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Sustainable tourism in a digital age: Preparing the tourism sector for the twin transitions



Sustainable tourism in a digital age: Preparing the tourism sector for the twin transitions

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European Foundation for the Improvement of Living and Working Conditions

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Executive summary

Introduction

This report provides an analysis of the impact of the green and digital transitions on the EU tourism sector in relation to employment, skills and working conditions. It assesses the contribution of social dialogue to addressing the challenges that arise. Findings are based on data on employment and company structure from Eurostat, working conditions data from the European Working Conditions Survey, a literature review, national contributions from the Network of Eurofound Correspondents and a company-level case study.

Policy context

The tourism sector in the EU comprises a complex ecosystem of sectors, including hotels and restaurants, travel agencies, air transport and elements of other transport, leisure and administration activities. Depending on the scope and scale of the sectors considered as being wholly or partly ascribed to the tourism ecosystem, the tourism sector employs between 12.3 million and 20.3 million workers and accounts for between 5 % and 10 % of EU gross domestic product. Tourism was strongly affected by the COVID-19 pandemic, when movement and meeting restrictions brought most of the industry to a halt. However, by 2023, the number of tourist arrivals had rebounded and exceeded pre-pandemic levels in most Member States.

The EU has a supporting competence in relation to the tourism sector, aiming to maximise the sector's contribution to growth and jobs and to promote cooperation between EU Member States in increasing the attractiveness of Europe as a tourism destination. EU regulations affecting the tourism sector largely focus on passenger rights, while sector-related policies have focused on sustainability and competitiveness for over two decades. In 2022, a Transition Pathway for Tourism was presented by the European Commission. Based on this, the Council of the European Union adopted the European Tourism Agenda for 2030 in December 2022. The agenda includes a programme with actions to be taken by the Member States, the Commission and the tourism ecosystem in the areas of the green transition, the digital transition, resilience and inclusion, skills and support and the enabling policy framework and governance.

Key findings

- The tourism sector is directly affected by both climate change and climate change policy. With a share of 10 %, the sector is a major contributor to greenhouse gas emissions, the largest share of which arises from air travel.
- Climate change policies aiming to reduce carbon dioxide emissions and enhance the overall social and environmental sustainability of the sector are having a more immediate impact. A survey of small and medium-sized enterprises in the sector found that 28 % of businesses were striving to reduce energy consumption and switch to renewable energy sources, 26 % had taken measures to reduce food waste and 30.6 % were enhancing circularity. Water preservation is also high on the agenda, particularly in large hotel chains. The share of businesses taking such measures is limited by the small scale of most operators, particularly in the hotels, restaurants and cafes (Horeca) sector, as these operators often encounter financial barriers despite the availability of government support.
- At the national and regional policy levels, greater sustainability is also targeted by measures to manage visitor flows and encourage sustainable tourism and eco-tourism. 'Green' tourism demand is an important factor, with surveys showing high demand for more sustainable travel. The extent to which this translates into effective choices is less clear, however, and data indicate that cost remains a key factor in holiday choices.
- Digitalisation has already had significant implications for the travel agency subsector, which witnessed a 22 % reduction in employment between 2019 and 2023 as a result of the pandemic but also at least in part as a result of the shift of services to platforms and online services, and an increasing tendency of travellers to make their own arrangements.
- Platforms and the public authorities responsible for tourism strategies are increasingly using big data and analytics to predict tourist behaviour, manage tourism flows and tailor marketing offers. The use of virtual and augmented reality, while still relatively limited, is growing.

