina River valley) for rural and eco-tourism, creating local service jobs.

Environmental remediation and health

- Env1. Enforce immediate pollution controls: ensure the retrofitting of the Pljevlja power plant is completed without further delay and that the facility is operating in full compliance with EU environmental standards until its closure.
- Env2. Ensure funding for urgent remediation: secure funding (via the polluter-pays principle) to address the legacy of land degradation, stabilise the ash dump and improve water pollution in the Ćehotina watershed. Remediation finance should not come from public money but from the polluter.
- Env3. Integrate nature-based solutions: prioritise nature-based solutions in all redevelopment projects, including reforestation, wetland creation and urban greening, as a means of restoring ecosystems, enhancing climate resilience and improving community wellbeing.

Financing and implementation

- F1. Maximise international financial access: prioritise the building of administrative capacity to prepare bankable project proposals and successfully apply for funding from IPA III, WBIF, EBRD, EIB and the Green Climate Fund.
- F2. Explore innovative financing models: develop PPPs for sustainable renewable energy and energy efficiency projects, promote community energy cooperatives and consider green bonds to attract private capital.
- F3. Create a transparent monitoring framework: establish a public dashboard with clear key performance indicators to track progress on job creation, emissions reduction, funds disbursed and social metrics, ensuring accountability and building public trust.

Innovative delivery models: PPPs, cooperatives and synergies

- M1. Develop a pipeline of PPPs for strategic infrastructure:
  - M1a. Structure a PPP for the large-scale repurposing of the Pljevlja power plant and adjacent mining land into a sustainable renewable energy zone combining utility-scale solar, battery storage and grid modernisation, with a private partner responsible for investment, construction and operation.
  - M1b. Launch energy performance contracting PPPs for deep retrofits of public buildings (schools, hospitals) in Pljevlja and across the northern region, guaranteeing energy savings from which to repay the private investor.
  - M1c. Create a workforce development PPP, co-funded by the state and private companies, where vocational training centres are co-designed and operated with industry partners to ensure direct pathways to employment in the green economy.

- M2. Foster community-owned energy and enterprise through cooperatives:
  - M2a. Legally recognise and provide seed funding, technical assistance and streamlined permitting for sustainable renewable energy cooperatives, allowing the citizens of Pljevlja to invest collectively in and profit from rooftop solar, small-scale wind or biomass district heating projects.
  - M2b. Support the formation of agricultural and artisanal cooperatives to aggregate produce (e.g. Pljevlja cheese, medicinal herbs), achieve economies of scale and access new markets, ensuring local value retention.
  - M2c. Explore a community-owned model for the management and economic benefits of restored natural assets (e.g. a restored Ćehotina River area for eco-tourism).

- M3. Create a state-facilitated innovation ecosystem for small businesses:
  - M3a. Expand the Pljevlja Creative Hub into a fully fledged green innovation incubator offering seed funding, mentorship and networking specifically for small businesses in cleantech, the circular economy, sustainable tourism and agri-tech.

- M3b. Establish a ‘testbed Pljevlja’ programme in which small businesses can pilot new technologies (e.g. waste-to-energy, smart grid software, energy efficiency solutions) in partnership with the municipality and state-owned enterprises.
- M3c. Implement innovation procurement policies where the state and municipality prioritise purchasing from startups and SMEs offering green solutions, creating a guaranteed local market for their products and services.

- M4. Mandate synergistic partnerships:
  - M4a. Require that large PPP projects (e.g. the solar park) include contractual clauses for sourcing from local cooperatives and subcontracting to small businesses incubated in the local ecosystem.
  - M4b. Formalise a tripartite dialogue forum between the state (as regulator and funder), large corporate partners (from PPPs) and cooperatives/small businesses to identify and act on synergistic opportunities. This ensures the state acts as a strategic facilitator, connecting capital with community-driven innovation.

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Assessing the specific sectoral and cross-sectoral green skills mismatch: evidence from North Macedonia*

Abstract

The ongoing energy crisis, along with accelerating climate change and the depletion of natural resources, has increased attention on how to respond to these challenges. The shift toward a greener economy and the integration of sustainable technologies will influence all sectors, making it necessary for individuals to develop new skills and update existing ones. The empirical analysis in this article is based on a survey carried out on a representative sample of 530 companies in North Macedonia during March-April 2025. The results demonstrate the existence of substantial green skills imbalances, affecting both sector-specific and cross-sectoral competencies. In this context, certain industries exhibit particularly high imbalances, reflecting the uneven pace of the transformation and underscoring the need for targeted policy responses. The results point to a systemic misalignment between the education and training system and the evolving needs of a green economy. Accordingly, a set of policy recommendations is proposed in educational reform, alongside incentives for private investment in the adoption of green practices.

Keywords: *green transition, sustainable development, labour market, just transition, North Macedonia, green skills, skills mismatch*

Introduction

The ongoing energy crisis, along with accelerating climate change and the depletion of natural resources, has increased attention on just how prepared economies are to respond to these challenges (EBRD 2020; ETF 2023). In this context, an increasing number of developed and developing countries are embracing ambitious climate targets accompanied by employment and skills policies to support the green transition (OECD 2025). In November 2020 North Macedonia, together with other western Balkan countries, signed the ‘Green agenda for the western Balkans, thus recognising the European Green Deal and its goals for an environmentally neutral

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and competitive economy that uses resources efficiently (European Commission 2020). Furthermore, the recently adopted National Development Strategy (NDS) 2024-2044 of North Macedonia covers, among other strategic issues, the areas of green transformation. More specifically, the ambition of the NDS is to position the country as a regional leader in sustainable development and in care for the environment, while implementing the transition to a low-carbon economy and ensuring growth. The fundamental goal of NDS a significant reduction in greenhouse gas emissions to enhance air quality and improve energy efficiency, thereby promoting a healthier living environment for citizens while integrating a gender perspective into environmental policies and programmes.

North Macedonia is currently navigating the challenges of transitioning toward a sustainable economy, though remaining in an early stage characterised by limited innovation and insufficient alignment between business practices and workforce skills (ETF 2019). Empirical analyses emphasise that the workforce needs new skills compatible with future technological changes while skills mismatches, together with a lack of green technologies, are acting as a key bottleneck in the expansion of green jobs (Nikoloski et al. 2026). The existing occupational structure and skill levels for developing an environmentally friendly economy are, in many respects, not aligned with the country's projected development goals. Namely, the content of vocational education and training (VET) curricula shows a rather low level of integration of green skills, sustainability and environmental content, which are present in only 26% of vocational subject areas (Nedanovski and Daniloska 2022). In addition, the process of identifying the required green skills and developing green curricula needs to involve all relevant stakeholders including the Ministry of Education, chambers of commerce and the academic community (OECD 2022).

The shift toward a greener economy and the integration of sustainable technologies will influence the workforce in all sectors, making it necessary for individuals to develop new skills and update existing ones in order to stay relevant in the labour market. As economic activities become more environmentally focused, the nature of many jobs and the skills they require will change. Therefore, a key concern is ensuring that workers possess the competencies needed to face these structural transformations, often described collectively as 'green skills'. To date, there is no unanimous understanding of the notion of 'green skills', since various organisations and governmental agencies are formulating and adopting their own definitions and approaches. According to the UN definition, green skills consist of the knowledge, abilities, values and attitudes needed to live in, develop and support a sustainable and resource-efficient society (Arthur 2021). In this context, there is particular ambiguity around whether the term should refer only to those skills explicitly related to narrow green processes or products, or whether it should embrace more general skills that can be applied to green outcomes.

As new occupations emerge and others evolve to satisfy the demands of the green transition, new skills will be required of the workers who occupy them. There are a number of stakeholders, such as government, the corporate sector, civil society etc, advocating sustainable development in which green skills will play a crucial role not only in workplaces but in social discourse and political debates. In addition, there is little systematic empirical research to guide public intervention for meeting the demand for the skills needed to operate and develop green technologies. With respect to this, the design and the implementation of effective policy measures require a clear delineation between specific sectoral green skills and more general green skills that are applicable across multiple sectors (Janta et al. 2023).

Accordingly, the aim of this article is to assess green skills imbalances in North Macedonia with respect to specific sectoral and cross-sectoral skills as a means of informing future policy interventions particularly in the domain of education reform. The article is structured as follows: the next section provides the theoretical framework for the analysis of the green transition and associated green skills imbalances, following which there is a presentation of the results of the empirical analysis and their interpretation. Finally, the article draws some conclusions and suggests several associated policy recommendations.

Theoretical background

The green transition is a process of transforming the system of production, distribution and consumption towards a development model that ensures an environmentally sustainable and a fairer society which brings structural shifts in employment and required skills composition (ETF 2022; Wilts 2022). According to CEDEFOP (2021), the shift to the new development model will inevitably result in the expansion of 'green' sectors that will gain employment from sustainability and the adoption of green technologies alongside a substantial contraction of other sectors. In particular, the green transition will trigger a reallocation of jobs from sectors, companies and occupations that do not comply with green standards to those that are in line with the new policy priorities.

In addition, however, the green transition affects different occupations with different outcomes. Some existing occupations are expected to be in high demand due to the greening of the economy; others are expected to undergo significant changes in task content as a consequence of the greening of the economy. Furthermore, new occupations are emerging from the structural changes due to the green transition (Vona et al. 2015; Maclean et al. 2018).

The result of the rapidly increasing pace of the adoption of green technologies is a new composition of the skills required by the newly created jobs. In this context, many studies emphasise the potential bottlenecks and labour market frictions that may arise, particularly in green sectors (Council of the European Union 2024; Keese and Marcolin 2023). Other studies point to the opportunities that green jobs offer, particularly to young people who can find employment or become entrepreneurs in green sectors (Sulich and Zema 2018).

Achieving sustainable development with respect to the key environmental, social and economic dimensions represents one of the most pressing issues in developed and developing countries alike (IOE 2023). Keeping in mind the potential negative consequences of job reallocation engendered by the green transition, a number of authors advocate delivering a just transition by involving all social partners in making the skills transition fair, particularly for those population segments most at risk of being left behind (Balata et al. 2022). In this respect, the concern is to avoid the disproportionate effects of the transition in order to avoid the risk of increasing inequalities (ILO 2022; ILO 2024). In this context, companies as generators of economic development have to adhere to the principles of a just transition without compromising their efficiency and business performance. Even so, the success of the transition depends, to a great extent, on the ability of policymakers to address the social challenges it poses and to design policies in consultation with the key stakeholders involved (Council of the European Union 2024). In the case of developing countries, the shift toward a sustainable development model is even more difficult due to the size of the informal economy, which poses a further challenge for greening because it is unregulated (ILO 2019; IOE 2023).

A recent literature review emphasises the increasing centrality of green skills in achieving environmental sustainability in the context of the green transition (ETF 2023; Carminati et al. 2025). However, the empirical literature also identifies an evident gap related to the precise impact of green skills on the sustainability of the transition (Fuchs 2024): that played by the role of countries' VET systems. In addition, the scope of the term is itself not clear-cut: whether it refers only to technical skills explicitly related to narrow green processes or products, or whether it encompasses transferable soft skills that can be applied to green outcomes. In this regard, some authors opt for alternative terms such as 'skills for green jobs' or 'skills for the green transition' that frame green skills as the set of specific skills and capacities needed to fill the green jobs that are driving the transition to a green economy (Kwauk and Casey 2022; Janta et al. 2023). This approach to identifying green skills, besides core green skills, highlights the importance of more generic capacities like innovation, leadership, problem-solving, analytical thinking, communication skills and the ability to work in teams. In this context, Stroud et al. (2025) propose a macro-to-micro conceptual framework according to which a worker's green skills at micro level can only be identified through their macro outcomes. Organisational arrangements are considered at mezzo-level as drivers in redefining processes and job profiles and by the adoption of new technologies that contribute to green outcomes.

The empirical evidence shows that the greening of the economy is associated with a higher reliance on non-routine cognitive skills and a higher dependence on formal education, work experience and, in particular, on-the-job training (Consoli et al. 2015). Recent studies corroborate the earlier findings in terms of the existing systematic difference in skills requirements between green and non-green jobs. Analyses based on job advertisements suggest that green vacancies are more skills intensive than generic jobs, leading to a heterogeneity in skill gaps and in the possible reskilling paths (Saussay et al. 2022). As a solution to this problem, some authors propose the use of labour market intelligence that can provide real-time information about the distribution of required green skills with respect to occupation, industry and level of education, as well as regional and time dimensions (Nikoloski et al. 2024; CEDEFOP 2025). The empirical evidence shows that education systems around the world are not well equipped to support the development of the broad range of green skills needed for the green transition (Sanchez and Yanez-Pagans 2024). Hence, the identified green skills gaps, and the hard-to-fill vacancies which arise due to workers' green skills deficits, can be used as signals for policymakers, particularly in the domain of education and active labour market policies. Countries' leaderships across government, the corporate sector and civil society need to initiate steps toward the establishment of generic green skills not only through formal education and training but through wider social interaction embedded in workplaces, social discourse and political debates (Lamperti et al. 2019).

Specific sectoral green skills are related to the use of green technologies or methods that improve the environmental outcomes of a particular activity. These are related to the use of green technologies or methods required to perform specific green jobs or tasks within one industrial sector. Examples of specific sectoral skills include solar panel installation or wind turbine maintenance within the renewable energy sector. In contrast, cross-sectoral green skills are necessary to carry out environmentally friendly processes and functions that are similar across multiple sectors of the economy. These amount to the green skills which are relevant to a broad range of occupations and sectors with a focus on broad sustainability principles, environmental awareness and the soft skills needed to adapt to changing environmental demands (Economist Impact 2024).

The micro-perspective rationale for an analysis of the dichotomy between specific sectoral and cross-sectoral green skills arises from differences in their transferability. Namely, specific sectoral skills are tailored to meet the demands of a particular work environment and, therefore, are less transferable. These skills are essential because they require a deep understanding of the peculiar practices and challenges of a given industry. Furthermore, developing such skills often involves a combination of formal education, on-the-job training and hands-on experience. On the other hand, cross-sectoral skills are transferable across various sectors and, generally, they are acquired during the process of formal and/or informal education and are less associated with actual experience on the job. Companies value both specific and transferable human capital but have different incentives to invest. While specific human capital is unique to a single employer or a sector, creating a strong incentive for that employer to invest, general human capital is widely applicable across many firms, making it more attractive for individual employees to invest in themselves.

The current policy debate brings to the fore the advantages and disadvantages of focusing on the green transition in terms of its sectoral or its more general aspects (Gregg et al. 2015). The sectoral approach has many benefits, such as the relative ease of stakeholder coordination and the identification of specific skills needs. However, this is not sufficient for ensuring comprehensive skills development for the green transition since not only the priority sectors, but all sectors, have the potential for greening. A cross-sectoral perspective instead allows stakeholders to identify the skills needs arising out of both direct and indirect job creation along supply chains and, in turn, to the design and implementation of training programmes for a wide range of sectors and jobs at all skill levels.

In practice, the implementation of an economy-wide approach is more complex than a sectoral approach. With respect to this, a good understanding of what is required for successful cross-sectoral coordination represents a challenging task. The high level of public acceptance of environmental sustainability goals may well have facilitated cross-sectoral coordination and consensus building with an economy-wide perspective. Thus, raising awareness of environmental issues is a powerful tool for the development of skills for the greening of the economy as a whole, not only in the priority sectors. In this context, a country's leaders, alongside its corporate sector and civil society, need to initiate steps toward a growth of generic green skills and by taking advantage of a variety of formal and informal places for this.

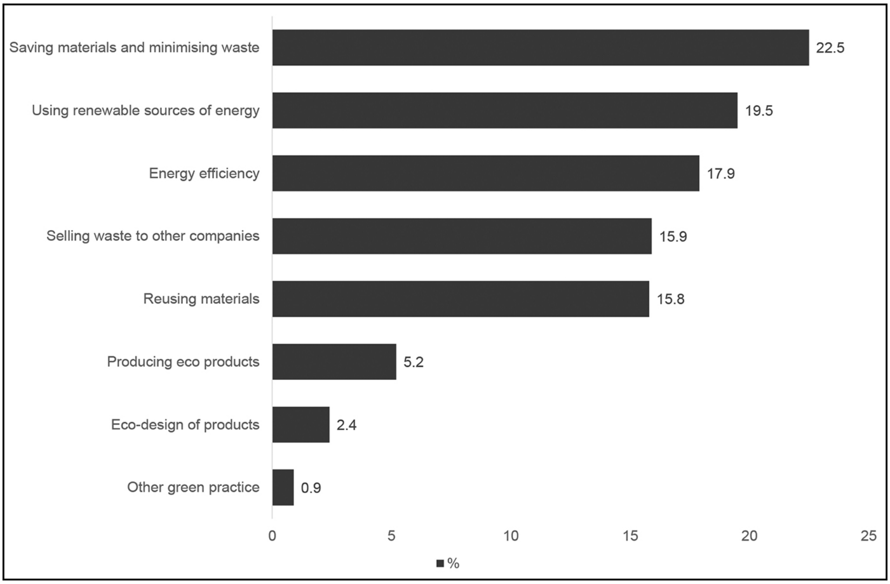
Empirical analysis

The empirical analysis in this study is based on a survey of a representative sample of companies in North Macedonia, carried out in March-April 2025. The sample consisted of 530 companies that responded to a questionnaire distributed via the project team. The companies were randomly selected according to predefined quotas with respect to statistical regions (NUTS-3 level), economic activities (NACE Rev.2 classification) and company size (micro, small, medium and large) with the aim of achieving representativity in these variables. In addition, various company characteristics were controlled for such as year of establishment, type of ownership, company size, presence of foreign direct investment (FDI), involvement in global value chains through import/export, membership of an employer association, certification related to international environmental standards, and involvement in corporate social responsibility (CSR).

Green engagement

The results identify that about 60% of companies have implemented one or more green practice with the remaining 40% declaring that they have not engaged in any such thing. The majority of companies that have engaged have done so in just one area (27.2% of all companies), followed by those with two green practices (13.2%) and then three (9.8%). Companies with four and five green practices represent 4.7% and 4.9% respectively of the total number. Bearing in mind that more than two-thirds of companies have implemented no green practices or only the one, we can conclude that the green transition in North Macedonia is still to gain momentum. The distribution of green practices is presented in Figure 1.

Figure 1 – Distribution of green practices



As Figure 1 reports, the green engagement of companies in North Macedonia is mostly a passive exercise rather than reflecting an active contribution. Namely, saving materials, using renewable sources of energy, being energy efficient or applying appropriate waste management policies are the most frequently mentioned examples, accounting for three-quarters of the total number of applied green practices, yet all are passive. In contrast, recycling materials by reusing them, producing eco products or using eco design principles, which are innovative by their nature, account for just one-quarter of the total number of green practices.

Green skills mismatches

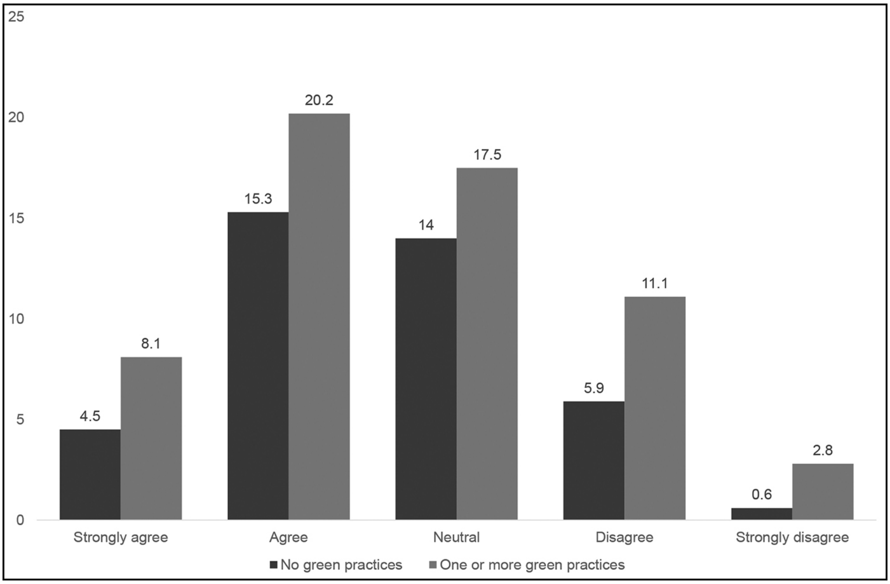
The survey questions on green skills mismatches are straightforward and easy to interpret and analyse. Company managers were asked to answer whether the particular category of green skills (specific sectoral or cross-sectoral ones) are in accordance with the company's needs when it comes to the implementation of green practices. It can be assumed that the responses provided closely reflect the actual conditions since employers and managers are likely to have more accurate information than employees about skill requirements (Brunello and Wruuck 2019).

In order to avoid misunderstandings regarding the interpretation of the constructs, appropriate examples of skill mismatches associated with each dimension were provided alongside each question on the questionnaire. The responses were measured on a five-point Likert scale (strongly agree, agree, neutral, disagree and strongly disagree); hence, higher values for a particular dimension of a skills mismatch is associated with a higher skills imbalance. The distribution of responses with respect to specific sectoral and cross-sectoral green skills mismatches are presented in Figure 2.

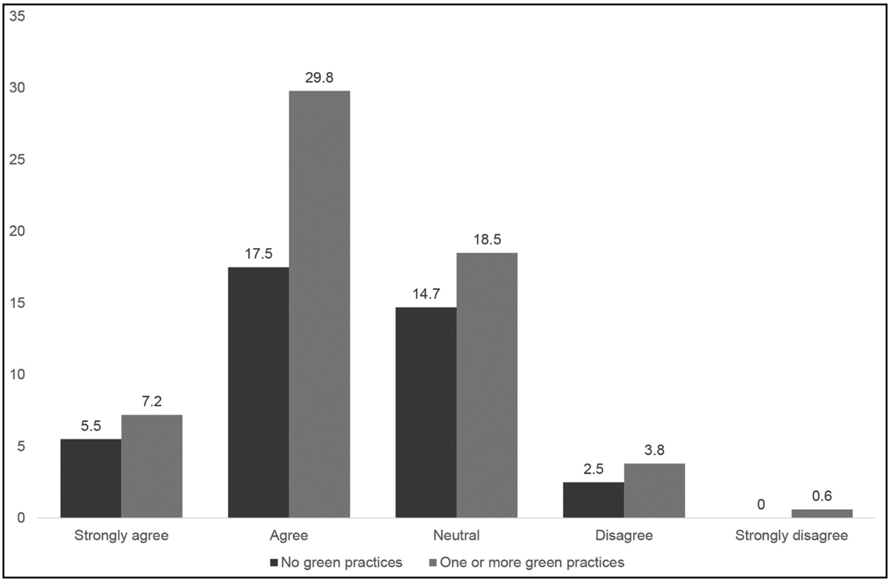
It is noticeable that the distribution of responses regarding specific sectoral green skills imbalances is more symmetric (panel a) compared to the distribution of cross-sectoral green skills imbalances, which is more skewed to the left (panel b). Hence, in the latter case, the relative share of companies with implemented green practices that agree on the question of green skills mismatches is disproportionally higher compared to the relative share of those that disagree. In contrast, regarding specific sectoral green skills imbalances, the relative share of companies that have implemented green practices which disagree is considerably higher. This means that specific sectoral green skills mismatches represent a more severe problem than cross-sectoral mismatches for those companies which have implemented at least one green practice.

Figure 2 – Distribution of responses with respect to green skills mismatches

Panel (a): specific sectoral green skills correspond to the company's needs



Panel (b): cross-sectoral green skills correspond to the company's needs



Assessing the determinants of green skills mismatches was achieved via the estimation of two ordinal logistic models in which the dependent variables are specific sectoral and cross-sectoral green skills mismatches. The dependent variable in each model specification takes values 1-5 corresponding to the five modalities of the Likert scale. Although these types of measurement are widely used in empirical work, there remain concerns regarding the assumption of equal distances between the categories when transforming the ordinal into interval measures (Bishop and Herron 2015).

The following variables were used as explanatory variables:

Year – number of years since the establishment of the company

Public – takes value 1 if the company is public; 0 otherwise

SME – takes value 1 if the company is a small or medium enterprise; 0 otherwise

FDI – takes value 1 if the company has at least 10% foreign capital; 0 otherwise

Import – takes value 1 if the company imports materials; 0 otherwise

Export – takes value 1 if the company exports products; 0 otherwise

Chamber – takes value 1 if the company is a member of a chamber of commerce; 0 otherwise

Standard – takes value 1 if the company applies international environmental standards

CSR – takes value 1 if the company identifies as socially responsible; 0 otherwise

Green practice – takes value 1 if the company declares that it applies at least one green practice

The results of the estimated coefficients and odd-ratios are presented in Table 1.

Table 1 – Ordinal logit models for green skills mismatch

Variable	**Specific sectoral green skills mismatch**		**Cross-sectoral green skills mismatch**	
	Coefficient	**Odd-ratio**	**Coefficient**	**Odd-ratio**
Year	−0.00221 (0.149)	0.99778 (0.149)	0.00578*** (0.000)	1.00580*** (0.000)
Public	0.32201*** (0.000)	1.37991*** (0.000)	−0.10716 (0.238)	0.89838 (0.238)
SME	0.02095 (0.746)	1.02117 (0.746)	−0.18943*** (0.004)	0.82743*** (0.004)
FDI	0.00476 (0.948)	1.00478 (0.948)	0.47136*** (0.000)	1.60217*** (0.000)
Import	0.14907** (0.022)	1.16076** (0.022)	−0.32134*** (0.000)	0.72517*** (0.000)
Export	0.07957 (0.270)	1.08228 (0.270)	−0.46728*** (0.000)	0.62670*** (0.000)
Chamber	0.06823 (0.200)	1.07875 (0.200)	−0.18647*** (0.001)	0.82988*** (0.001)
Standard	−0.17819*** (0.004)	0.83678*** (0.004)	−0.64309*** (0.000)	0.52567*** (0.000)
CSR	−0.51194*** (0.000)	0.59933*** (0.000)	−0.81526*** (0.000)	0.44252*** (0.000)
Green practice	0.31148*** (0.000)	1.36544*** (0.000)	0.47733*** (0.000)	1.61177*** (0.000)

Note: p-values in parentheses; */**/*** indicate significance respectively at 10/5/1 percentage levels.

Source: authors' own calculations.

The estimated ordinal logit models provide useful information about the factors that are influencing green skill mismatches. The number of years since the establishment of the company increases the cross-sectoral mismatch, but has no effect on specific sectoral green skills mismatches. Furthermore, public companies experience higher specific green skills mismatches, while small and medium-sized enterprises face lower cross-sectional green skills mismatches. Integration in global value chains provides mixed results: the presence of FDI increases the cross-sectoral green skills mismatch; the importing of materials has a negative impact on specific sectoral green skills mismatches but a positive impact on cross-sectoral ones; and exporting products has a positive impact only on cross-sectoral green skills mismatches. Association in chambers of commerce decreases the cross-sectoral green skills mismatch, while the certification of international environmental standards and the practising of CSR decrease both the specific sectoral and cross-sectoral green skills mismatches. Finally, companies who implement green practices have statistically significant higher levels of both specific sectoral and cross-sectoral green skills mismatches, which is particularly relevant for potential policy interventions. Namely, doing so increases the probability of being rated higher on the Likert scale by about 36.5% for specific sectoral, and 61.2% for cross-sectoral, green skills mismatches.

In order to account for the sectoral effects of green practices on skills mismatches, dummy variables were then included. Potential multicollinearity is avoided by replacing the aggregate green practice variable with disaggregated sectoral effects. Here, the survey used the NACE Rev.2 classification, which consists of 21 sectoral classes. However, some sectors have only a small number of observations so, instead of operating with 21 dummy variables, a high-level aggregation was applied into ten categories, as suggested by Eurostat (2008), and as presented in Table 2.

Table 2 – High-level aggregation of economic activities

No.	NACE Rev.2 sections	Description
1	A	Agriculture, forestry and fishing
2	B, C, D and E	Manufacturing, mining and quarrying, and other industry
3	F	Construction
4	G, H and I	Wholesale and retail trade, transportation and storage, accommodation and food service activities
5	J	Information and communications
6	K	Financial and insurance activities
7	L	Real estate activities
8	M and N	Professional, scientific, technical, administration and support service activities
9	O, P and Q	Public administration, defence, education, human health and social work activities
10	R, S, T and U	Other services

Source: Eurostat (2008)

The number of companies in the real estate sector was only 2, so this dummy was omitted with the other nine dummy variables included as follows: agriculture, manufacturing, construction, trade, information and communications (ICT), finance, professional, administration and other services. The results from the estimated ordered logit models with these sectoral dummy variables are presented in Table 3.

The estimated coefficients in the upper panel of Table 3 are similar in magnitude and statistical significance as in the initial model in Table 1, confirming the robustness of the specified ordered logistic model.

Agricultural companies with implemented green practices experience neither sectoral specific nor cross-sectoral green skills mismatches that are statistically significant. The implementation of green practices in manufacturing companies causes a 38.4% higher probability of being rated higher on the Likert scale, while it does not exert a statistically significant impact on specific sectoral imbalances. Green practices in the construction sector are associated with a 48.6% and a 78.4% higher probability of specific sectoral and cross-sectoral green skills mismatches, respectively. Companies in the trade sector and those engaged in professional services experience a higher probability of having specific sectoral than cross-sectoral green skills mismatches as a result of the implementation of green practices. In contrast, the implementation of green practices in IT companies and those operating in the financial sector exert a higher probability of cross-sectoral green skills imbalances, but not specific sectoral ones. Finally, the implementation of green practices in the administrative sector is associated with a higher probability of cross-sectoral green skills mismatches; while other services experience both types of green skills imbalances.

Table 3 – Ordinal logit models for green skills mismatch with sectoral dummy variables

Variable	**Specific sectoral green skills mismatch**		**Cross−sectoral green skills mismatch**	
	Coefficient	**Odd−ratio**	**Coefficient**	**Odd−ratio**
Year	−0.00213 (0.172)	0.99787 (0.172)	0.00615*** (0.000)	1.00617*** (0.000)
Public	0.37739*** (0.000)	1.45847*** (0.000)	−0.12922 (0.172)	0.87877 (0.172)
SME	0.02246 (0.731)	1.02272 (0.731)	−0.21035*** (0.002)	0.81029 *** (0.002)
FDI	−0.03334 (0.663)	0.96721 (0.663)	0.42211*** (0.000)	1.52518*** (0.000)
Import	0.19134*** (0.004)	1.21087*** (0.004)	−0.27892*** (0.000)	0.75659*** (0.000)

Export	0.09295 (0.204)	1.09741 (0.204)	−0.44261*** (0.000)	0.64236*** (0.000)
Chamber	0.05558 (0.303)	1.05715 (0.303)	−0.19451*** (0.000)	0.82323*** (0.000)
Standard	−0.19795*** (0.001)	0.82041*** (0.001)	−0.67616*** (0.000)	0.50856*** (0.000)
CSR	−0.51254*** (0.000)	0.59897 *** (0.000)	−0.82831*** (0.000)	0.43678*** (0.000)
Green practice industry dummy variables				
Agriculture	−0.26393 (0.482)	0.76803 (0.482)	0.05267 (0.891)	1.05408 (0.891)
Manufacturing	−0.12314 (0.360)	0.88414 (0.360)	0.32504*** (0.016)	1.38409*** (0.016)
Construction	0.39621*** (0.001)	1.48618*** (0.001)	0.57862*** (0.000)	1.78357*** (0.000)
Trade	0.33632*** (0.000)	1.39978*** (0.000)	0.19779*** (0.048)	1.21871*** (0.048)
Information	0.79613*** (0.000)	2.21694*** (0.000)	0.90898*** (0.000)	2.48181*** (0.000)
Finance	0.43172** (0.013)	1.53991** (0.013)	0.59875*** (0.001)	1.81983 *** (0.001)
Professional	0.47688*** (0.001)	1.61105*** (0.001)	0.38833*** (0.005)	1.47451 *** (0.005)
Administration	0.20035 (0.112)	1.22182 (0.112)	0.53597*** (0.000)	1.70911*** (0.000)
Other services	0.38559*** (0.000)	1.47049*** (0.000)	0.59648 *** (0.000)	1.81572*** (0.000)

Note: p-values in parentheses, */**/*** indicate significance at 10/5/1 percent level, respectively.
Source: Authors' own calculations.

Conclusion and policy recommendations

This article provides important empirical evidence on green skills mismatches in North Macedonia, with a specific focus on the distinction between specific sectoral and cross-sectoral green skills. The findings confirm that the green transition in North Macedonia is still at an early stage. A significant share of companies are either not yet implementing green practices or are relying mainly on low-complexity passive measures such as energy efficiency and waste reduction, while more innovative and value-adding green activities, such as eco-design principles and the production of eco products, remain underdeveloped. The analysis demonstrates the existence of substantial green skills mismatches, affecting both sector-specific and cross-sectoral competencies. Importantly, companies that are already implementing green practices report higher levels of skills shortages, suggesting that demand for green skills is outpacing supply. This indicates that skills gaps are not only a barrier to the adoption of green practices but also intensify as firms move further into the green transition.

The determinants of skills mismatches differ across the two categories of skills. Cross-sectoral mismatches are more strongly influenced by factors such as firm age, foreign ownership and participation in global value chains, while sectoral mismatches are more pronounced in specific contexts such as public enterprises and certain industries. At the same time, firms that adopt international environmental standards and CSR practices experience fewer mismatches, highlighting the importance of structured and strategic approaches to sustainability. Moreover, there are significant sectoral differences, meaning that industries such as construction, ICT, finance and professional services exhibit particularly high levels of imbalance in green skills. This reflects the uneven pace of the green transition across sectors and underscores the need for targeted, sector-sensitive policy responses. Hence, the results point to a systemic misalignment between the current education and training system and the evolving needs of a green economy. In particular, the insufficient integration of green content into vocational education and training courses and is further exacerbating this gap.

Building on the identified green skills mismatches in North Macedonia, a coordinated and multi-level policy response is required in order to adhere to a new green business model. This can be achieved by greening the existing curricula on VET courses and in higher education, as well as designing new study programmes focused on renewable energy, the circular economy and sustainable production. One policy tool to increase environmental awareness is to promote work-based learning linked to green sectors into education systems at all levels, as a means of facilitating shifts in consumer behaviour towards environmentally sustainable goods and services. In this context, special attention should be given to balancing sector-specific technical skills with cross-sectoral competencies such as problem-solving, adaptability and environmental awareness. In addition, the government should expand adult learning and reskilling programmes, especially for workers in carbon-intensive or declining sectors, by encouraging firms to invest in on-the-job training, particularly in respect of emerging green technologies. This will improve workforce adaptability and reduce the risk of structural unemployment.

Furthermore, the government should actively support the adoption of green practices since the companies implementing them are facing higher skills mismatches. This can be done by providing financial incentives for firms investing in green technologies and employee training, promoting public-private partnerships for sector-specific training programmes and encouraging the adoption of international environmental standards and CSR practices, all of which are associated with lower skills gaps. Given cross-industry heterogeneity, targeted interventions should be designed for high-mismatch sectors (e.g. construction, ICT, finance, professional services) by establishing sector skills councils and promoting industry-led certification schemes for green skills. In addition, cross-sectoral green skills and awareness should be promoted by launching public awareness campaigns to encourage sustainable consumption/production and by supporting the development of soft and transferable skills that enable mobility across sectors. This helps build a resilient workforce capable of adapting to changing labour market demands.

Finally, in order to ensure a just and inclusive transition, there is a need to mitigate social risks by targeting vulnerable labour market segments such as low-skilled workers, workers in the informal sector, young people, etc. with inclusive training programmes. With respect to this, the government need to combine green transition policies with social protection and active labour market measures. In this context, specific active labour market measures, such as training for in-demand occupations, can be applied according to the Public Employment Service Survey in occupations and skills in demand. Attention simply must be paid to the equality of access to green skills development, including gender-sensitive approaches, so as to ensure that the benefits of the green transition are widely shared.

Hence, a successful green transition in North Macedonia requires simultaneous investment in human capital, institutional capacity and business transformation. Bridging green skills mismatches is not only a challenge for education but it is a system-wide policy priority essential to sustainable growth and competitiveness.

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Qerim Qerimi and Bruno S. Sergi

From periphery to strategic position: reframing the western Balkans' EU future through digital and green transformation

Abstract

The European Union's enlargement toward the western Balkans has increasingly been framed through a prism of risk, potential instability and institutional fragility. This perception, reflected in recent public opinion trends across EU member states, has contributed to enlargement fatigue and political hesitation. This article argues for a conceptual and strategic shift: the western Balkans should be repositioned not as a policy burden but as a contributor to Europe's competitiveness and resilience. By leveraging comparative advantages in digital services, particularly AI-related capacities, and renewable energy potential, the region can align itself with the EU's twin green and energy transitions. This requires political stability and strengthened institutional capacity, improved absorption of EU research and development funds and more coordinated regional strategies. EU accession should not be treated solely as an endpoint but as a mobilising framework to unlock endogenous growth and strategic integration. Reframing the western Balkans' role in this way benefits both the region and the European Union.

Keywords: *western Balkans, EU enlargement, digital transformation, renewable energy, institutional capacity*

Introduction

The future of the western Balkans within the European Union (EU) remains uncertain, shaped as much by internal reform trajectories as by shifting political sentiments within member states. Public discourse increasingly associates enlargement with the importing of economic and governance challenges, and this reinforces political hesitation.

To contextualise the discussion, several reports and observations merit attention. An OECD Policy Outlook on competitiveness and private sector development in the region highlights numerous underlying structural challenges that risk undermining productivity and capital accumulation (OECD 2021). Despite evident progress, the report, drawing on comprehensive data, notes that:

> … the business environment remains challenging due to corruption, weak and uncertain contract enforcement, lengthy and costly procedures for obtaining licenses and permits, and unfair competition from the informal sector, among others. (OECD 2021: 32)

In devising its new Growth Plan for the western Balkans, the European Commission emphasises economic convergence as a central objective for bringing the region closer to the EU (European Commission 2023). However, progress to date has been uneven and slower than anticipated across beneficiary countries. In outlining this key enlargement priority, the Commission observes that:

> … the level and speed of convergence between the western Balkans partners and the EU is not satisfactory – either in terms of reform process or of socio-economic convergence – and is holding back their progress on the EU track. (European Commission 2023: 1)

Against such a background, this article contends that reframing the debate is an imperative: from a narrative centred on deficits to one focused on strategic value. In a context marked by geopolitical fragmentation, energy insecurity and rather fierce technological competition (Esposito and Sergi 2026), the western Balkans can emerge as a meaningful contributor to Europe's resilience (World Bank 2023).

Beyond the 'problem region' narrative

The dominant policy framing of the western Balkans has long emphasised post-conflict recovery, governance deficits and institutional weakness. While these challenges persist, they continue to overshadow the structural economic transformations that are underway and are also hindering the articulation of a forward-looking narrative that seeks to project the region beyond these deficits and past constraints.

Public opinion trends across EU member states indicate that it is concerns about economic burdens that are largely driving the level of public scepticism toward enlargement, the financial costs of integration, migration and crime (European Commission 2025).

A recent Eurobarometer survey indicates that a modest majority of EU citizens (56%) support further enlargement, with particularly strong backing in Nordic and Mediterranean member states. However, this support remains uneven across candidate countries, including those in the western Balkans themselves, while this in turn reflects differentiated perceptions of the degree of their readiness, as well as of the desirability of their accession, among EU publics (European Commission 2025). At the same time, public engagement with the enlargement process remains limited: 67% of EU citizens report not feeling well informed about enlargement, indicating a significant awareness gap that may condition both the depth and stability of public support.

This gap in perceptions highlights the need for a more initiative-taking articulation of the region's strategic relevance. This should be coupled with efforts to mitigate the prevalent concerns about economic burdens, crime and migration, while drawing in addition on evidence that several western Balkan countries are already performing comparatively well on key indicators in these areas. In particular, candidate countries exhibit relatively low crime rates and maintain restrictive migration regimes.