- Hotels and, to a lesser extent, restaurants are witnessing some transformation of work processes, job tasks and skills requirements as a result of sustainability requirements and digitalisation. However, the high number of small and microbusinesses and the reliance on person-to-person interaction in the sector have so far limited the market-driven impact of digitalisation. Small and microbusinesses lack the resources to invest in this area.
- The sector is suffering from structural staff shortages in many occupations, a trend aggravated by the pandemic, when the closure of the sector saw many workers leave and not return to a sector characterised by a high degree of seasonality, temporary contracts, shift work patterns, requirements for a high level of customer orientation, limited flexibility in terms of working hours and location (since jobs are on-site and tied to customer demand) and comparatively low pay (particularly in the Horeca sector).
- Beyond the reduction in workers in the travel agency subsector, there is no evidence of a decline in demand for workers in the tourism sector as a result of the twin transitions. Research and case study evidence points to an increase in demand for workers with ICT skills (such as digital marketing experts, software developers, web and application designers, data scientists, cybersecurity experts, AI and internet-of-things application designers and managers to ensure the sustainable management of resources, and augmented and virtual reality designers) and higher levels of qualifications in sustainability management, particularly among larger hotel chains and tourism authorities, such as water management, energy efficiency experts, experts in recycling and waste management and specialist tour guides.
- Although many providers and Member States have already implemented tourism-specific training measures, the integration of the abovementioned skills into such curricula remains limited. In addition, there are some barriers to training provision and take-up, including the predominance of small and microcompanies, high degrees of seasonality, high shares of low-skilled workers and young people and the high share of migrant workers. Employers are likely to be more reluctant to invest in training a 'transient' workforce and such workers can be less likely to be open to training offers.
- Research on the impact of the twin transitions on working conditions is scarce. Case study evidence from a large hotel chain shows that, while environmental sustainability measures have increased workloads in some areas (particularly maintenance to reduce water waste, but also in relation to sustainability and record-keeping), any additional tasks have been balanced out with innovations in digital tools, which have made workflows more efficient.
- Trade union density in the tourism sector is relatively low due to high levels of workforce fluctuation, with collective bargaining coverage in the Horeca sector ranging from 80 % in Member States like Austria, Croatia, France, Italy and Portugal to below 35 % in Cyprus, Germany and Malta.
- There are only a few examples of collective bargaining focused on issues linked to the twin transitions, with much of the bargaining parties' attention in recent years having been on the issue of labour shortages. This has contributed to some collectively agreed wage rises in the sector in some Member States (for example, Austria and Greece). At the company level, the German trade union ver.di reached an agreement in a large multinational company that no jobs will be lost as a result of the introduction of AI.

Policy pointers

- The direct impact of climate change on the tourism sector is emerging over the medium to longer term and strategic thinking is needed at the European, national, regional and local levels on how destinations and associated economic activity and employment will be impacted and can respond most effectively.
- Since data show that the use of digital technologies is less widespread in small and microcompanies in the tourism sector, targeted support is needed to enable these companies to benefit from the potential to remain competitive through the use of these tools.
- The greater introduction of green and digital technologies requires upskilling and reskilling, which can be a particular challenge for small and medium-sized enterprises. Public policy should target the delivery of modular training, encourage real cooperation with social partners to integrate missing skills into curricula and support the development of higher-level qualifications to deliver the skills necessary for a more sustainable and digital tourism sector. Language training could also assist in the longer-term integration of migrant workers.
- Applying the European Commission recommendation on the future of social dialogue through national action plans could also assist in the coverage of the sector by collective agreements.

Introduction

The tourism sector is crucial to the EU economy and has a significant impact on employment and economic development, particularly at the regional and local levels. Estimates of the sector's share of EU GDP ranges between 5 % and 10 % and the estimated number of employees (in terms of jobs) ranges between 12.3 million and 20.3 million, depending on the sectors taken into account (European Commission, 2022; European Parliamentary Research Service, 2025). The tourism sector is dominated by small and microbusinesses (99.8 %) and its employment is characterised by high levels of seasonality and therefore a higher share of temporary contracts than the EU average. It also employs more migrant workers than other sectors. The tourism ecosystem was one of those most affected by the COVID-19 pandemic, when travel restrictions brought most of the industry to a halt. However, the number of tourist arrivals has rebounded strongly and, with over 1 billion arrivals per year, had exceeded pre-pandemic levels in the EU by 2023 (European Commission, 2022). Although labour shortages had been a feature of hospitality for a number of years, this trend was exacerbated by the pandemic, as many workers made redundant when tourism activities halted did not return to the sector when Member States and the industry reopened.