Comparative advantages: digital talent and green potential

Beyond sports or arts, two sectors stand out as particularly promising from an economic perspective: digital services; and renewable energy. It is particularly important to note that growth in the region is no longer confined to low value-added services.

Indeed, the western Balkans has developed a growing information and communications technology (ICT) sector, characterised by skilled human capital operating within labour cost structures that are competitive in comparison with those in western Europe. Many countries have positioned themselves individually as emerging hubs for software development and digital outsourcing (OECD 2021; World Bank 2023). According to the Organisation for Economic Cooperation and Development (2021), ICT has become one of the fastest-growing segments of the regional economy, contributing not only to exports but also to employment generation among younger, highly skilled workers.

Furthermore, businesses in the region are gradually moving up the value chain, engaging in more complex, innovation-driven activities, including artificial intelligence (AI), machine learning and data analytics. This transition reflects a broader global trend in which digital services are becoming central to competitiveness and economic resilience. As Esposito and Sergi (2026) argue, technological capabilities, especially in areas such as AI, are increasingly becoming intertwined with geopolitical and economic power. In this context, the ability of the western Balkans to position itself as a provider of specialised digital services could complement and enhance the EU's technological sovereignty and reduce dependence on external actors.

However, the realisation of this potential is not guaranteed and it depends on several structural constraints being addressed. These include persistent skills mismatches, the 'brain drain' and limited access both to startup financing and to innovation ecosystems. While the region is producing a considerable number of skilled graduates, many are seeking employment abroad because of higher wages or better working conditions, or a combination of the two. This is limiting the availability of talent at domestic level. Policy interventions aimed at improving working conditions, fostering entrepreneurship and strengthening the ties between academia and industry are, therefore, essential to retaining and more effectively utilising human capital within the region.

In parallel to its digital potential, the western Balkans has significant renewable energy resources that remain largely underexploited. The region's geographic characteristics, including rivers, high solar irradiation levels and favourable wind conditions, provide a strong foundation for the development of hydropower, solar and wind energy. Traditionally, hydropower has dominated the energy mix in several western Balkan countries, accounting for the overwhelming majority of the supply of renewable energy (nearly 90% of renewable electricity in the western Balkans) (OECD 2025); however, the reliance on this single source has exposed vulnerabilities, particularly in the context of climate change and environmental concerns.

Recent policy initiatives at both national and EU levels have sought to diversify the region's energy portfolio. The European Commission (2023) has underscored the importance of integrating the western Balkans into the EU's energy transition and decarbonisation agenda, highlighting the role of renewable energy investments in enhancing energy security and reducing greenhouse gas emissions. In the light of the energy shocks that have been experienced in recent years, particularly following the geopolitical disruptions of the magnitude of those sparked by the Ukraine and Iran wars, the diversification and expansion of energy sources have become an urgent priority for Europe as a whole. The western Balkans can contribute to this strategic objective not only by increasing renewable energy production but also by serving as a regional energy hub. Investments in cross-border energy infrastructure, grid modernisation and energy storage systems could facilitate the integration of renewable energy into the broader European market. This clearly provides the EU with a significantly greater ability to expand its market and integrate with its southeastern neighbourhood (Qerimi and Sergi 2015).

The intersection of digitalisation and the green transformation offers a strategic pathway for aligning the region with the EU's long-term priorities.

Institutional capacity and EU integration as a catalyst

Despite access to EU funding instruments, the absorption rates of EU funds in the western Balkans remain relatively low compared to those of existing member states. This reflects administrative inefficiencies, limited coordination and weak institutional capacities to withstand the competitive pressures of the EU singe market (European Commission 2024).

Strengthening governance structures is therefore essential. This includes improving public administration, strengthening the rule of law and fostering innovation ecosystems (OECD 2021). Legal and institutional alignment with EU standards is not only a formal requirement for accession but also a driver of economic modernisation and competitiveness.

Participation in EU programmes, networks and value chains can facilitate knowledge transfer, innovation and institutional learning. However, participation outcomes remain uneven, particularly in research and innovation funding. Even though there has been full association of the region with Horizon Europe since 2021 (European Commission 2021), and there has been substantial progress made in recent years, structural constraints – including weaker research infrastructures, fragmented support systems and limited administrative capacity – continue to hinder effective participation and the uptake of funding (Western Balkans Info Hub 2025).

EU accession should therefore be understood not merely as a political objective but as a transformative mechanism. The accession framework, including through conditionality, can mobilise the reforms that may unlock the region's comparative advantages as well as condition essential improvements in key areas such as the rule of law, human rights and administrative capacity (Qerimi 2021). However, its effectiveness depends on both domestic political will and the credibility of the EU's commitment to enlargement.

Ultimately, strengthening institutional capacity is not only a prerequisite for EU membership but also a fundamental driver of the region's long-term socioeconomic betterment.

A strategic agenda for mutual benefit

The western Balkans should pursue a strategic agenda focused on endogenous growth, regional cooperation and integration into key European sectors. This implies moving beyond a compliance-based approach toward a development-oriented model.

For the EU, it is inevitable that supporting this transformation adds up to a strategic necessity. A more economically dynamic western Balkans will contribute to supply chain resilience, energy diversification and technology capacity within Europe (World Bank 2023).

Reframing the enlargement debate in terms of mutual benefit can help bridge the perception gap among EU citizens and policymakers. Given that public scepticism about enlargement is often driven by perceptions of economic burden and risk (European Commission 2025), highlighting the tangible contributions that the western Balkans can make to Europe's strategic objectives would help policymakers to shift the narrative toward a more balanced, forward-looking perspective.

Conclusion

The western Balkans' EU future depends not only on political will but on its ability to redefine its role within Europe. By leveraging its digital capabilities and renewable energy potential, the region can transition from perceived periphery to a strategic position in the EU's digital and green transitions.

This shift requires both internal reforms and external recognition. Thus, achieving this goal requires a dual effort: internally, through institutional strengthening and strategic investment; and externally, through a reframing of the enlargement discourse. In this sense, EU membership becomes both a goal and a means, underlining what amounts to a mobilising framework for unlocking and demonstrating the region's true competitive value.

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Cvetan Kovač and Ivana Krišto

Structure and trends of platform work in the Republic of Croatia in 2025: an empirical analysis based on JEER system data*

Abstract

This article analyses the state and trends of platform work in the Republic of Croatia during 2025, with a particular focus on the first full calendar year of the Unified Electronic Labour Record (JEER) system application. By implementing amendments to the Labour Act, Croatia established an advanced regulatory model that preceded EU Directive 2024/2831 on improving working conditions in platform work, positioning itself as a leader in the digital transformation of the labour market. The empirical analysis is based on official data from the Ministry of Labour, Pension System, Family and Social Policy, encompassing quantitative indicators on 21,704 workers, four key digital platforms and the operations of 2,336 market intermediaries (aggregators). The central subject of the research is the effectiveness of the JEER system in ensuring transparency and real-time data monitoring, and in combating undeclared work. The results highlight the significant role of technological solutions in protecting workers' rights and stabilising relations within the tripartite (platform-aggregator-worker) platform work model.

Keywords: *platform work, JEER, Labour Act, digital labour platforms, aggregators, Republic of Croatia*

Introduction

The rapid development of digital technologies and the shift in the work paradigm have led to a strong rise in the platform economy globally, including in the Republic of Croatia. Work through digital labour platforms introduces significant changes to traditional labour relations, requiring national legislations to develop new mechanisms for control and the protection of market participants. In this context, Croatia positioned itself as one of the first European Union member states to draw up a systematic regulation in this field – even before the final adoption of Directive (EU) 2024/2831 on improving working conditions in platform work – through amendments to the Labour Act.

* This article draws upon data published in the paper 'The first year of full implementation of the platform work model in Croatia', which will appear in the journal *Radno pravo* (Labour Law) during 2026. It has been specially translated and edited for the *SEER Journal for Labour and Social Afffairs*, where it appears in English for the first time.

During 2025, the labour market in Croatia entered full operational maturity in the digital labour platform segment, as this was the first complete cycle in which the new regulatory framework was applied in its full scope.

Legal framework and technological infrastructure

The Unified Electronic Labour Record system (known here by its Croatian acronym, JEER: jedinstvena elektronička evidencija rada) represents a key pillar of legal certainty and transparency within this system. Its functioning is based on synergy between several key regulations:

- Act on amendments to the Labour Act (*Official Gazette* 151/22)
- Act on the suppression of undeclared work (*Official Gazette* 151/22)
- Ordinance on labour records via digital labour platforms (*Official Gazette* 150/23)
- Ordinance on the unified electronic labour records system (*Official Gazette* 8/24)
- Ordinance on the method and deadlines for verifying the amount of receipts realised through work via digital labour platforms (*Official Gazette* 150/23)
- Decree on the minimum wage for 2024 (*Official Gazette* 125/23)
- Decree on the minimum wage for 2025 (*Official Gazette* 124/24).

Through the integration of the e-Citizens, NIAS (national identification and authentication system) and the e-Authorisations systems, the registration and reporting process has become fully digitised, reducing administrative burdens to a minimum while ensuring maximum data accuracy.

A key functional element is the integration with the e-Authorizations system, which works in tandem with NIAS to manage access rights and user roles. This synergy allows legal entities such as digital labour platforms and their aggregators to grant specific digital mandates to their employees or authorised representatives. Through this granular role-based access control, the system ensures that only authorised persons can submit reports or access sensitive labour data, thereby maintaining strict data protection standards and administrative accountability.

Objectives and methodology

This article provides a systematic analysis of the data collected through the JEER system during 2025, with the objective of providing in-depth insight into:

- market structure: the relationship between digital platforms and the 2,336 registered intermediaries
- worker status: an analysis of the employment status of the 21,704 individuals working via platforms
- nature of work: an examination of the thesis that platform work, as an atypical form of employment, is gradually shifting the traditional paradigms of labour relations.

Through analysis of quantitative data and qualitative trends, the article examines how Croatia has adapted to the phenomenon of the ‘platformisation’ of work, ensuring that the flexibility offered by technology does not compromise social security and the legal protection of the participants in this segment of the labour market. An additional goal is to analyse the state of the platform labour market during 2025, with a specific focus on the results of the first full year of implementing the new comprehensive regulatory framework.

The methodology is based on a multidimensional analysis of structured data extracted from the JEER database. Data processing includes the following key aspects:

- quantitative data extraction: the systematic collection of encrypted records regarding the number of active digital labour platforms, registered aggregators and the total number of platform workers
- time-series analysis: a comparative review of data on a monthly and quarterly basis throughout 2025 to identify seasonal trends and market growth dynamics
- cross-referencing and validation: the process of validating JEER data through automated cross-referencing with the Tax Administration and the Croatian Pension Insurance Institute (HZMO) to ensure the accuracy of reported earnings and contributions
- qualitative assessment: an evaluation of the impact of the regulatory framework on administrative efficiency and the reduction in the 'shadow economy' (undeclared work) within the platform segment.

The processing of this data is carried out in strict accordance with the General Data Protection Regulation (GDPR), ensuring that all analysed metrics are presented in an aggregated and anonymised format to protect the privacy of individual participants.

Register of digital labour platforms and market intermediaries

Stakeholder registration and market structure

One of the fundamental prerequisites for lawful operation in the Croatian labour market is mandatory entry into the Register of Digital Labour Platforms and Market Intermediaries. According to the provisions of the Labour Act, digital labour platforms and their aggregators – the latter acting as the employer in a situation in which the employee chooses not to establish a sole proprietorship company form (essentially as self-employed) – are required to register their activities, ensuring full transparency within the employment chain.

As of 31 December 2025, the Register recorded four digital labour platforms, which have registered a total of 2,336 aggregators for their business operations. An analysis of the structure of these intermediaries indicates a dominance of legal entities, with 1,457 (these will be limited liability companies), while the remaining 879 consist of sole proprietors. These data, presented in tables 1 and 2, confirm a high level of market organisation and the successful integration of a large number of business entities into the digital ecosystem via JEER.

Table 1 – Structure of stakeholders in platform work (end-2025)

	No. of entities
Digital labour platforms	4
Intermediaries (aggregators)	2,336

Source: Ministry of Labour, Pension System, Family and Social Policy (2026)

Table 2 – Breakdown of market intermediaries (end-2025)

	No. of entities
Legal entities (companies)	1,457
Sole proprietors (self-employed)	879
Total	2,336

Source: Ministry of Labour, Pension System, Family and Social Policy (2026)

Although the quantitative data suggest an exceptionally high concentration of intermediaries, qualitative analysis indicates a predominance in the figures of micro-entities: a significant portion exclusively employs own family members for occasional or temporary work, suggesting that platform work in Croatia often serves as an additional source of household income rather than being necessarily the primary activity of large enterprises.

This trend highlights two essential aspects: market flexibility and the fragmentation of digital labour platforms in Croatia. Specifically, flexibility is evidenced by JEER data, which successfully encompasses even the smallest intermediaries, ensuring that even occasional family-based work remains within the prescribed legal framework. Regarding fragmentation, this primarily refers to the high number of intermediaries and is not necessarily an indicator of market power. Instead, it reflects atypical forms of work in which individuals utilise the legal form of sole proprietorship or a company to formalise platform-based work within the family unit.

Labour market shifts over recent decades have significantly shaped the structure of employment in Europe and Croatia (Florczak 2020; Grgurev and Vukorepa 2018). The standard employment relationship – characterised by contracts of indefinite duration and based on full-time hours – which social policy has long viewed as the 'norm' and the foundation of social rights, is gradually losing its dominance to various forms of non-standard employment. These forms, grouped in the literature under terms such as atypical or non-standard work, or new forms of employment, encompass fixed-term employment, part-time work, occasional and temporary jobs, agency work and self-employment, as well as more recent phenomena like digital and platform work.

Building upon these theoretical foundations, the Croatian platform labour market in 2025 clearly reflects the rise of self-employment as a key atypical form of work. JEER data indicate that a significant portion of the 21,704 platform workers is operating through their own sole proprietorship companies, effectively acting as both aggregator and worker.

This trend aligns with academic observations, with the traditional employer-employee boundary becoming increasingly blurred (Grgurev and Vukorepa 2018). In the Croatian context, the Act on the suppression of undeclared work specifically addresses these ‘grey zones’ by ensuring that self-employed platform workers maintain a high level of social security coverage and transparent income reporting, thus mitigating the risks often associated with precarious atypical employment.

The Tax Administration, in coordination with the JEER system, ensures a differentiated yet transparent tax treatment for platform work, depending on the legal nature of the engagement:

- employment income: for workers under an employment contract, tax treatment follows standard payroll procedures. This includes the mandatory withholding of personal income tax, local surcharges (where applicable) and full social security contributions (to pension and health insurance), providing the highest level of social protection
- other income: that is, work performed via a service contract. While this model offers lower administrative costs for the market intermediary, it is subject to specific mandatory contributions for pension and health insurance, albeit at different rates than standard employment
- tax compliance and automation: a key feature of the 2025 regulatory framework is the automated verification of payments. The Ordinance on the method and deadlines for verifying receipts allows for real-time cross-referencing between the JEER records and the JOPPD forms – which notify the payments of taxes and social insurance contributions – submitted to the Tax Administration.

This integrated approach prevents tax evasion and ensures that gig economy participants contribute to the national social security system, regardless of whether their work is considered a primary or secondary source of income.

Extract from the 2025 report on platform work in Croatia

Data on work scope indicators

Digital labour platforms are mandated to submit data on every individual task performed, and no later than 24 hours after its completion. The JEER system electronically exchanges integrated data with the Croatian Pension Insurance Institute, the Ministry of the Interior, the Ministry of Finance and, as necessary, with other bodies exercising public authority. Furthermore, the JEER system retrieves data from the central register for the Personal Identification Number (OIB), as well as from the Register of Crafts.

Data on work scope indicators include:

- number of workers carrying out work via digital labour platforms
- type of contractual relationships under which workers are engaged
- nature and type of tasks performed
- average working time and locations where tasks are carried out.

Types of tasks

Work scope data for 2025 clearly show that platform work in Croatia remains strictly polarised between two key activities: ride-hailing (taxi services) and delivery. Although both sectors have become an integral part of urban mobility, ride-hailing has positioned itself as the primary activity within the JEER system, accounting for a 65% share.

This disparity (delivery takes the other 35%) can be interpreted through several factors: market regulation; demand and price sensitivity; and seasonal oscillations combined with weather conditions. Notably, ride-hailing has a longer tradition of adapting to digital platforms and a more clearly level of defined demand throughout the year.

The higher share of trips compared to deliveries is likely to be driven by the tourist season and the needs of the local population in urban centres, suggesting high demand and price sensitivity. While delivery is often subject to seasonal fluctuations and weather conditions, ride-hailing shows greater stability in the number of tasks carried out on an annual basis.

Such data suggests that the JEER system enables a precise mapping of market trends, indicating that platform work in Croatia, despite its theoretical breadth, in practice remains predominantly reliant on transportation services.

Structure and number of persons performing work via digital labour platforms

The figure of over 21,000 individuals who worked for a platform during at least one period in 2025 indicates a significant presence of this form of work in the Croatian labour market. Of particular importance is the heterogeneity of the legal grounds for work, which includes:

- standard employment relationships (employment contracts with a platform or an aggregator)
- self-employment (sole proprietors)
- flexible forms of work (service contracts, student work, etc.).

This diversity responds to the ability of the legal framework successfully to absorb all categories of workers, from those for whom this is the primary source of income to those who use platforms for supplementary earnings. Although the total number suggests a degree of mass participation, it also reflects dynamism within the market and a high level of labour force turnover. The JEER system enables the tracking of individuals even during short periods of engagement, previously regarded as a grey area.

In combination with the high number of aggregators, this affirms that platform work in Croatia has become a key testing ground for atypical forms of employment, providing work opportunities to a wide spectrum of citizens – from students to solo entrepreneurs.

Demographic structure and citizenship

An analysis of citizenship data reveals that Croatian citizens form the backbone of platform work (78%). However, a significant share of 4,727 foreign nationals

(22%) reports to the growing trend of foreign labour in shortage occupations such as delivery and transport. The largest number of foreign workers come from India and from Nepal, mirroring broader employment trends in Croatia. Workers from neighbouring countries (Bosnia and Herzegovina, Serbia) remain present but in smaller proportions compared to labour from distant countries.

It is important to note that platform work serves as an initial entry point into the Croatian labour market for many foreign nationals. This presents regulators with the challenge of ensuring equal working conditions and the protection of rights in accordance with the Labour Act.

Such figures highlight Croatia's transformation from a country with a homogeneous workforce into a nation whose digital economy is heavily reliant on global labour mobility. This further justifies the need for the use of digital tools to conduct systematic monitoring.

Gender and age structure

JEER data indicate a pronounced gender imbalance and a specific age distribution among workers. The dominance of men, who account for as much as 94% of the total workforce (20,371 compared to 1,279 women), suggests that the taxi transport and delivery sectors are still perceived as traditionally male occupations, despite the digital nature of the platforms.

When examining the age structure, it is evident that the largest number of platform workers falls within the 25-34 age group. These are individuals in their prime working years who prefer flexibility and digital work models, or are using platform work as a stepping stone at the start of their careers. The relatively small number in the 15-19 age group is likely to be a result of legal restrictions and driving licence requirements. Conversely, the minimal number of workers over the age of 70 highlights the physical demands of these roles.

This age distribution responds to platform work attracting the most technologically proficient and adaptable generations, while simultaneously requiring both basic and advanced digital skills.

Contractual relationships

In 2025, work through digital labour platforms was performed by employees, sole proprietors and self-employed individuals within limited liability companies (e.g. a company director who is also the sole employee) operating under business cooperation agreements or other civil law contracts. Such work was also carried out by individuals under service contracts (work assignments), high school students under occasional work contracts and university students under student employment contracts.

This highlights the complexity of legal relationships within platform work, crystallising the clear division of roles between digital labour platforms and aggregators, as shown in Table 3 (employees registered with HZMO under standard employment contracts and those under zero-hour employment contracts).

Table 3 – Overview of 'classic' employment contracts and zero-hour contracts

Category	No. employees	No. contractual relationships	Ratio (contracts per worker)
Classic employment contract (total)	15,094	31,948	2.12
Fixed-term	10,890	24,916	2.29
Indefinite (open-ended)	7,835	15,844	2.02
Full-time	5,348	6,399	1.20
Part-time	12,296	34,361	2.79
Additional work (subset of classic)	3,807	8,812	2.31
Zero-hour contract	1,191	1,977	1.66
Fixed-term (zero-hour)	362	388	1.07
Indefinite (zero-hour)	840	1,589	1.89
Full-time (zero-hour)	347	391	1.13
Part-time (zero-hour)	853	1,586	1.86

Source: Ministry of Labour, Pension System, Family and Social Policy (2026)

Analysis of contractual relationships

From Table 3, it is evident that the Croatian platform labour market is dominated by part-time work, additional employment and contractual fragmentation.

The most striking evidence of the extreme contractual fragmentation is that the number of contractual relationships is twice the number of individual workers. In the category of 'classic' contracts, the average employee holds 2.12 contracts. This reflects the practice of multi-apping, where employees work for multiple aggregators simultaneously to secure a sufficient workload.

Part-time work is the most fragmented – 12,296 employees accounting for as many as 34,361 contracts (a ratio of 2.79). This means the average part-time worker enters into nearly three different contracts. This suggests that platform work is serving as a 'mosaic' of micro-engagements that only in conjunction constitute a significant amount of work.

The 3,807 employees who are engaged in additional work account for 8,812 contracts, highlighting that platform work plays a major role for individuals already employed elsewhere but who are seeking supplementary income. Flexibility is most prominent in this group, as evidenced by an average of over two additional contracts per person.

Interestingly, regarding zero-hour employment contracts, a higher number of contracts are concluded for an indefinite period (840) compared to ones that are for a fixed term (362). This indicates that aggregators are aiming to maintain a pool of verified employees who are activated only when market demand rises, while nevertheless providing them with a legal framework that is somewhat more regular.

Comparative overview of platform work data for 2024 and 2025

Comparative data for 2024 and 2025, as presented in Table 4, clearly outline the evolution and stabilisation of the platform labour market in Croatia, highlighting several key trends:

- strong expansion of standard employment relationships
- strengthening of direct cooperation between sole proprietors and platforms
- marginalisation of service contracts (work assignments) and high school student labour
- shift in strategy by the platforms themselves
- growth in university student employment

Table 4 – Types of contractual relationships (2024-25)

Type of contractual relationship	2024	2025	Change (%)	Trend
Employment contract concluded with an aggregator	19,593	26,913	+37.36%	Strong growth
Self-employed sole proprietor with a platform	2,988	4,443	+48.69%	Significant growth
Self-employed sole proprietor with an aggregator	1,186	193	-83.73%	Sharp decline
Student employment contract with an aggregator	634	890	+40.38%	Growth
Service contract (work assignment) with an aggregator	495	336	-32.12%	Decline
Self-employed person in a limited company with an aggregator	133	148	+11.28%	Moderate growth
Self-employed person in a limited company with a platform	115	174	+51.30%	Significant growth
Occasional work contract for high school students with an aggregator	36	8	-77.78%	Phase-out
Employment contract concluded with a platform	26	227	+773.08%	Explosive growth
Student employment contract with a platform	4	1	-75.00%	Minimal presence

Source: Ministry of Labour, Pension System, Family and Social Policy (2026)

The strong expansion of standard employment relationships is reflected in the significant increase in employment contracts concluded with aggregators, which jumped from 19,593 in 2024 to 26,913 in 2025. This increase of nearly 37%

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indicates that aggregators remain key ‘labour pools’ and that the market is rapidly formalising through classic employment relationships.

There is a notable growth trend among self-employed sole proprietors operating directly with platforms (increasing from 2,988 to 4,443). Simultaneously, the number of those working through aggregators has drastically declined (from 1,186 to a mere 193). This suggests that more experienced workers and the independent self-employed are increasingly choose to bypass the aggregators, preferring direct cooperation with platforms to enhance their earnings and autonomy.

A decline is thus visible in the number of service contracts entered into with aggregators (from 495 to 336), while this form of work in platforms entirely disappeared in 2025.

Occasional work by high school students dropped from 36 to a symbolic eight contracts, whereas the engagement of students through aggregators grew by approximately 40% (from 634 to 890). This confirms that platform work remains highly attractive to the younger population due to the flexibility it offers during their period of studying.

Regulatory framework and EU harmonisation

Although Croatia has led the way within the European Union by systematically regulating platform work via the Act on amendments to the Labour Act (*Official Gazette* No. 151/22) and its implementing regulations, a need for additional regulation has now emerged, arising from the requirement for further alignment with Directive (EU) 2024/28311 on improving working conditions in platform work.

Specifically, according to its 2026 legislative activity plan, the Croatian government is planning further amendments to achieve full harmonisation with the Platform Work Directive, serving as the final phase of integrating European standards in this area into the domestic labour market.

Conclusion

This analysis of the digital platforms labour market in Croatia during 2025 confirms the efficiency of the established comprehensive regulatory framework. By systematically regulating this field through the Labour Act and its implementing regulations, Croatia successfully addressed the challenges of platform work even before the full implementation of the Platform Work Directive, positioning itself as a leader in protecting workers’ rights in the digital environment.

The central contribution of this system is reflected in the operation of the Unified Electronic Labour Record (JEER) information system, which has enabled the collection of precise, real-time data, thereby achieving a high level of transparency and supervision over work processes. Statistical indicators for 2025, recording 21,704 workers and 2,336 aggregators, indicate a stabilisation of the market while maintaining a specific structure dominated by the presence of legal entities over that of sole proprietors.

The data for 2025 reveal the complexity and dynamism of legal relationships within platform work. The most common forms are employment contracts with aggregators – most frequently on a fixed-term and part-time basis – while sole proprietorships, student labour and zero hours work are also present.

The majority of individuals working via digital labour platforms are male Croatian citizens within the 25-34 age group. Among foreign nationals, citizens of India and Nepal are the most prominent.

The average work engagement amounts to approximately 22 hours per week (four hours per day), indicating that platform work is primarily being utilised as a supplementary or partial source of income.

During 2025, the digital platform segment of the labour market in Croatia entered full operational maturity following the implementation of the key provisions of the Labour Act, representing the first complete cycle in which the new legal framework was applied in its full capacity.

Nevertheless, that framework remains dynamic as the government is planning further amendments to achieve full harmonisation with the Platform Work Directive. Although Croatia has already implemented advanced mechanisms such as the registry and the JEER system, the upcoming alignment is focused on further improving working conditions and providing a more precise definition of specific forms of platform work.

In conclusion, the results to date demonstrate that the level of digital supervision that has been established is providing a solid foundation for the implementation of the new EU standards, thereby ensuring legal certainty and the sustainable development of the platform economy in Croatia.

Note:

Data availability statement: aggregated JEER data were used. Access to disaggregated records is subject to legal restrictions and GDPR.

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Workers' rights in the digital transition

Abstract

The digital transition represents a highly significant transformation of the labour market. Rapid technological development has created new opportunities but it has also introduced considerable challenges regarding the protection of workers' rights and the provision of fair and equal working conditions. One of the most pressing issues is job insecurity, particularly for workers involved in the platform economy who often lack full rights. Furthermore, the use of digital technologies to monitor worker performance raises serious concerns about privacy and the protection of personal data, while another major challenge is the displacement of certain jobs due to automation. Additionally, the digital transition has affected the balance between professional and personal life, making it more difficult to separate working time from rest time, in which regard the concept of the 'right to disconnect' is gaining increasing importance. The article concludes that a fair and inclusive digital transition requires cooperation between governments, employers and workers in order to ensure a sustainable and equitable labour market for all.

Keywords: *digital transition, workers' rights, platform economy, artificial intelligence, automation, privacy and personal data, workplace safety, remote work, reskilling*

Introduction

In recent decades, rapid technological development has brought major changes in the way work is organised and how the global economy functions. This process, known as the digital transition, involves the increasing integration of advanced technologies such as artificial intelligence, automation, robotics and online platforms into professional life. As a result, many traditional professions are changing or disappearing, while new forms of work are being created that require different skills than before. This transformation is affecting not only the structure of the labour market but also the foundations of the relationship between workers and employers (Aloisi and De Stefano 2022).

The digital transition is, however, not only a technological development but also a broad social and economic process that affects almost every sector. The use of technology has increased efficiency and productivity, allowing many tasks to be completed more quickly and accurately. However, this has also created new challenges, especially for workers who do not have the necessary skills to adapt to these. Consequently, the digital transition is creating a divide between those who benefit from technology and those who risk being excluded from the labour market.

In this context, the protection of workers' rights becomes a fundamental issue. Rights such as fair wages, workplace safety, privacy and social protection must be guaranteed even under new digital working conditions. However, many new forms of employment, especially in the platform economy, do not offer the same level of protection as traditional employment. This creates a situation where workers are often more exposed to insecurity and the lack of economic stability. For this reason, these rights must be adapted and strengthened according to the new reality, not least to put them in line with the EU's Platform Work Directive, which is a part of the EU's acquis to which Albania must respond in its process of accession to EU membership.

One of the biggest challenges of the digital transition is its impact on workers' quality of life. Remote work and the constant use of technology have made the boundaries between professional and personal life increasingly unclear. Moreover, the use of digital tools to monitor employees has raised serious concerns about privacy and excessive control.

These developments show that technological progress must be accompanied by protective measures to ensure workers' wellbeing.

The aim of this article is to analyse the impact of the digital transition on workers' rights and to identify the main challenges arising from this process. It also seeks to examine how policies and legislation can be adapted to ensure fair and equal working conditions in the digital era, while emphasising the perennial importance of creating a sustainable and inclusive labour market.

Impact of the digital transition on the labour market

The digital transition has had a deep and multidimensional impact on the labour market, changing how work is organised and how jobs are created. New technologies have enabled the automation of many processes, reducing the need for physical labour while increasing the demand for technological skills. As a result, some traditional jobs have disappeared or have been significantly transformed, while new technology-related professions have emerged. This has led to a global restructuring of the labour market (De Stefano 2016).

One of the most important developments is the growth of the digital economy and online platforms, which have created new forms of employment. Platforms in areas such as transport, delivery and freelance services do allow individuals to work flexibly and generate income independently. However, this type of work is often characterised by a lack of stable contracts and social benefits, creating insecure employment conditions, highlighting that flexibility often comes at the cost of workers' security.

Automation and artificial intelligence have significantly influenced employment structure by replacing repetitive and routine tasks with machines and intelligent systems. While this increases efficiency and reduces costs for companies, it also risks leaving many workers unemployed, especially those with low or medium skill levels. At the same time, demand for advanced digital skills has increased, creating a gap between labour market supply and demand.

Another important impact is the rise of remote work, which has become more common as a result of applications of digital technology. This form of work offers locational flexibility, while reducing costs and increasing access to the labour market among some groups. However, it also brings challenges such as social isolation, a lack of direct communication and difficulties in time management. In addition, remote work is often associated with longer working hours and blurred boundaries between personal and professional life (European Commission 2021).

Overall, the digital transition is creating a more dynamic and flexible labour market, but also a more complex and uncertain one. Continuous changes require workers constantly to adapt and develop new skills in order to remain competitive. In this context, it is important that public policies and education systems support digital skill development and ensure protection for the workers affected by these changes. Only in this way can a fair and sustainable transition be achieved.

Challenges to and the protection of workers' rights in the digital era

In the digital era, the protection of workers' rights has become an increasingly complex issue due to rapid changes in the organisation of work. While technology has created new opportunities for employment and professional development, it has also introduced new risks affecting workers' security and wellbeing. In many cases, existing laws are not being updated to address these changes, leaving gaps in legal protection, especially in digital sectors.

One of the main challenges is job insecurity, which has increased significantly with the growth of the platform economy. Workers operating through apps or online platforms are often classified as self-employed and do not receive the rights of regular employees including social security entitlements, paid leave and protection against unfair dismissal. This is creating a new form of economic insecurity in which workers are heavily dependent on algorithms and market demand (ILO 2021).

Another important challenge concerns privacy and personal data protection. Companies often use technology to monitor workers' performance by collecting data on their activities during working hours. This constant monitoring can violate privacy and create pressure on workers, negatively affecting their mental health. Therefore, clear limits must be established regarding the use of technology in the workplace.

A major issue in the digital era is also the lack of balance between work and personal life. Remote work and constant digital connectivity make many workers feel obliged to be available at all times. This leads to increased stress and fatigue, and may lead in some cases to health problems. The concept of the 'right to disconnect' is becoming increasingly important in protecting workers' free time and wellbeing. In response to these challenges, it is necessary to implement hard-edged measures strengthening workers' rights. This includes updating legislation, creating fair working conditions policies and promoting dialogue between employers and workers (OECD 2019).

International organisations and governments must also cooperate to establish new standards adapted to the digital reality. Only through these efforts can technological progress be combined with social justice and protection for all workers.

The digital transition in the Albanian labour market: specific context and challenges

The digital transition in Albania is unfolding within a unique socioeconomic framework characterised by a developing market economy, a historically large informal labour sector and an ongoing institutional process of alignment with European Union integration standards. While developed western economies are currently focusing on the fine-tuning of advanced digital rights, Albania faces more fundamental and structural challenges. The domestic labour market must grapple with basic infrastructural adjustments while simultaneously absorbing the rapid shocks of global technological shifts.

One of the primary economic vulnerabilities in Albania is the high concentration of the workforce in the business process outsourcing sector, which includes call centres, remote customer support and basic IT services. These specific industries are among the most susceptible to being rapidly displaced or heavily reduced by the integration of artificial intelligence and advanced automation tools. Because these sectors have historically served as a primary entry point into the labour market for young Albanians, this sudden technological displacement poses a severe and direct threat to youth employment and economic stability.

Furthermore, the institutional framework in Albania is currently unequipped to deal with the complexities of the digital economy. The existing Albanian Labour Code does not comprehensively address or define modern digital labour concepts such as algorithmic management, remote worker surveillance or automated performance evaluation. This lack of clear legal terminology is creating a wide regulatory vacuum, leaving a growing number of digital workers without explicit legal definitions to protect their status.

This regulatory gap is, in consequence, leading to an increase in precarious working conditions, particularly within the domestic platform and gig economy. The State Labour and Social Services Inspectorate, at the same time, lacks both technical expertise and the specialised legal mechanisms required to audit digital platforms or monitor remote working environments. As a result, many platform workers are systematically misclassified as independent contractors, leaving them entirely outside the national social security net and without the benefits which, as employees, they would otherwise receive.

Legal challenges and the protection of workers' wellbeing in the digital environment

The legal status of platform workers: employee vs independent contractor

One of the most contentious issues in the digital transition is the legal classification of individuals working within the platform economy, often referred to as the 'gig economy'. As the digital transition has accelerated, millions of workers globally have shifted toward platforms providing transportation, delivery and freelance services. However, this shift has exposed a significant gap in labour law: the distinction between being a formal employee and an independent contractor. Most digital platforms categorise their workers as independent contractors to avoid the financial responsibilities associated with traditional employment, such as paying for social security, health insurance and workers' leave entitlements. This classification remains a central challenge because it strips workers of their fundamental labour rights while keeping them under the strict control of the platform's digital infrastructure (Huws 2020).

The reality of platform work often contradicts the definition of independent contracting. While traditional contractors have the autonomy to set their prices and choose their clients, platform workers are usually subject to fixed prices and rigid performance standards set by algorithms. This establishes a 'hidden employment' relationship in which the worker is economically dependent on the platform but lacking the legal protections that come with a standard labour contract. To address this, international legal frameworks, including recent directives from the European Union, are moving toward a 'presumption of employment'. This means that, if a platform exercises a certain level of control over its workers, it must legally recognise them as employees. Ensuring a fair transition requires that the flexibility of digital work does not become a tool for labour exploitation or the erosion of social safety nets (OECD 2019).

Algorithmic management and the right to privacy

The integration of artificial intelligence into the workplace has introduced a new phenomenon known as algorithmic management. In the digital transition, the traditional human supervisor is increasingly being replaced by complex software and mathematical models that assign tasks, monitor progress and evaluate performance in real time. While this can increase operational efficiency, it poses severe risks to the rights of workers, particularly regarding transparency and dignity. Algorithmic management often operates as a 'black box' in which workers are unaware of the specific criteria being used to judge their productivity or determine their pay. This lack of transparency can lead to arbitrary decisions such as the automatic deactivation of a worker's account without a human review process or an opportunity for appeal.

Furthermore, the constant digital surveillance required to feed these algorithms raises profound concerns about the right to privacy. Wearable devices, keystroke logging and GPS tracking have turned the workplace into an environment of perpetual monitoring. This level of oversight extends beyond what is necessary for business operations and can intrude into the personal boundaries of the worker. From a legal perspective, the protection of personal data – governed by standards such as the General Data Protection Regulation – must be strictly enforced to ensure that workers are not reduced to mere data points. Protecting workers' rights in the digital era means ensuring that technological monitoring is proportionate, transparent and subject to human oversight, thus seeking to prevent the dehumanisation of labour.

The right to disconnect and mental health protection

As the boundaries between the physical office and the home continue to blur, the 'right to disconnect' has emerged as a fundamental necessity for protecting workers' wellbeing. The digital transition has made it possible for employees to be reachable at any hour through smartphones, messaging apps and cloud-based platforms. While this connectivity offers flexibility, it has also created a 'culture of availability' where workers feel pressured to respond to professional demands during their rest periods and holidays. This constant state of alertness leads to significant psychological risks, including chronic stress, anxiety and the phenomenon known as 'burnout'. Without clear legal boundaries, the digital workplace is threatening the very essence of the eight-hour workday and the right to leisure.

To mitigate these risks, several jurisdictions have begun formally to recognise the right to disconnect as a statutory labour right. This principle asserts that workers should not face professional repercussions for failing to engage with work-related communications outside their official working hours. Protecting this right is not only a matter of personal freedom but also a critical component of occupational health and safety. In the digital era, the thrust of health and safety is no longer limited to preventing physical injuries in a factory setting; it now encompasses the prevention of psychosocial hazards. A digital transition that is sustainable must prioritise the mental health of the workforce by re-establishing the wall between professional obligations and private life, ensuring that technology serves to enhance human life rather than consume it (Prassl 2018).

Occupational safety and social isolation in remote work

The rise of remote and hybrid work models represents one of the most visible shifts of the digital transition, bringing both opportunities and new forms of vulnerability. While working from home can reduce commuting stress and allow for a better work-life balance, it shifts the responsibility for a safe working environment from the employer to the employee. In a traditional setting, the employer is legally obliged to ensure ergonomic workstations and a safe physical environment. Under the digital transition, however, the burden of maintaining a healthy workspace often falls on individual workers themselves, leading to potential long-term physical ailments. This shift requires a re-evaluation of how occupational safety laws are applied when the 'workplace' is no longer a centralised location controlled by the employer (Vesselkov and Pye 2022).

Beyond physical safety, remote work introduces the risk of profound social isolation as well as the erosion of collective bargaining power. The digital workplace can become a fragmented environment in which workers are disconnected from their peers, making it difficult to organise, join unions or engage in collective action, also undermining the very meaning of these traditional relationship concepts. Isolation weakens the position of the worker in negotiations with management, as shopfloor solidarity is replaced by individual digital interfaces. To ensure that workers' rights are protected during the digital transition, policies must be developed to foster digital social spaces and support the modernisation of trade unions. Ensuring that remote workers remain part of a collective community is essential for rebalancing power relations between employers and workers, and securing fair treatment in an increasingly decentralised global economy.

Institutional and legal gaps in protecting Albanian digital workers

From a legal standpoint, adapting Albania's legislative framework to protect the rights and wellbeing of digital and remote workers remains a critical hurdle for policymakers. Although the country is continuously making efforts to approximate its domestic laws with the EU acquis, a substantial gap persists between theoretical legal texts and their practical application. This discrepancy is particularly evident in how digital tracking, data collection and algorithmic decision-making are handled by employers.

Regarding the right to privacy, although Albania has established data protection laws modelled after European standards, enforcement mechanisms within the workplace remain weak. Albanian digital and remote workers are increasingly subjected to constant electronic monitoring, keystroke logging and surveillance by both domestic companies and foreign employers without adequate transparency. Workers are rarely informed about the specific criteria used by automated systems to judge their productivity, directly undermining their personal data rights as well as their professional dignity.

Additionally, psychosocial hazards such as chronic stress, professional isolation and burnout are largely overlooked within Albania's current framework of occupational safety and health. The traditional approach of national labour inspections remains heavily tethered to the monitoring of physical hazards in industrial, manufacturing or construction environments; meanwhile, the psychological impact of continuous digital connectivity and the blurred boundaries between personal and professional life remain largely invisible to regulatory bodies. This, inevitably, underlines the need for continuing professional training and development of the staff of the labour inspectorate.

Finally, the absence of an explicit, statutory recognition of the 'right to disconnect' is further aggravating the vulnerability of remote workers in Albania. In a culture where employees are facing intense pressures, as a result of the spread of digital communication channels, to remain constantly available, the lack of clear legal boundaries threatens the traditional structure and meaning of rest periods. Without legal adjustments and without modernising trade unions to operate within the decentralised digital space, the balance of power will continue to favour employers, hindering the achievement of a fair and just digital transition.

Conclusions

The digital transition represents one of the most transformative shifts in the history of the labour market, offering unprecedented opportunities for efficiency and flexibility while simultaneously challenging the foundational principles of workers' rights. It is evident that traditional legal frameworks designed for the industrial age are no longer sufficient to address the complexities of the digital era. The rise of the platform economy, the integration of algorithmic management and the normalisation of remote work have created a new reality in which the boundary between protection and exploitation is increasingly blurred, further imbalancing the power resources of workers.

One of the primary conclusions is that the legal status of workers must therefore be redefined to prevent the further erosion of their social rights. The current tendency of digital platforms to classify employees as independent contractors creates a ‘protection gap’ that leaves a significant portion of the workforce vulnerable to economic instability. A fair digital transition requires a presumption of employment for those whose work is strictly controlled by digital systems, ensuring that flexibility does not come at the cost of basic human rights such as healthcare, fair wages and retirement benefits.

Furthermore, the study highlights that the right to privacy and the right to disconnect have become essential pillars of modern occupational health and safety. As algorithms take over management roles, transparency becomes a democratic necessity within the workplace. Workers must have the right to understand and challenge the data-driven decisions that affect their careers. Simultaneously, the ‘right to disconnect’ must be legally enforced to combat the rising tide of mental health issues and burnout associated with the 24/7 digital culture. Protecting the worker’s time is not merely a matter of productivity, but a fundamental requirement for preserving human dignity and social wellbeing.

In conclusion, a sustainable and inclusive digital transition is only possible if technological progress is balanced with robust social justice. Governments, international organisations and trade unions must collaborate to update labour codes and establish international standards that reflect the digital reality. The focus must shift from protecting specific ‘jobs’ to protecting ‘workers’ themselves, regardless of the platform or medium they use. Only by placing workers’ rights at the centre of technological innovation can we ensure that the digital future of work is one that benefits society as a whole rather than a privileged few.

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Fabian Teichmann

Cyber resilience in the western Balkans: critical infrastructure, EU accession and the social dimension of digital security

Abstract

The western Balkans are digitising at speed, even while lagging behind in terms of cybersecurity governance, institutional capacity and the presence of a skilled workforce. Cyber insecurity has become a matter not only of national security but of social welfare, public service continuity and democratic trust. This article argues that cyber resilience should be treated as a core component of the region's European integration and of its social model rather than as a narrow technical or law enforcement concern. Drawing on the EU's evolving cybersecurity acquis – notably the NIS2 Directive and the Cyber Resilience Act – and on the region's weaknesses in the rule of law and anti-corruption enforcement, four interlocking challenges are identified: exposed critical infrastructure; regulatory misalignment; a governance and corruption deficit; and an acute cybersecurity skills gap. The article concludes with a calibrated agenda for regional cooperation, accession-driven harmonisation, workforce development and the involvement of the social partners, with the aim of making digital resilience a shared public good.

Keywords: *western Balkans, cybersecurity, critical infrastructure, EU accession, NIS2 Directive, digital resilience, social dimension*

Introduction

Over the past decade, the six economies of the western Balkans have undergone a rapid and largely welcome digital transformation. Governments have moved citizen services online, banks and payment systems have modernised, energy and transport operators have connected industrial control systems to corporate networks, and a young, comparatively well-educated population has embraced digital tools and the platform economy. Digitalisation has been actively encouraged by the European Union which, since 2018, has promoted its Digital Agenda for the Western Balkans (European Commission 2018) and which, through its Economic and Investment Plan, the Growth Plan for the Western Balkans (European Commission 2023) and the Berlin Process, has made connectivity and convergence with the digital single market central pillars of the region's gradual approach to membership of the Union.

Yet the same connectivity that delivers efficiency and inclusion is also expanding the surface of attack. Cybersecurity governance in the western Balkans has not kept pace with the speed of digitalisation. National computer security incident response teams are unevenly resourced, legal frameworks are often fragmentary or only partially aligned with EU standards, critical infrastructure operators frequently lack mature security practices and the region competes – usually unsuccessfully – with western European and global employers for scarce cybersecurity talent. The result is a structural vulnerability that is increasingly being tested.

The point was made unmistakably in 2022. In July of that year, a sophisticated cyber operation disabled large parts of Albania's flagship e-Albania platform and other government systems; the Albanian authorities, supported by international partners, attributed the attacks to Iranian state-sponsored actors and, in an unprecedented step, severed diplomatic relations with the state they held responsible – the first time a government had broken off diplomatic ties in direct response to a cyberattack (CISA, 2022). A few weeks later, the government of Montenegro was hit by a major intrusion that disrupted official websites and services, prompting assistance from foreign partners. These episodes demonstrated that cyberattacks against the region are not hypothetical, can degrade essential public functions for days or weeks and carry geopolitical as well as domestic consequences (see Teichmann et al. 2023b).

This article makes three connected arguments. First, cyber insecurity in the western Balkans is best understood not as a discrete technical problem but as a social and developmental one: when public administration, hospitals or the electricity grid are disrupted, the immediate victims are citizens, patients and workers, and the longer-term casualty is public trust in the very institutions that the region is trying to strengthen on its path to EU membership. Second, the European Union's cybersecurity acquis – and the accession process that obliges candidate countries to adopt it – offers the most coherent available framework for closing the gap, provided that alignment is treated as a genuine reform rather than a box-ticking exercise. Third, the binding constraint is ultimately human and institutional: without credible anti-corruption enforcement, professional public administration and a sustainable supply of skilled people, even the best-drafted laws will not produce resilience.

The article proceeds as follows. The next section sketches the threat landscape and the region's structural exposure, following which the social stakes argument is developed via an examination of the critical infrastructure. The article goes on to analyse the EU's cybersecurity acquis – in particular the NIS2 Directive and the Cyber Resilience Act – as an anchor for accession-driven reform and then turns to governance, linking cyber resilience to the region's well-documented difficulties with the rule of law and corruption. After that, it addresses the human factor – the cybersecurity skills gap, its labour market dimensions and the potential role of trade unions and other social partners. It finalises by setting out a calibrated, regionally oriented policy agenda and forming a brief conclusion.

The cyber threat landscape in the western Balkans

The threats facing the western Balkans mirror those confronting Europe as a whole, but they land on weaker defences. Three broad categories of adversary are relevant. The first is the financially motivated cybercriminal, for whom ransomware has become the dominant and most lucrative tool. Ransomware operations have professionalised into a service-based ecosystem in which affiliates rent malware, infrastructure and even negotiation support, dramatically lowering the technical barrier to entry and widening the pool of potential targets to include small public

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bodies and medium-sized firms that were once considered too marginal to attack (Teichmann 2025b). Europe-wide monitoring confirms the scale of the problem: the EU Agency for Cybersecurity records thousands of significant incidents each year, with ransomware and availability threats consistently among the most prevalent, while public administration is among the most frequently targeted sectors (ENISA 2024). The second category is the politically or ideologically motivated actor – the hacktivist or state-aligned group that seeks disruption, intimidation or propaganda value rather than direct financial gain. The third, and most consequential, is the state or state-sponsored actor whose operations may pursue espionage, pre-positioning in critical networks or coercive signalling.

What makes the contemporary environment particularly dangerous is the blurring of these categories. As Teichmann et al. (2023b) document, geopolitical conflict is reshaping the cyber climate: state-aligned and criminal actors increasingly overlap, ransomware groups operate with apparent tolerance for, or alignment with, particular governments and the line between crime and statecraft becomes difficult to draw. For a region that sits at a sensitive geopolitical fault line between the European Union, Russia and other external powers, this convergence is not abstract. The 2022 attacks mentioned in the Introduction showed that the western Balkans can become an arena for exactly this kind of hybrid pressure in which a cyber operation serves as an instrument of geopolitical coercion against a small state.

Several structural features amplify the region's exposure. Public sector IT estates often rely on legacy systems that are costly to patch and maintain; security budgets are modest and compete with many other pressing public needs; and responsibility for cybersecurity is frequently dispersed across ministries and agencies with overlapping or unclear mandates. Heavy reliance on a limited set of external technology vendors and on imported hardware and software introduces supply chain dependencies that are difficult to audit. And because so much of the region's digitalisation has been rapid, and driven by donors or vendors, security has too often been treated as an afterthought rather than as a design requirement – the insecure-by-default problem that newer EU product security rules are intended to address. Independent assessments of the region reach a consistent conclusion: cybersecurity capacity across the western Balkans remains fragmented and unevenly distributed with persistent gaps in legislation, institutional coordination and operational readiness (DiploFoundation 2021).

The financial dimension compounds the problem. The proceeds of cyber-enabled crime must be laundered to be useful and the techniques used to do so – layering through accounts, conversion into and out of cryptocurrencies and movement through under-regulated intermediaries – intersect directly with the weaknesses in regulatory regimes seeking to prevent money laundering for which parts of the region have long been criticised (Teichmann and Boticiu 2024). Cyber insecurity and financial crime vulnerability are therefore mutually reinforcing: weak controls make the region both a target for attacks and a potential conduit for the monetisation of attacks committed elsewhere. Addressing one without the other leaves the underlying problem intact.

Critical infrastructure and the social stakes of cyber insecurity

The case for treating cybersecurity as a social rather than a purely technical issue rests on the nature of the systems most at risk. Critical infrastructure – the energy and water utilities, hospitals and health systems, public administration, financial services, transport networks and the digital backbone on which all of these depend – exists precisely to deliver services on which the public relies on a daily basis. When these systems fail, whether through accident or attack, the harm is borne by citizens, patients and workers, not by abstract 'networks' (Teichmann 2025a).

This is especially true as operational technology (OT) – the industrial control systems that run power plants, grids, water treatment facilities and heavy industry – becomes connected to corporate IT networks and, through them, to the internet. Convergence brings real benefits in efficiency and remote management, but it also exposes systems that were designed decades ago for isolated, trusted environments to threats that they were never built to withstand. Vulnerabilities in OT environments can translate directly into physical consequences: interrupted electricity supply, contaminated or unavailable water, halted production and endangered worker safety. The risk is acute in sectors such as energy and the extractive industries that remain economically important across the western Balkans, where ageing control systems and uneven security practices leave a wide margin of exposure (Teichmann, 2026).

Healthcare offers a particularly stark illustration. Hospitals and health systems hold highly sensitive personal data and run life-critical systems, yet they are frequently under-protected and operate with little tolerance for downtime – characteristics that make them attractive ransomware targets. A successful attack on a hospital is not merely a data protection incident; it can force the diversion of emergency patients, the cancellation of procedures and the reversion to manual processes, with direct consequences for patient safety. The social costs of such an incident – measured in delayed care and eroded trust – far exceeds any ransom demand and falls hardest on those least able to seek alternatives.

Public administration carries a comparable risk. As governments across the region move identity documents, business registries, tax filing, social benefits and other services to digital platforms, those platforms become single points of failure. The 2022 disruption of Albania's e-government services showed what this means in practice: citizens were temporarily cut off from services they had come to depend on; public employees were forced back to manual workarounds; and the credibility of the digitalisation programme itself was called into question. For societies in which trust in public institutions is still being consolidated, the reputational damage of a visible cyber failure can be as consequential as the operational disruption.

The implication is that cybersecurity belongs squarely within the social policy conversation. The continuity of essential services, the protection of the workers who operate and depend on these systems and the safeguarding of citizens' data and access are social goods. Framing cyber resilience in these terms, rather than as a matter solely for technical specialists or security services, is essential if it is to command the political priority and public investment it requires.

The EU cybersecurity acquis as an anchor for accession

If the diagnosis is structural vulnerability, the European Union's cybersecurity acquis provides the most coherent template for a cure – and, for candidate countries, an obligation to adopt it. Over the past decade, the Union has built an increasingly comprehensive body of cybersecurity law. The original Network and Information Security Directive (Directive (EU) 2016/1148) established the first EU-wide baseline for the security of network and information systems. Its successor, the NIS2 Directive (Directive (EU) 2022/2555), which member states were required to transpose by October 2024, substantially widens the range of regulated sectors, raises security and incident-reporting obligations and – importantly – introduces direct accountability for senior management (Teichmann 2025a; for a systematic overview of the emerging NIS2 literature, see Ruohonen 2024). In parallel, the Cyber Resilience Act (Regulation (EU) 2024/2847) establishes horizontal cybersecurity requirements for products with digital elements, shifting responsibility upstream to manufacturers and addressing the insecure-by-default problem at its source. Meanwhile, the General Data Protection Regulation (Regulation (EU) 2016/679) underpins the whole edifice by protecting the personal data that cyberattacks so often target, while the EU Agency for Cybersecurity (ENISA) provides operational coordination, certification and capacity-building support, including cooperation with partners in the western Balkans.

This body of law embodies a distinctive regulatory philosophy. As Teichmann and Sergi (2025) argue in their analysis of the Cyber Resilience Act, the EU's approach is best understood as a form of hybrid governance: binding public obligations are operationalised through private standards, conformity-assessment procedures and compliance practices, blending state regulation with market and technical instruments. The reach of this model beyond the Union's borders is an instance of what Bradford (2012, 2020) has termed the 'Brussels effect' – the EU's capacity to project its regulatory standards globally through the gravitational pull of its single market (see also Bendiek and Stuerzer 2023) – while its specific operation in the western Balkans cybersecurity arena has begun to attract scholarly attention (Kapsokoli 2021). For candidate countries, adopting this model means far more than merely copying the legal text; it implies building the standards bodies, conformity-assessment infrastructure, supervisory authorities and compliance cultures that make the law effective. That is a demanding institutional agenda, but it is also precisely the kind of state-building that the accession process is designed to encourage.

The accession framework gives this agenda real traction. Under the revised enlargement methodology (European Commission 2020), candidates negotiate alignment with the acquis across thematic clusters; cybersecurity touches several of them, from the internal market provisions on the information society and digital services (Chapter 10) to the rule of law fundamentals on the judiciary, fundamental rights and justice, freedom and security (chapters 23 and 24) that govern the investigation and prosecution of cybercrime and the protection of fundamental rights online. The obligation progressively to adopt and implement the EU's cybersecurity rules thus functions as a structured external incentive of the kind that the literature on EU conditionality identifies as central to Europeanisation in candidate states (Schimmelfennig and Sedelmeier 2004, 2020). This is one of the few mechanisms capable of sustaining difficult, long-horizon institutional reforms through successive electoral cycles. The Growth Plan for the Western Balkans, which links a €6bn Reform and Growth Facility to progress on fundamental reforms and to gradual integration into the single market, has sharpened this incentive considerably (European Commission 2023; European Union 2024a).

The principal risk, however, is that alignment becomes formal rather than real. Transposing NIS2-equivalent obligations into national law is necessary but not sufficient; without adequately resourced and genuinely independent supervisory authorities, without enforcement and without the technical capacity to support regulated entities, such laws risk remaining declarations of intent. The history of reform in the region, where the gap between the law on the statute books and the law in action has often been wide, counsels against treating transposition as the finishing line. This is the point at which the cybersecurity agenda becomes inseparable from the broader governance agenda to which this article turns in the next section.

Governance, institutional capacity and the corruption nexus

Cyber resilience is, ultimately, a function of institutional quality and here the western Balkans face a well-documented challenge. Corruption and weaknesses in the rule of law are recurring themes in assessments of the region and have been analysed at length, including in this journal (Teichmann and Falker 2020). A substantial scholarly literature documents persistent state capture, weak enforcement and the limits of EU conditionality in addressing them (Bieber 2020; Džankić et al. 2019; Richter and Wunsch 2020), while comparative indices and the EU's own auditors record that these problems remain largely unresolved (Transparency International 2025; European Court of Auditors 2022). These weaknesses bear directly on cybersecurity in at least three ways.

The first is in the area of procurement. Secure digital infrastructure depends on sound, transparent purchasing decisions: choosing reputable vendors, specifying security requirements and maintaining systems over their lifecycle. Where public procurement is distorted by corruption – a risk that rises sharply in conditions of urgency, as the experience of emergency procurement during the Covid-19 pandemic illustrates (Teichmann and Falker 2021) – the consequences for security are direct. Contracts may be awarded on grounds other than competence, security specifications may be diluted or ignored, maintenance may be neglected and the state may become locked into dependencies on vendors chosen for the wrong reasons. Insecure-by-procurement is a recognisable pathway to insecure-by-design.

The second is in enforcement. Deterring cybercrime and responding to incidents requires investigative and prosecutorial capacity – specialised police units, prosecutors who understand digital evidence, courts that are able to handle technical cases, and effective international cooperation. Yet the capacity and integrity of prosecution services in parts of eastern Europe have themselves been the subject of serious concern (Teichmann and Wittmann 2023). Where prosecutorial institutions are under-resourced, politicised or compromised, cybercriminals operate with relative impunity, cross-border cooperation falters and the credibility of the entire enforcement chain suffers. Building cyber-investigative capacity, therefore, cannot be separated from the broader judicial reform agenda which lies at the heart of the accession process.

The third is in the private sector's compliance infrastructure. Banks, payment providers and other regulated firms are both prime targets and important lines of defence. Consequently, the maturity of their compliance and risk management functions matters a great deal in terms of systemic resilience. Regulatory technology (RegTech) tools, which use data analytics and automation to support compliance, monitoring and reporting, offer a means of strengthening these functions even where supervisory resources are limited. However, they do bring their own implementation challenges and are not a substitute for institutional integrity (Teichmann et al. 2023a). For the western Balkans, the thoughtful adoption of such tools could help firms and supervisors close part of the capacity gap provided that the underlying governance is sound.

The common thread is that technical measures layered atop weak institutions will not produce durable resilience. Firewalls and incident response plans matter, but they operate within an institutional environment that determines whether systems are procured honestly, whether laws are enforced impartially and whether the people running critical systems are competent and accountable. Investment in cybersecurity is, to a substantial degree, investment in institutional capacity and integrity – one more reason to locate it within the reform and accession agenda rather than treating it as a separable technical project.

The human factor: skills, labour markets and the role of the social partners

No regulatory framework or technology stack can compensate for a shortage of skilled people and it is here that the western Balkans face perhaps their most binding constraint. The workforce study by ISC2 (2023) finds that worldwide demand for cybersecurity professionals continues to outpace supply, while comparative benchmarking shows the western Balkans trailing the EU average on the capacity-development dimension of national cybersecurity (International Telecommunication Union 2024). In the region, this global shortage is further compounded by emigration. The region has for years experienced significant outflows of skilled and educated workers to western Europe, and cybersecurity specialists – highly mobile, in demand everywhere and able to command far higher salaries abroad – are among those most likely to leave. The result is a thin domestic talent pool that public institutions, in particular, struggle to recruit and retain against private sector and foreign competition.

This is squarely a labour market and social question and, therefore, one in which the institutions of the social model have a legitimate and important role. Several dimensions deserve emphasis.

The first is education and training. Closing the skills gap requires sustained investment in tertiary and vocational education, in continuing professional development and in retraining programmes that allow workers from adjacent fields to move into cybersecurity roles. Because the relevant skills evolve quickly, one-off qualifications are insufficient; what is needed is a culture and infrastructure of lifelong learning, supported by employers, public authorities and education institutions together.

The second is the organisational and managerial dimension of security. Modern cybersecurity law increasingly recognises that resilience is not only a technical matter but an organisational one. The NIS2 Directive's emphasis on management accountability and on security awareness and training reflects a broader truth: that the human factor – how staff are trained, how seriously the leadership takes security and how security responsibilities are embedded in everyday work – is decisive (Teichmann 2025a). For employers across the region, this implies obligations not only to deploy technology but to invest in their workforce and to build security into organisational culture.

The third is the role of the social partners. Digital transformation is reshaping the workplace and its security dimension is no exception. Trade unions and employer organisations have a direct interest in how digitalisation is implemented: in ensuring that workers are trained and protected rather than displaced or surveilled; that the burdens and benefits of digital change are fairly shared; and that the resilience of essential services – on which both workers and the public depend – is genuinely secured. Social dialogue offers a channel through which the workforce implications of cybersecurity policy can be addressed constructively: negotiating training provision, clarifying responsibilities and ensuring that the drive for security does not become a pretext for the excessive monitoring of employees. Integrating cybersecurity into the social dialogue agenda would help to anchor it in the region's social model rather than leaving it as the exclusive preserve of technical and security elites.

The fourth dimension is inclusion. The cybersecurity workforce is, globally and within the region, markedly unbalanced by gender. This both reflects and reinforces the wider talent shortage. Broadening participation – by addressing the barriers that keep women and other under-represented groups out of technical careers – is not only a matter of equity but a practical means of enlarging a dangerously shallow talent pool. Workforce strategy and social policy are, in this instance, pointing in the same direction.

Toward a regional cyber-resilience agenda

This analysis points toward an agenda that is at once realistic about the region's constraints and ambitious about the prize. Seven priorities stand out:

1. treat cyber resilience as part of the reform and accession agenda, not as a separate technical track. Because the binding constraints are institutional, cybersecurity should be integrated into the rule of law and internal market reforms that the accession process already requires, rather than pursued in a silo. This framing would also help to mobilise the political attention and external support that a stand-alone technical programme rarely attracts
2. pursue substantive, not merely formal, alignment with the EU acquis. Candidate countries should transpose the NIS2 Directive, the Cyber Resilience Act and related instruments – but transposition must be accompanied by adequately resourced and genuinely independent supervisory authorities, real enforcement

and technical support for regulated entities. The measure of success is implementation, not the existence of a statute

3. strengthen the institutional foundations of security. This means tackling corruption in the procurement of digital systems, building specialised cyber investigative and prosecutorial capacity, ensuring that courts can handle technical cases and reinforcing money laundering controls so that the region is neither an easy target nor a convenient conduit for the proceeds of cybercrime
4. invest in people. A sustained workforce strategy spanning tertiary and vocational education, lifelong learning and deliberate retention measures for public sector specialists is indispensable, as is widening participation, including by gender, to enlarge the talent pool
5. cooperate regionally. No single western Balkan economy can field the full range of cybersecurity capabilities on its own. Pooling scarce expertise, sharing threat intelligence, conducting joint exercises and coordinating incident response, thereby building on existing regional structures such as the Common Regional Market and the Berlin Process, would multiply the effect of limited national resources
6. engage the private sector and the social partners. Resilience is co-produced by the state, the operators of critical infrastructure and the workforce. Structured public-private cooperation, the thoughtful adoption of compliance and RegTech tools and the integration of cybersecurity into the social dialogue would broaden ownership of the agenda and improve its chances of enduring
7. leverage external support while building local ownership. EU funding, cooperation with ENISA and bilateral assistance are valuable and should be fully used, but they are most effective when they reinforce, rather than substitute for, domestic capacity and political commitment.

None of these priorities is novel in isolation; their value lies in being pursued together and in being understood as components of a single agenda that links security, development, the social model and European integration.

Conclusion

The western Balkans are digitising faster than they are securing and the gap is no longer theoretical. The 2022 attacks on Albania and Montenegro were a warning that the region's essential services, public institutions and citizens are exposed, and that cyber insecurity carries social, economic and geopolitical costs that fall well outside the narrow domain of information technology. This article has argued that the response should match the nature of the problem. Cyber resilience in the western Balkans is a matter of social welfare and public service continuity, of institutional quality and the rule of law, and of human capital and the labour market just as much as it is a matter of firewalls and incident response plans.

The European Union's cybersecurity acquis, anchored by the NIS2 Directive and the Cyber Resilience Act and embedded in the accession process, offers the region a coherent framework and a powerful external incentive for reform. But the acquis will deliver resilience only if alignment is substantive: if supervisory institutions are built and not merely legislated; if procurement is cleaned up and cybercrime genuinely prosecuted; and if the region invests in and retains the skilled people without whom no framework can function. These are demanding conditions but they coincide almost exactly with the wider reforms that European integration already requires, which is why cyber resilience should be understood not as an additional burden but as an integral part of the western Balkans' European future. The ultimate measure of success will be felt not in compliance reports but in the uninterrupted functioning of the service, and the security of the data, on which the region's citizens and workers rely.

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State of labour rights in the western Balkans: a comparative analysis and perspectives for trade union action

Abstract

This article examines labour market transformation and labour dignity in the western Balkans, analysing how economic and demographic developments are affecting the realisation of the latter. It combines a review of international labour standards with a comparative analysis of labour market developments, migration trends, trade union rights and institutional responses, paying particular attention to demographic decline, outwards labour migration, growing labour shortages, the increasing reliance on migrant workers and the expansion of non-standard forms of employment. The findings suggest that labour dignity cannot be reduced to employment levels or wage indicators alone; rather, it depends on the interaction between opportunities, effective forms of protection, social dialogue and access to collective representation. For sustainable labour market development, policies are required that both address labour shortages and strengthen labour rights, social protection and collective bargaining institutions.

Keywords: *labour dignity; labour rights; labour migration; trade unions; collective bargaining; social dialogue; migrant workers; labour market transformation*

Introduction

Human dignity constitutes one of the fundamental values upon which contemporary labour law, social policy and international human rights standards are built (Kant 1998; Waldron 2012). Work is not only a source of income and economic security but also an essential dimension of personal identity, social inclusion and individual self-respect (Sen 1999). The recognition of human dignity as an inherent and inalienable right has been embedded in key international legal instruments, including the Universal Declaration of Human Rights, the International Covenant on Economic, Social and Cultural Rights and the core conventions of the International Labour Organization (ILO).[1] These documents affirm that every worker is entitled to

1 Universal Declaration of Human Rights (1948), Arts. 22-24, accessed 23 June 2026 at: https://www.un.org/en/about-us/universal-declaration-of-human-rights; International Covenant on Economic, Social and Cultural Rights (1966), Arts. 6-8, accessed 23 June 2026 at: https://www.ohchr.org/en/instruments-mechanisms/instruments/international-covenant-economic-social-and-cultural-rights; ILO Declaration on Fundamental Principles and Rights at Work and its Follow-Up, accessed 23 June 2026 at: https://www.ilo.org/sites/default/files/2024-04/ILO_1998_Declaration_EN.pdf.

fair working conditions, equal treatment, social protection and respect for fundamental labour rights.

The concept of dignity at work has gained increasing importance in academic and policy debates during the last decades. Globalisation, technological change, labour market flexibilisation and the expansion of non-standard forms of employment have profoundly transformed employment relations across the world (Viebrock and Clasen 2009; Standing 2011; ILO 2021a, 2024). While these developments have generated new economic opportunities, they have also created the conditions in which many workers are experiencing insecurity, discrimination, inadequate wages, restrictions on trade union freedoms and various forms of exploitation. Consequently, the gap between formally recognised labour rights and the actual experience of workers has become a growing concern for researchers, policymakers and social partners alike.

These challenges are particularly visible in the countries of the western Balkans, a region that has undergone profound political, economic and social transformations since the 1990s. The transition from centrally planned to market economies, large-scale privatisation, labour market restructuring and integration into European economic and institutional frameworks has significantly altered employment relations and systems of social protection (Galgóczi 2015). Although important progress has been achieved in legislative harmonisation and the formal protection of labour rights, persistent problems remain including precarious employment, weak enforcement of labour legislation, social inequalities and limitations on workers' collective rights.

Moreover, these challenges have been further intensified by demographic decline and large-scale labour migration. Most countries of the western Balkans face declining populations, ageing workforces and the sustained emigration of both skilled and low-skilled workers. Labour shortages have become increasingly evident across a number of sectors, among them construction, manufacturing, transport, agriculture, tourism and care services. In response, employers and governments have increasingly relied on the recruitment of migrant workers from Asia, Africa and other regions. These developments have fundamentally reshaped labour markets and generated new challenges concerning working conditions, equal treatment, access to social protection and the effective protection of labour rights.

The growing international mobility of labour has exposed structural weaknesses in labour market governance and enforcement mechanisms. Reports of international organisations, trade unions and monitoring bodies continue to identify cases involving excessive working hours, non-payment of wages, restrictions on freedom of association, inadequate accommodation, labour exploitation and barriers to effective legal protection (ILO 2022; Council of Europe 2025). While migrant workers often face heightened risks due to language barriers, dependency on employers and limited knowledge of local institutions, many of these challenges reflect broader shortcomings that also affect domestic workers. As a result, the dignity of labour has emerged as a central issue linking labour rights, social justice and sustainable economic development.

Previous research has examined various dimensions of labour relations, social protection and socioeconomic development in Serbia and across the wider region. Studies have analysed labour market developments, pension systems, social security and demographic change, highlighting the importance of social rights as a foundation of sustainable economic development (Kosanović 2011; Kosanović and Paunović 2010, 2019; Paunović and Kosanović 2025). Recent research has also explored broader issues of social and economic transformation, labour market performance and social cohesion (Paunović and Sergi 2025).

Building upon these contributions, this article focuses specifically on the relationship between labour dignity, labour rights and contemporary labour market transformations in the western Balkans in the context of demographic change, labour migration and evolving employment relations. Drawing upon international labour standards, comparative labour market indicators, the findings of the International Trade Union Confederation's Global Rights Index over several years (e.g. ITUC 2024, 2025, 2026) and reports of international monitoring bodies, the study analyses how labour rights protection, social dialogue and institutional effectiveness influence the realisation of dignity at work. Particular attention is devoted to the interaction between labour shortages, migration dynamics, collective labour rights and the protection of vulnerable categories of workers.

The central argument is that the dignity of labour depends not only on the formal recognition of rights but also on the broader economic and social conditions that enable workers to exercise those rights in practice. In the western Balkans, demographic pressures, labour market restructuring and increasing labour mobility have created new risks and vulnerabilities that require stronger institutional responses, more effective social dialogue and the enhanced protection of both domestic and migrant workers. In combining normative analysis with comparative evidence, the article contributes to the broader debate on decent work, social cohesion and sustainable labour market development in south-east Europe.

The next section presents the theoretical and conceptual framework concerning human dignity, labour rights and decent work. The article then goes on to analyse demographic and labour market developments in the western Balkans, followed by an examination of labour rights and labour dignity, with a particular focus on the position of migrant workers in the region. The final section discusses the main findings and offers concluding observations and some policy recommendations.

Human dignity, labour rights and social justice: theoretical and normative framework

Human dignity as a fundamental human value

Human dignity is one of the fundamental values upon which modern democratic societies and contemporary systems of human rights are built. It represents the intrinsic worth of every human being and serves as the normative foundation for civil, political, economic and social rights. The idea that every person possesses inherent dignity simply by virtue of being human has become a cornerstone of international law, social policy and labour regulation. The Universal Declaration of Human Rights begins by affirming the 'inherent dignity' and the 'equal and inalienable rights of all members of the human family' as the foundation of freedom, justice and peace in the world.[2] Similar formulations can be found in the International Covenant on Economic, Social and Cultural Rights, the revised European Social Charter and the Charter of Fundamental Rights of the European Union.[3]

From a socioeconomic perspective, human dignity cannot be reduced solely to formal legal equality. As Sen (1999) argues through the capability approach, dignity requires the real freedom of individuals to live lives they value and to participate fully in society. Nussbaum (2011) further emphasises that dignity depends on the existence of the social and economic conditions that enable individuals to develop their capabilities and exercise their rights. Consequently, access to decent work, fair income, social protection, education and healthcare become essential dimensions of a dignified life.

Within labour relations, dignity is closely connected to the recognition of workers as subjects of rights rather than merely factors of production. Employment is not only a source of income but also a key mechanism of social inclusion, personal development and participation in public life. When workers are exposed to precarious employment, discrimination, unsafe working conditions, poverty wages or restrictions on collective representation, their dignity is directly undermined (Hodson 2001).

In contemporary Europe, discussions on human dignity increasingly intersect with debates on social justice, labour rights and the quality of employment. Growing economic inequalities, labour market segmentation, informal work and declining collective bargaining coverage have raised concerns regarding the capacity of existing institutions to guarantee dignified living and working conditions (ETUI 2024, 2026). These challenges are particularly visible in the countries of south-east Europe and the western Balkans where economic transformation, demographic changes and persistent institutional weaknesses continue to affect the realisation of social and labour rights (Paunović and Sergi 2025).

Therefore, human dignity should not be understood merely as an abstract ethical principle. It represents a practical benchmark for evaluating the effectiveness of labour market institutions, social policies and protection systems for workers' rights. The extent to which workers are able to enjoy fair wages, safe working conditions, social security and effective representation provides an important measure of the degree to which human dignity is respected within a society (Budd 2004).

Dignity at work in international labour standards

The concept of human dignity acquires its most practical expression in the sphere of work. Since employment remains the primary source of income, social inclusion and individual self-realisation for most people, the protection of workers' rights has become one of the key mechanisms through which human dignity is safeguarded in

2 Preamble to the *Universal Declaration of Human Rights*.

3 European Social Charter, accessed 23 June 2026 at: https://www.coe.int/en/web/european-social-charter/the-revised-european-social-charter; Charter of Fundamental Rights of the European Union, accessed 23 June 2026 at: https://eur-lex.europa.eu/eli/treaty/char_2012/oj/eng.

modern societies. Consequently, international labour standards have evolved around the principle that economic development should be accompanied by social progress and respect for fundamental rights at work.

The International Labour Organization (ILO) has played a central role in establishing this normative framework. Since its foundation in 1919, the ILO has promoted the idea that lasting peace and sustainable development can only be achieved through social justice. This principle is reflected in the ILO Constitution,[4] the Philadelphia Declaration (1944)[5] and, more recently, in its 'decent work' agenda (ILO 1999). The concept of the dignity of labour finds a particularly important institutional expression within this framework, which links productive employment with rights at work, social protection, social dialogue and equality of opportunity (see also ITUC 2021). By integrating economic and social dimensions of work, 'decent work' has become one of the most influential international benchmarks for assessing the quality of employment and the practical realisation of human dignity in labour markets.

Particular importance is attached to the fundamental labour rights embodied in ILO Convention No. 87 concerning Freedom of Association and Protection of the Right to Organise[6] and ILO Convention No. 98 concerning the Right to Organise and Collective Bargaining.[7] These conventions recognise workers' ability to organise collectively and defend their interests as essential components of democratic labour relations and human dignity. Without effective freedom of association and collective representation, workers remain significantly disadvantaged in their relations with employers and public authorities. Moreover, numerous studies have demonstrated that collective bargaining contributes not only to higher wages and improved working conditions but also to reduced income inequality and stronger social cohesion (OECD 2019). Consequently, restrictions on trade union activity often have implications that extend far beyond the workplace, affecting the overall distribution of economic and social power within society.

The European Social Model has traditionally complemented international labour standards through a broad system of social rights, collective bargaining institutions and social protection mechanisms which lays the groundwork for social dialogue to go hand-in-hand with economic competitiveness. Both the European Social Charter and the European Pillar of Social Rights[8] reaffirm the importance of fair working conditions, adequate wages, social security and social dialogue as prerequisites

4 Constitution of the International Labour Organization, accessed 23 June 2026 at: https://www.ilo.org/publications/ilo-constitution.

5 Declaration of Philadelphia, accessed 23 June 2026 at: https://webapps.ilo.org/static/english/inwork/cb-policy-guide/declarationofPhiladelphia1944.pdf.

6 ILO Convention No. 87, accessed 23 June 2026 at: https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID:312232.

7 ILO Convention No. 98, accessed 23 June 2026 at: https://normlex.ilo.org/dyn/nrmlx_en/f?p=NORMLEXPUB:12100:0::NO:12100:P12100_INSTRUMENT_ID:312243:NO.

8 European Pillar of Social Rights, accessed 23 June 2026 at: https://employment-social-affairs.ec.europa.eu/policies-and-activities/european-pillar-social-rights-building-fairer-and-more-inclusive-european-union_en.

for social cohesion and inclusive development. However, economic crises, fiscal adjustment policies, demographic changes and evolving forms of work have placed significant pressure on established labour institutions.

Recent research, however, indicates that labour rights cannot be taken for granted even in advanced European economies. Analysing labour market developments in Europe, Piasna et al. (2026) argue that economic integration, labour mobility and increasing competitive pressures are generating tensions between economic efficiency and social protection. Researchers have also pointed to the growing challenges associated with labour market segmentation, wage disparities and unequal access to social protection across European countries (Galgoczi 2017), while others emphasise that sustainable development and successful economic transformation require strong institutions capable of protecting social rights and promoting inclusive growth (Paunović and Sergi 2025). Economic growth alone cannot serve as a sufficient indicator of social progress (Sergi 2019; Paunović and Sergi 2025).

These processes have been particularly visible in central, eastern and south-eastern Europe where economic restructuring has frequently been accompanied by labour market segmentation, outwards migration and growing inequalities. Here, the persistence of structural economic vulnerabilities, weak labour market institutions and demographic challenges raises important questions regarding the quality of employment and the extent to which economic development translates into improved living and working conditions for citizens.

Consequently, the assessment of labour rights has become an important indicator not only of the state of industrial relations but also of nations' broader democratic and developmental performance. The degree to which workers are able to exercise their rights, participate in collective representation and secure fair working conditions provides a valuable measure of the practical realisation of human dignity within any society.

Labour rights as a prerequisite for social justice

The relationship between labour rights and social justice has long occupied a central place in social and economic thought (Rawls 1971). While social justice encompasses a range of principles related to equality, fairness, participation and the distribution of opportunities and resources, labour rights constitute one of its most important practical foundations. Without the effective protection of workers' rights, the pursuit of social justice remains largely unattainable.

The concept of social justice is rooted in the idea that all members of society should have access to opportunities that enable them to lead dignified lives and participate fully in economic, social and political life. In this regard, employment is not merely a source of income but also a means of social inclusion, personal development and civic participation. Consequently, the quality of working conditions and the extent to which workers are able to exercise their rights have a significant influence on patterns of social inequality and exclusion (Sen 1999).

Labour rights contribute to social justice through several interrelated mechanisms. First, they provide workers with legal protection against arbitrary treatment, discrimination, exploitation and unsafe working conditions. Second, they establish institutional channels through which employees can collectively defend their interests and participate in decision-making processes affecting their working lives. Third, they support a more equitable distribution of economic gains by strengthening workers' bargaining power and promoting fair wages and decent working conditions.[9]

Contemporary debates on social justice have further highlighted the importance of labour rights in the context of globalisation, technological change and labour market flexibilisation. While these processes have generated new economic opportunities, they have also contributed to growing labour market insecurity, the expansion of precarious forms of employment and increasing inequalities in many countries. As a result, the protection of workers' rights has become increasingly important as a mechanism for preventing social exclusion and ensuring that economic growth translates into broader societal benefits (Stiglitz 2012). The extent to which labour rights are respected thus represents an important indicator of both social justice and democratic development in the region, providing valuable insight into the broader social and developmental trajectories of modern societies.

These considerations are particularly relevant for the countries of south-east Europe. Although all countries in the region have formally adopted labour legislation which is largely aligned with international labour standards and, to varying degrees, with the European Union *acquis communautaire*, significant gaps persist.

Labour rights and human dignity in south-east Europe

The countries of south-east Europe have undergone profound political, economic and social transformations during the past three decades. The transition from centrally planned economies toward market-oriented systems, accompanied by processes of privatisation, economic restructuring, globalisation and European integration, has significantly altered labour markets, labour rights protection and industrial relations across the region.[10] Furthermore, while governments have sought to attract investment and increase labour market flexibility, which have contributed to economic modernisation, trade unions have faced difficulties in adapting to rapidly changing institutional environments. As a result, collective bargaining systems have been weakened in many countries, trade union density has declined and the influence of workers' organisations on socioeconomic policymaking has become more limited (Vaughan-Whitehead 2003; Galgóczi and Drahokoupil 2017; De Spiegelaere and Vitols 2026).

These developments have had important implications for the protection of human dignity at work. Problems such as informal employment, precarious work, insufficient labour inspection capacities, anti-union practices and limited collective

9 Declaration on Social Justice for a Fair Globalization, accessed 23 June 2026 at: https://www.ilo.org/resource/other/ilo-declaration-social-justice-fair-globalization.

10 See various editions of the World Bank's *Western Balkans Regular Economic Report* and the European Bank for Reconstruction and Development's *Transition Report*.

bargaining coverage continue to affect workers across the region.[11] The persistence of undeclared and other forms of informal work further undermines labour dignity by limiting access to social protection, effective legal remedies and collective representation.

The challenges are particularly visible in the western Balkans, where these factors often weaken workers' bargaining power and are contributing to the persistence of low wages and insecure forms of employment. Consequently, the realisation of labour rights continues to be closely connected to broader issues of social justice, economic development and democratic governance (Sergi et al. 2018; Sergi et al. 2019, Paunović and Sergi 2025).

Countries of the region which are featured in this article share certain common historical experiences but differ considerably in terms of institutional development, economic performance, industrial relations structures and progress toward European integration. Croatia, as a member of the European Union since 2013, operates within a more developed regulatory and institutional framework. By contrast, Serbia, Montenegro, North Macedonia, Albania, and Bosnia and Herzegovina continue to pursue accession processes while simultaneously addressing the challenges related to labour market modernisation and social dialogue.[12]

Against the background of the theme of social protection going hand-in-hand with economic development, the situation with regard to labour rights represents a particularly valuable analytical lens through which broader patterns of democratic governance and social development can be examined. The extent to which workers are able to exercise freedom of association, engage in collective bargaining and participate in social dialogue reflects not only the condition of industrial relations but also the broader capacity of societies to uphold human dignity and social justice.

Consequently the following sections employ the ITUC Global Rights Index as a comparative instrument for assessing labour rights protection in a selection of countries from the region. By examining trends and differences among them, the study seeks to contribute to a deeper understanding of the relationship between labour rights, human dignity and social development in south-east Europe. At the time the research for this article was undertaken, the 2025 version was the current one; the 2026 Index has now been published, and reference to this is also made, but it is largely the 2025 version that is reported on here.

11 See the various reports of the 'decent work' country programmes contributed by the International Labour Organization, accessed 23 June 2026 at: https://www.ilo.org/resource/other/decent-work-country-programmes-europe-and-central-asia-region; and the annual enlargement reports of the European Commission, accessed 23 June 2026 at: https://enlargement.ec.europa.eu/enlargement-policy/strategy-and-reports_en.

12 See the annual reports of the European Commission subsumed within the 2025 Enlargement Package.

The ITUC Global Rights Index as a framework for assessing labour rights

Global trends in the deterioration of labour rights

The protection of labour rights has increasingly become a matter of global concern. Despite the existence of a comprehensive international framework based on ILO conventions and other international human rights instruments, evidence from recent decades indicates a widespread deterioration in the practical realisation of workers' rights (ILO 2021a, 2024).

Processes such as globalisation, technological change, labour market flexibilisation and the growing fragmentation of production have significantly transformed employment relations worldwide. While these developments have generated opportunities for economic growth and innovation, they have also contributed to increased job insecurity, the expansion of precarious forms of employment and mounting pressures on collective labour institutions. In many countries, trade unions have experienced declining membership and reduced bargaining power, limiting their capacity to protect workers' interests effectively (OECD 2019).

These developments have raised concerns among international organisations regarding the sustainability of social dialogue and the future of democratic industrial relations. The ILO has repeatedly emphasised that respect for freedom of association and collective bargaining remains essential for achieving decent work and inclusive economic development (ILO 2021a, 2024).[13]

The ITUC has played a particularly important role in documenting these trends through its annual Global Rights Index. Since its introduction in 2014, the Index has provided systematic comparative evidence regarding violations of workers' rights across the world. The findings consistently indicate that restrictions on labour rights have become increasingly widespread, affecting both developing and developed economies. Recent reports reveal a continuing deterioration in key indicators such as freedom of association, collective bargaining rights and access to justice for workers. This has been the consequence of direct governmental interference in trade union activities via limitations on collective bargaining and restrictions being placed on the right to strike, while acts of anti-union discrimination and interference in trade union activities remain common. The ITUC believes that these developments reflect a broader weakening of democratic governance and institutional accountability in many parts of the world (ITUC 2025).

Against this background, systematic assessment tools have become increasingly important for evaluating the actual state of labour rights. Among these instruments, the ITUC Global Rights Index occupies a unique position because it enables comparative analysis of labour rights protection across countries and over time. The following section examines the methodology and indicators used in the construction of the Index.

13 See also the ILO's Declaration on Social Justice for a Fair Globalization.

Methodology and indicators of the ITUC Global Rights Index

The Global Rights Index is currently one of the most comprehensive international instruments for assessing the protection of workers' rights, evaluating the extent to which countries respect internationally recognised labour rights with particular emphasis on freedom of association, collective bargaining and the right to strike (ITUC 2025).

The methodological framework of the Index is based on standards established by the ILO, although additional reference points include other relevant international labour standards and human rights instruments. The objective is to measure not only the existence of legal guarantees but also the degree to which these are effectively respected and implemented in practice. A key feature is the use of a broad set of indicators covering different dimensions of labour rights protection. The assessment framework evaluates restrictions on trade union registration, interference in trade union activities, obstacles to collective bargaining, limitations on the right to strike, anti-union discrimination, violence against trade unionists, arbitrary dismissals, restrictions on freedom of expression and assembly, and barriers to access to justice.

The Index is constructed through a systematic assessment of the violations recorded during a twelve-month observation period. Information is collected from multiple sources including national trade union centres, global union federations, labour rights organisations, legal documentation, media reports and expert assessments. Based on the recorded violations, each country receives a rating ranging from 1 to 5+, reflecting the overall degree of respect for workers' rights. The rating system is designed to facilitate international comparison while also identifying trends over time.

Table 1 – ITUC Global Rights Index rating system

Rating	Description
1	Sporadic violations of rights
2	Repeated violations of rights
3	Regular violations of rights
4	Systematic violations of rights
5	No guarantee of rights
5+	No guarantee of rights due to the breakdown of the rule of law

Source: ITUC (2025)

Countries receiving a rating of 1 generally possess strong legal frameworks and effective enforcement mechanisms, although isolated violations may occur. Ratings of 2 and 3 indicate increasing levels of concern regarding the implementation of labour rights, while ratings of 4 and 5 reflect serious and persistent deficiencies in the protection of workers and trade unions. The category 5+ is reserved for situations in which the rule of law has effectively collapsed due to conflict, authoritarian governance or severe institutional dysfunction.

An important advantage of the Index is its capacity to combine legal and empirical dimensions of labour rights protection. Unlike purely legislative assessments, the Index focuses on the actual experiences of workers and trade unions. Consequently, it provides a more realistic picture of the extent to which labour rights are respected in practice. This characteristic makes it particularly useful for comparative research examining the relationship between labour rights, democratic governance and social development (Kucera and Sari 2019).

At the same time, certain methodological limitations should be acknowledged. As with any composite indicator, the assessment relies on the availability and quality of the reported information. Differences in reporting capacities between countries may affect the visibility of certain violations. Furthermore, the Index places particular emphasis on collective labour rights and trade union freedoms, while other aspects of working conditions may receive less direct attention. Nevertheless, the Index remains one of the most widely recognised international instruments for monitoring labour rights and is regularly used by researchers, trade unions, policymakers and international organisations.

Labour rights in Europe according to the ITUC Global Rights Index

Europe has traditionally been regarded as one of the regions with the strongest systems of labour protection, social dialogue and collective bargaining. The development of welfare states, comprehensive labour legislation and well-established trade union institutions have all contributed to the perception of Europe as a global benchmark in the protection of workers' rights.

Europe remains the highest-performing region globally; however, its overall performance has steadily worsened since 2014 during which time the regional average rating has increased from 1.84 to more than 2.5, indicating a growing number of violations. This trend suggests that even countries with long traditions of social dialogue are facing increasing challenges in maintaining effective labour rights protections, as the European Trade Union Institute (ETUI) and the European Trade Union Confederation (ETUC) have also reported (Piasna and Theorodopoulou 2024; Piasna et al. 2025; Piasna et al. 2026).

One of the most significant developments identified by the ITUC concerns restrictions on collective action. In several European countries, workers have encountered legal and administrative obstacles limiting the exercise of the right to strike, while trade unions have reported increasing difficulties in conducting collective bargaining and organising workers in emerging sectors of the economy. These challenges have been intensified by labour market flexibilisation, digitalisation, platform work and the expansion of non-standard forms of employment.

The deterioration of labour rights is not confined to any single group of countries. Serious violations have been documented both in countries undergoing democratic backsliding and in advanced economies typically associated with strong labour institutions. Cases where workers have faced obstacles in accessing justice, obtaining legal protection against unfair dismissal or exercising their rights through independent trade unions, are particularly alarming but the ITUC reports also identify growing concerns regarding surveillance practices, restrictions on public protests and employer interference in union activities. Such developments undermine not only labour rights but also broader democratic principles based on participation, representation and the rule of law.

Important differences do persist among European countries, however. Nordic countries continue to demonstrate relatively high levels of labour rights protection, supported by strong collective bargaining systems and extensive social dialogue institutions. By contrast, several countries in central, eastern and south-east Europe continue to face structural challenges related to weaker labour market institutions, lower collective bargaining coverage and limited enforcement capacities. These disparities reflect broader differences in institutional development, economic structures and political traditions. Researchers have argued that labour rights constitute an important component of upwards social convergence within Europe (Galgóczi 2016). Consequently, persistent inequalities in the protection of workers' rights may hinder efforts to achieve more balanced and inclusive socioeconomic development across the continent.

The position of south-east European countries within the Index provides valuable insight into both the strengths and weaknesses of labour rights protection in the context of ongoing economic transformation and European integration. The following section examines the comparative positions of selected countries as reported in the 2025 ITUC Global Rights Index.

Position of south-east European countries in comparative perspective

The countries of south-east Europe occupy diverse positions within the framework of labour rights protection as measured by the Global Rights Index. Although all these countries have formally accepted the fundamental principles and rights at work established by the International Labour Organization, and have incorporated labour-rights guarantees into their national legal systems, significant differences remain in the practical implementation and enforcement of these standards.

According to the 2025 Index, Croatia achieved the most favourable rating among the selected south-east European countries, receiving a score of 2, indicating repeated violations of rights but generally functioning labour rights institutions and mechanisms of social dialogue. Croatia's membership of the European Union and its relatively developed institutional framework have contributed to stronger labour rights protection compared with other countries in the region. Nevertheless, trade unions continue to report challenges related to precarious employment, labour shortages and declining collective bargaining coverage in certain sectors (European Commission 2024).

Bosnia and Herzegovina, Montenegro and Albania received a rating of 3, which indicates the existence of regular violations of labour rights. In these countries, legal frameworks generally provide protection for freedom of association and collective bargaining; however, implementation remains inconsistent. Weak institutional capacities, limited labour inspection resources and fragmented systems of industrial relations often reduce the effectiveness of labour rights enforcement. Furthermore, economic dependence on sectors characterised by seasonal or insecure employment contributes to the vulnerability of workers and trade unions.

Serbia and North Macedonia were assigned a rating of 4, indicating systematic violations of workers' rights. According to ITUC assessments, workers in these countries frequently encounter obstacles in exercising fundamental labour rights, particularly in relation to trade union activities, collective bargaining and protection against anti-union discrimination. Although both countries have undertaken substantial labour law reforms as part of their European integration processes, concerns remain regarding implementation gaps and the effectiveness of institutional safeguards (European Commission 2025a, 2025b).

Table 2 – Position of selected south-east European countries in the 2025 ITUC Global Rights Index

Country	ITUC rating	Interpretation
Croatia	2	Repeated violations of rights
Bosnia and Herzegovina	3	Regular violations of rights
Montenegro	3	Regular violations of rights
Albania	3	Regular violations of rights
Serbia	4	Systematic violations of rights
North Macedonia	4	Systematic violations of rights

Source: ITUC (2025)

The differences observed among these countries reflect broader socioeconomic and political factors. Countries with stronger institutional capacities, more developed systems of social dialogue and greater collective bargaining coverage tend to achieve better labour rights outcomes. Conversely, countries characterised by weaker labour market institutions, higher levels of informal employment and limited administrative enforcement capacities generally record poorer performance within the Index.

The Index documents the details of the persistent violations of trade union rights occurring not least in south-east Europe. These findings are particularly relevant because they demonstrate that labour dignity depends not only on wages and employment opportunities, but also on workers' ability to participate collectively in shaping working conditions.

Table 3 – Trade union rights challenges in the western Balkans: selected findings from the ITUC Global Rights Index 2025

Area of concern	Examples identified
Restrictions on the right to strike	Albania and Montenegro cited among countries where governments have broadened the definition of 'essential services', limiting the exercise of strike action
Anti-union practices by employers	Serbia identified as among those countries where employers actively undermine trade union activity
Employer-dominated representation structures	The emergence of employer-influenced 'yellow unions' reported in North Macedonia
Restricted access to justice	Growing barriers to accessing justice in Serbia, including shortened deadlines for challenging labour law violations and high litigation costs

Source: ITUC (2025)

It is important to maintain the perspective that, right across the western Balkans, the findings reported by the ITUC illustrate broader regional patterns affecting labour dignity, largely via weakening genuine worker representation and, thereby, reducing workers' capacity to exercise agency in the employment relationship. They do not reflect isolated national shortcomings. The protection of trade union rights is thus not merely an institutional concern but a fundamental dimension of labour dignity itself applying across the region.

The comparative results suggest that labour rights protection in south-east Europe remains uneven and that significant challenges persist despite the substantial amount of legal harmonisation with international and European standards. The discrepancy between formal legal guarantees and actual workplace practice constitutes one of the most important issues affecting the realisation of human dignity and social justice in the region.

Consequences of labour rights violations for social justice and social cohesion in south-east Europe

In-work poverty and economic insecurity

The deterioration of labour rights is increasingly reflected not only in the workplace itself but also in broader socioeconomic outcomes. One of the most visible consequences is the growth of in-work poverty, a phenomenon in which employment no longer guarantees an adequate standard of living. While paid work has traditionally been regarded as the primary safeguard against poverty and social exclusion, contemporary labour market transformations have weakened this protective function in many European countries (ILO 2024a).

Recent analyses have highlighted that precarious forms of employment, low wages, informal work arrangements and weak enforcement of labour standards significantly increase the risk of poverty among those in employment. ETUI research shows that rising living costs, housing insecurity and growing labour market segmentation have contributed to a situation in which a substantial number of workers remain economically vulnerable despite being employed (Piasna et al. 2026).

Labour market indicators in several south-east European countries have improved during the last decade, but wage growth has often failed to keep pace with increases in housing, food and energy costs. Consequently, many workers are experiencing economic insecurity even when formally employed. Temporary contracts, subcontracting arrangements, platform work and other forms of non-standard employment further contribute to unstable incomes and limited access to social protection. The relationship between labour rights and economic security is especially visible in sectors characterised by low wages and weak collective bargaining coverage. In such circumstances, formal employment does not necessarily translate into social inclusion or economic security, contributing to the emergence of a dual labour market in which certain groups of workers remain particularly exposed to poverty and exploitation despite being formally employed (Council of Europe 2025).

From a social justice perspective, in-work poverty represents a significant challenge because it undermines the principle that work should provide not only income but also dignity, social participation and economic security. Where labour rights are weakly protected, employment may cease to function as an effective mechanism of social integration, thereby increasing social inequalities and weakening social cohesion.

Outwards labour migration, demographic challenges and the 'brain drain'

Labour rights violations have implications that extend beyond individual workplaces and directly affect broader demographic and developmental trends. In south-east Europe, persistent problems related to low wages, insecure employment, weak collective bargaining structures and limited opportunities for career advancement have become important drivers of labour migration. As a result, many countries in the region face a paradoxical situation: while experiencing labour shortages in key economic sectors, they are simultaneously continuing to lose significant portions of their workforce through emigration (OECD 2024b).

Over the past two decades, south-east European countries have recorded substantial outwards migration, particularly among younger and highly skilled workers. Economic disparities between the region and western European labour markets remain an important factor explaining these movements. However, research increasingly suggests that migration decisions are influenced not only by wage differentials but also by broader working conditions including employment security, opportunities for professional development, workplace democracy and respect for labour rights (European Commission 2024).

The consequences of these migration patterns are particularly visible in those sectors which are facing chronic labour shortages. Healthcare, construction, manufacturing, information technology and transport services have all experienced difficulties in retaining qualified workers. The departure of skilled labour has generated additional pressures on public services and social protection systems while simultaneously limiting the long-term development potential of national economies (ILO 2024a).

Furthermore, the continued emigration of younger workers contributes to population ageing and places additional pressure on pension systems, healthcare services and long-term social protection arrangements. ETUI and OECD analyses suggest that demographic decline and labour shortages are becoming increasingly interconnected challenges across central, eastern and south-east Europe. Without improvements in working conditions, wage levels and labour rights enforcement, outwards labour migration is likely to remain a significant factor shaping the socioeconomic future of the region (OECD 2024c; Piasna and Theodoropoulou 2024).

This should not be viewed exclusively as a demographic or economic phenomenon; it also reflects the capacity of societies to provide decent work, social security and opportunities for individual advancement. The strengthening of labour rights is, therefore, not only a workplace issue but also an important component of broader strategies aimed at demographic sustainability, social cohesion and inclusive economic development.

Migrant workers and new forms of labour exploitation

At the same time, recurring labour shortages due to population ageing, declining birth rates and the continued emigration of the working age population toward higher-income EU member states have encouraged governments and employers throughout the region to recruit workers from third countries, particularly from south and south-east Asia. Serbia, Croatia and Slovenia, amongst several others, have witnessed a rapid increase in the employment of workers originating from India, Nepal, Bangladesh, Sri Lanka, the Philippines, Vietnam and other countries (IOM 2026).

Recent data highlight the rapid increase in the employment of foreign workers across the region (see Table 4). In Serbia, more than 52,000 work permits and temporary residence approvals linked to employment were issued to foreign nationals during 2023, representing a several-fold increase compared with pre-pandemic levels.[14] Croatia recorded an even more pronounced trend, issuing more than 170,000 work permits to foreign workers in 2024, primarily in construction, tourism and service activities (Hrvatski zavod za zapošljavanje 2024). Similar developments have been observed in Montenegro and in North Macedonia, although on a smaller scale (IOM 2024).

14 Republic of Serbia, Ministry of Interior and National Employment Service (NES), *Statistical Bulletin on Foreign Workers and Employment Permits*, 2024.

Table 4 – Foreign workers and labour migration trends in selected south-east European countries

Country	Foreign workers (latest available data)	Main sectors employing migrant labour	Key challenges
Serbia	Approx. 52,000 work permits (2023)	Construction, manufacturing, mining, logistics	Labour inspection, subcontracting chains
Croatia	Over 170,000 work permits (2024)	Tourism, construction, transport	Seasonal work, accommodation standards
Bosnia and Herzegovina	Increasing inflow since 2021	Construction, services	Weak monitoring mechanisms
Montenegro	More than 30,000 seasonal workers	Tourism, hospitality, construction	Enforcement of labour standards
North Macedonia	Growing number of foreign workers	Manufacturing, construction	Informal employment
Albania	Modest but increasing inflow	Tourism and services	Regulatory adaptation

Source: IOM (2024); ILO (2024); national labour market statistics

The growing reliance on migrant labour has become one of the most significant developments shaping labour markets across south-east Europe. While it has contributed to addressing workforce shortages in key economic sectors, migration has simultaneously exposed important weaknesses in labour rights protection frameworks.

Migrant workers are disproportionately concentrated in sectors characterised by low union density, extensive subcontracting and weaker institutional oversight (European Labour Authority 2026).[15] They often occupy vacancies characterised by low wages and precarious contracts, and face restricted access to information regarding their legal rights. Language barriers, dependence on recruitment agencies and employer-controlled accommodation arrangements further increase their vulnerability. These factors create the conditions in which labour rights violations can remain hidden or be insufficiently addressed by labour inspectorates and other similar monitoring authorities (ILO 2019). At the same time, such practices raise concerns not only regarding labour standards but also regarding human dignity and fundamental rights (ILO 2024b).

The issues raised are even more pronounced in the context of foreign direct investment projects based on low labour costs and extensive state incentives, becoming especially visible when investment agreements include special legal arrangements or when state authorities prioritise economic objectives over labour rights protection.

15 See also the Resolution by the European Trade Union Congress on 'Ensuring fair recruitment for migrant workers in the EU', accessed 23 June 2026 at: https://www.etuc.org/en/document/ensuring-fair-recruitment-migrant-workers-eu.

Several cases reported in Serbia have raised particular concerns over migrant labour, including over the Vietnamese workers engaged in the construction of the Linglong tyre factory in Zrenjanin, as well as to labour exploitation at the operation of the plant which has led to the export of its products to the US being banned on the grounds of forced labour (Dragojlo 2021; Stojanovic 2025). Similar concerns have also been raised in relation to certain mining and industrial projects in Serbia involving foreign investors and subcontracted labour (Krunić 2024; ITUC 2026),[16] while it is clear from the same sources that the vulnerabilities associated with migrant labour are not confined to a single national context.

Particular concerns have emerged regarding recruitment practices. Reports indicate that migrant workers are frequently employed through complex subcontracting chains that obscure employer responsibility (Astra Anti-Trafficking Action 2022). Subsequently, workers have complained of excessive recruitment fees, misleading information regarding employment conditions, that their identity documents have been withheld and that they face restrictions on their mobility and freedom of association (Kupiszewski et al. 2009; ILO 2021b; OECD 2022). Such cases demonstrate that labour exploitation in contemporary labour markets often differs from traditional forms of workplace abuse. Rather than occurring exclusively through direct employer coercion, exploitation is increasingly emerging through the presence of fragmented subcontracting structures, transnational recruitment systems and extended chains of responsibility. As a result, legal accountability becomes more difficult to establish while workers may struggle to identify effective mechanisms for protecting their rights (Ollus 2016).

These developments have attracted growing attention from international monitoring bodies. The Council of Europe GRETA experts have repeatedly highlighted labour exploitation as an emerging challenge across Europe, emphasising the need for stronger labour inspections, improved victim identification procedures and more effective cooperation between labour market institutions and anti-trafficking mechanisms (Council of Europe 2021). Similar concerns have been raised by the ILO and the ITUC, which have identified migrant workers as one of the groups most exposed to labour rights violations globally (ILO 2024c; ITUC 2026).

This demonstrates a deep structural problem. Countries that fail to provide decent working conditions often lose domestic workers while simultaneously attracting migrant workers willing to accept less favourable conditions due to economic necessity. This dual dynamic is altering traditional employment structures and introducing new challenges for labour market governance since it is contributing to the emergence of segmented labour markets characterised by unequal levels of protection and differentiated access to labour rights. Meanwhile, from a social justice perspective, the exploitation of migrant workers raises broader concerns regarding equality, dignity and non-discrimination. Labour markets that tolerate differentiated standards of protection based on nationality or migration status risk undermining the universality of

16 See also the various materials published by the Council of Europe GRETA experts and collected together on its Serbia country page, accessed 23 June 2026 at: https://www.coe.int/en/web/anti-human-trafficking/serbia1.

labour rights. Moreover, poor working conditions affecting migrant workers may exert downward pressure on labour standards more generally, contributing to increased labour market segmentation and social inequalities (Lewis et al. 2008; Kahanec and Zimmerman 2016).

Thus, although labour migration has contributed to sustaining economic activity, it has also exposed weaknesses in labour market regulation and enforcement. These weaknesses form structural conditions which increase the risk of labour rights violations and complicate effective access to legal protection. The expansion of labour migration therefore represents not only an economic phenomenon but also provides an important test of institutional capacity: the extent to which labour inspectorates, social partners and public authorities are able to ensure equal treatment and effective protection for migrant workers increasingly influences the overall quality of labour standards in the region.

Addressing these challenges requires a comprehensive policy approach that combines effective labour inspection, a stronger regulation of recruitment agencies, enhanced access to legal remedies and greater involvement of trade unions and civil society organisations in the protection of migrant workers. Ensuring equal treatment and equal access to labour rights for all, regardless of nationality or migration status, remains an essential precondition for achieving socially sustainable labour market development in south-east Europe and, indeed, beyond.

Empirical evidence from south-east Europe: labour migration, labour rights and trade union responses

Labour rights violations and vulnerable workers: evidence from the region

Labour rights violations such as those highlighted in the previous section which affect migrant workers are not isolated incidents but rather manifestations of the broader structural challenges affecting labour market governance in south-east Europe.

In Serbia, as well as at the Linglong tyre factory in Zrenjanin, similar concerns have been raised regarding working conditions among subcontracted workers associated with the operations of Zijin Mining in Bor, while trade unions have repeatedly criticised labour practices in export-oriented manufacturing companies such as Jura Corporation Serbia. Reports from trade unions indicate that social dialogue challenges have also emerged during restructuring processes involving Stellantis Serbia.

Trade unions in Croatia have increasingly highlighted labour rights concerns involving migrant workers. Particular attention has been devoted to working conditions among workers engaged by subcontractors connected with major construction projects, as well as those employed through temporary work agencies in the tourism sector. Several investigations have also focused on conditions affecting migrant delivery workers operating through digital labour platforms such as Glovo and Wolt.

In Bosnia and Herzegovina, labour rights organisations have identified recurring problems among workers employed through intermediary recruitment agencies. Cases involving Chinese contractors participating in infrastructure projects, including sections of the Corridor Vc motorway, have raised concerns regarding the transparency of employment relationships and effective labour supervision.

Unions in Montenegro have reported cases involving seasonal workers employed by large hotel groups operating along the Adriatic coast, particularly during periods of peak tourist demand. The rapid expansion of tourism-related employment has often exceeded the capacity of labour inspection authorities to monitor compliance with labour standards effectively.

In North Macedonia, labour rights concerns have frequently been associated with enterprises operating in technological industrial development zones. Trade unions and civil society organisations have documented complaints regarding excessive overtime, production pressure and limitations on collective worker representation in export-oriented manufacturing companies, including suppliers linked to the automotive industry such as Kromberg & Schubert and Lear Corporation.

Concerns over labour rights in Albania have emerged primarily in the garment, footwear and tourism sectors. Reports have highlighted precarious working conditions among workers employed by subcontractors producing for international supply chains, while labour shortages have recently increased the recruitment of foreign workers in hospitality and tourism-related services.

Although the specific circumstances differ across countries and sectors, these cases reveal common patterns: labour rights violations are more likely to occur where subcontracting chains are extensive, labour inspection capacities limited and collective bargaining coverage weak, and where trade unions encounter difficulties in reaching vulnerable groups of workers. These findings largely correspond with the broader trends identified by the ITUC Global Rights Index and reinforce the concerns this repeatedly raises.

International monitoring and institutional responses

The international and European monitoring mechanisms on labour rights and human rights featured in this article provide a converging evidence base on the structural risks affecting labour dignity in the western Balkans. While their mandates and methodologies differ, their monitoring frameworks and their findings consistently point to recurring systemic vulnerabilities.

Labour exploitation is on the increase in sectors characterised by flexible, low-wage and subcontracted labour and weak regulatory oversight, particularly in construction and agriculture and in selected service industries, where workers often lack clear information while being frequently tied to structural dependency relationships with employers and working in areas with low bargaining power in practice. European Commission progress reports on western Balkan countries consistently underline the persistent weaknesses in labour inspection systems and the limited enforcement capacity of judicial institutions. This results in a gap between formal legal standards and their implementation in practice, particularly in cases involving cross-border employment and private recruitment intermediaries. The European Labour Authority and the European Union Agency for Fundamental Rights (2025) add an additional dimension by documenting heightened vulnerability in cases where migration status intersects with low skills, limited language proficiency and restricted access to information and legal support.

Taken together, the labour rights violations which have been observed are not merely individual deviations but reflect broader institutional and structural weaknesses in labour market governance. In this sense, labour migration functions primarily as a visible manifestation of deeper systemic imbalances affecting the dignity of labour.

Trade union responses and the protection of labour dignity

Trade unions remain among the most important institutional actors in protecting labour dignity and addressing the vulnerabilities associated with contemporary labour market transformations. While governments and international organisations are primarily focused on regulatory and enforcement mechanisms, trade unions contribute in practice through collective bargaining, workplace representation, legal assistance, advocacy and social dialogue.

At European level, the ETUC has repeatedly stressed that labour shortages and labour migration should not be addressed through deregulation or the weakening of labour standards. Instead, the policy positions adopted by the ETUC advocate equal treatment, fair recruitment practices, effective labour inspection regimes and the extension of collective bargaining coverage to all workers regardless of nationality or migration status. Similarly, the ITUC has highlighted the close relationship between labour rights and the broader concept of decent work.

At national level, trade unions have increasingly engaged in monitoring labour rights violations, providing legal support to vulnerable workers and participating in policy debates concerning labour migration, recruitment practices and employment regulation. However, their effectiveness is often constrained by declining union density, fragmented labour markets, the expansion of non-standard forms of employment and limited institutional capacities. These combine to provide an environment in which traditional mechanisms of worker representation are more difficult to establish and then sustain. As a result, the protection of labour dignity is likely to become increasingly dependent on the ability of trade unions to adapt their strategies to changing labour market realities and to reach groups of workers who have historically remained outside established systems of representation.

Conclusion

This article has examined the relationship between labour market transformations and the dignity of labour in the western Balkans, combining normative perspectives on the value of work with an analysis of contemporary demographic, economic and institutional developments. Drawing on the theoretical contributions of Kant, Hegel, Sen and Nussbaum, labour dignity is understood not merely as access to employment or income generation but as the capacity of individuals to achieve autonomy, social recognition, participation and economic security through work.

The analysis demonstrates that labour markets across the region are being simultaneously shaped by demographic decline and the large-scale emigration of domestic workers, amidst increasing labour shortages and a growing reliance on migrant labour. At the same time, the expansion of non-standard forms of employment, subcontracting arrangements and labour market flexibilisation has created new forms of vulnerability affecting both migrant and domestic workers.

The findings further indicate that migrant workers often represent the most visible manifestation of labour market precarity. However, evidence from international monitoring mechanisms, including GRETA, the ILO, the European Commission and trade union organisations, suggests that many of the evident challenges associated with labour dignity are rooted in broader structural weaknesses. These include inadequate labour inspection systems, opaque recruitment practices, unequal bargaining power, limited access to effective remedies and the insufficient enforcement of labour standards. Consequently, the vulnerabilities experienced by migrant workers are not isolated phenomena but indicators of wider institutional shortcomings affecting labour market governance.

The analysis of trade union rights adds an extra dimension to the understanding of labour dignity. Findings from the ITUC Global Rights Index demonstrate that the quality of working life cannot be assessed solely through economic indicators such as employment rates, labour supply or wage growth. Workers' ability to organise, bargain collectively, participate in social dialogue and seek protection against rights violations remains a fundamental component of labour dignity and democratic (and sustainable) labour market governance.

The experience of the western Balkans therefore illustrates a broader policy challenge. While governments are increasingly seeking to address labour shortages through labour migration and labour market flexibility, what sustainable labour market development requires in practice is equal attention to the protection of workers' rights and working conditions. Policies aimed at ensuring labour supply cannot be considered successful if they simultaneously erode the institutional foundations of labour dignity.

Ultimately, labour dignity should be understood not only as an ethical principle but also as a prerequisite for social cohesion, democratic participation and long-term economic development. Against the background of ongoing demographic change and labour market restructuring, the protection of labour dignity for all workers, regardless of nationality or migration status, remains one of the central challenges facing the western Balkans in the twenty-first century.

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Book review

Engineering global socialism: ownership, non-alignment, and corporate culture in a Bosnian company

Anna Calori (2026) Engineering global socialism: ownership, non-alignment, and corporate culture in a Bosnian company Indiana University Press (258pp, $100 hardback; $48 paperback)

In *Engineering global socialism*, Anna Calori offers a meticulously researched microhistory of Yugoslavia's socialist globalisation through the lens of Energoinvest, one of the country's largest and most globally integrated enterprises. Tracing the company's trajectory from its founding in 1951 through the tumultuous years of Yugoslavia's dissolution, the Bosnian War and the subsequent decades of postwar reconstruction, Calori illuminates how the 'global promise' of socialism was crafted, contested and ultimately betrayed. The book makes significant contributions to multiple historiographical fields including the global history of socialism, the political economy of post-socialist transformation, and the study of labour and corporate culture under socialism. While deeply engaged with current scholarly debates about non-alignment and the socialist origins of neoclassical economic models, the book remains accessible to a wider audience beyond academic circles, a testament to Calori's lucid prose and her skill in weaving complex arguments into a compelling narrative.

Calori's work is situated within the broader 'affective turn' in historical scholarship and revolves around the concept of promises. As she demonstrates, human behaviour is motivated by experiences that shape expectations regarding the future, yet these expectations are rarely as rational as many economists assume. Promises are narratives that create what Jens Beckert (2016) has termed fictional expectations, but they come with an emotional layer of enthusiasm and disappointment. By tracing the various promises made to Energoinvest's workers – the promise of socialist globalisation marrying workplace democracy with innovation and prosperity, the promise of reform under Ante Marković that would salvage the best of socialism, the promise of postwar reconstruction and ethnic reward – Calori offers a fresh lens for understanding historical processes without falling into the trap of the historian's fallacy. We now know how these stories ended, but her interviewees did not. They believed in these promises, made decisions based on them and experienced their betrayal as a deeply personal loss.

Calori's methodological pluralism is one of the book's great strengths. She combines extensive archival research with multiple oral history interviews conducted with former employees ranging from shopfloor workers to senior managers, as well as the politicians and economists involved in the various reforms implemented during this tumultuous period. This allows her to triangulate official narratives, lived experience and her own theoretical reflections, capturing both the self-representations of the company's management and the more ambivalent recollections of ordinary workers. The oral histories are handled with sensitivity, particularly regarding the traumatic memories of war and dispossession. Crucially, these carefully contextualised interviews reveal why workers supported privatisation or postwar discrimination against former colleagues – not because they were naive or malevolent but because they believed in promises that, with the benefit of hindsight, would ultimately disappoint them. The interviews thus serve not as transparent windows on the past but as complex testimonies that illuminate the structure of expectations within which people made sense of their world.

One of the book's most nuanced contributions is its treatment of nostalgia among former Energoinvest workers. Calori demonstrates that this nostalgia is not merely a rosy picture of a long-gone past but something more complex and politically charged. Her interviewees share personal stories of a world that then ceased to exist but, more importantly, they also speak of a better future that was promised but which never materialised. They thus mourn a double loss – of their past and of their promised future. This insight is crucial for understanding post-socialist disappointment: it is not simply that people long for a return to socialism, but that they grieve for the alternatives that seemed so close and that were foreclosed by war and neoliberal restructuring. Calori's attention to the affective dimensions of economic transformation thus reveals how nostalgia functions as a critique of the present rather than mere sentimental attachment to the past.

The history of Energoinvest reminds us how globally entangled Yugoslavia was and that globalisation is not a phenomenon that emerged after the fall of the Berlin Wall. Yugoslavia has often been treated as so unique in its combination of self-management, non-alignment and multi-ethnic federalism that its triumphs and tragedies have been relegated to outlier status with little relevance for the rest of the world. One of Calori's achievements is to break decisively with this trope. She uncovers the similarities and links to broader global developments, drawing parallels to experiences around the world under the paradigm of Fordism. In line with the insights of Branko Milanović (e.g. 2019), Calori shows that socialism functioned as a development strategy for peripheral and colonised countries seeking to catch up with the global productivity frontier and generate prosperity for their populations.

By stressing the global dimensions of the economic crisis in the 1980s, the book demonstrates that the Yugoslav economy did not collapse solely because of internal inefficiencies or government debt. The oil price shock in the 1970s and the subsequent Volcker Shock at the turn of the decade – that is, the dramatic interest rate hikes that precipitated a global debt crisis – hit Yugoslavia particularly hard because it was wedged between its own international creditors and the debtors among its non-aligned partners. This analysis challenges the narratives that blame socialist self-management for Yugoslavia's decline, showing instead how global economic forces constrained and ultimately shattered the country's development project.

Perhaps most importantly, the book demonstrates that an alternative form of globalisation was possible – and that it still might be. Globalisation does not necessarily imply the exploitation of emerging economies and job loss for the working class in advanced countries. Energoinvest was a prime example of a globalisation that generated shared prosperity, making the involved workers ‘masters of their own destiny’, as Emerik Blum, the famous director of Energoinvest, once said, echoing Hegel.[1] The company’s ability to compete successfully in global markets, while maintaining socialist principles of self-management and social ownership, challenges the conventional wisdom that socialism and competitiveness are incompatible. By recovering this alternative, Calori not only enriches our understanding of the past but also opens up space for thinking about different possible futures.

If one were to criticise this book, it would be in relation to a disappointed promise of its own. The title seems to offer readers a business history of Energoinvest, yet the book falls somewhat short in this regard. Despite many interesting anecdotes – such as the involvement of the consultancy firm McKinsey in improving the company’s efficiency under the premise of self-management – Calori does not delve deeply into the internal dynamics of the firm. What problems did McKinsey identify, and what solutions did they propose? The book largely takes Energoinvest’s competitiveness for granted, but does not fully explain why a self-managed company was able to outcompete many capitalist firms, in the face of the accepted narrative that socialist firms are inherently inefficient and inflexible. Here, some potential reasons are mentioned in passing: the company’s function as a hinge between east and west; access to cheap credit; the charisma and vision of Blum himself; a multiethnic workforce that could cater to a wide range of global customers; and the soft power derived from Yugoslavia’s leadership in the Non-Aligned Movement. However, none of these factors is elaborated upon in sufficient depth. A deeper exploration of the institutional and organisational sources of Energoinvest’s competitiveness would have yielded perhaps surprising insights, challenging common assumptions about the relationship between ownership structures and economic performance.

Yet one might counter that such a focus would have produced a rather narrow business history with limited appeal to lay readers. By using Energoinvest as a window into Bosnian (and Yugoslav) society and economy, Calori addresses broader questions: the reasons for Yugoslavia’s decline; the dynamics of ethnic polarisation during the war; and the bleak consequences of neoliberalist reform. She links these historical processes to contemporary resentment and social upheaval in post-Dayton Bosnia, showing how the broken promises of the past continue to shape political and economic realities today.

Engineering global socialism is a thought-provoking book that offers new perspectives and a deeper understanding of Bosnia’s history and the demise of its working class. Calori has produced a work that is at once well researched, theoretically sophisticated and accessible to a wide readership. The book will be of lasting value to academic scholars, but it also deserves a broader audience among those seeking to understand the roots of contemporary discontent in the former Yugoslavia and beyond. In an era of resurgent ethnonationalism and widespread disillusionment with neoliberal globalisation, Calori’s recovery of alternative visions of global integration

1 See the 2024 documentary film *Blum – Gospodari svoje buducnosti* (*Blum: Masters of their own destiny*), directed by Jasmila Žbanić.

and her careful documentation of how those visions were betrayed offer essential resources for thinking about more just and more democratic futures.

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