Given its reliance on nature as a resource, the tourism sector is directly affected by climate change, with global warming and the increasing incidence of adverse weather conditions affecting the accessibility, suitability and attractiveness of certain locations for tourist activities. Rising temperatures could make some locations in Europe increasingly unattractive as travel destinations during peak holiday periods in the summer, when temperatures are highest, and could make certain winter activities less viable or restricted to shorter periods in the year. Rising sea levels could affect coastal locations and ecosystems and therefore seriously affect locations reliant on sea and beach tourism. At the same time, such climate-related changes could open up opportunities for more differentiated tourism offers over the year and make some destinations more attractive. Since these are long-term trends, their impacts not only depend on European and global policies to reduce greenhouse gas (GHG) emissions and limit the impact of global warming – and are therefore difficult to predict with precision – but will also unfold over a relatively extended time frame. While policy initiatives at the EU and national levels therefore take sustainability into account, longer-term policies planning for the implications mentioned above remain at an early stage, with policies more likely to emphasise steps that can be taken now to make the sector more green and sustainable. Longer-term policies tend to not only have an environmental perspective but often also consider how to address other implications of (over)tourism, for example effects on housing and local infrastructure.

Digital transformations also have a role to play in the tourism sector, most noticeably so in the travel and accommodation booking industry, with increasing platformisation changing business models. In other areas of the sector, while digitalisation is advancing in relation to the marketing and presentation of certain tourism goods, given the sector's emphasis on person-to-person interaction as an intrinsic value and the business structure of the sector (with a predominance of small and microbusinesses), the market-driven implementation of digital tools remains more limited.

The purpose of this report is to assess the impact of the twin transitions on the tourism sector in terms of employment, skills and training needs, work organisation, working conditions and industrial relations. The first task is to delimit the elements of this complex ecosystem that are to be considered.

The figures provided above make it clear that quantifying the scale of the sector's added value and the numbers of businesses and employees depends on the precise definition of the sector adopted, as it comprises an 'ecosystem' made up of a diverse range of goods and services. The whole set of products and services that make up the tourist 'experience' is partly provided by public goods (nature, beaches, history, culture, etc.) and services that governments manage (security, infrastructure, etc.). A Member State's or region's tourism offer is essentially composed of an implicit public–private partnership that makes destinations attractive to tourists. However, the public sector's contribution to the ecosystem is rarely acknowledged in how the sector is described since many such services are first and foremost provided to the domestic population. Arguably, this is also the case for some of the elements considered to be at the core of the general industrial classification of economic activities within the EU (NACE) sectors included in the European Commission's characterisation of the tourism ecosystem (Table 1). For example, research from Spain estimates that only 27 % of employment in food service activities is tourism related (SEPE, 2023; Exceltur, 2018).

Table 1: Characterisation of the tourism ecosystem (relevant NACE codes and their weights)

Share (weight)	NACE
0.45	Land transport and transport via pipelines (H49)
0.22	Water transport (H50)
0.91	Air transport (H51)
1	Accommodation and food service activities (I)
1	Travel agency, tour operator and other reservation service and related activities (N79)
1	Office administrative, office support and other business support activities (N82)
0.66	Creative, arts and entertainment activities; libraries, archives, museums and other cultural activities; gambling and betting activities (R90–R92)
1	Sports activities and amusement and recreation activities (R93)

While this definition is helpful in highlighting the elements that make up a tourism offer, the absence of reliable, comparable and disaggregated data makes the operationalisation of this ecosystem challenging from the perspective of research on employment, working conditions and social dialogue. For the purposes of this report, the decision was therefore taken to focus primarily on the following core elements of the tourism sector: (i) accommodation and food service activities and (ii) the travel agency subsector. When limiting its definition to these activities, the sector employed around 10.3 million workers in 2023 and contributed around 10 % of EU GDP.

This report provides an analysis of the impact of the twin transitions in the EU's tourism sector, based on the analysis of business and employment data from Eurostat, working conditions data from the European Working Conditions Survey (EWCS), a literature review and national contributions from the Network of Eurofound Correspondents in 10 Member States (Austria, Croatia, Cyprus, France, Germany, Greece, Italy, Malta, Portugal and Spain). A case study was also carried out to assess the impact of the twin transitions on a large hotel chain in Spain.

The report is structured as follows.

- The introduction summarises the EU policy context of the twin transitions and the main technological and environmental impacts driving change in the sector.
- Chapter 1 provides an insight into national policies setting the context for the green and digital transformations in the tourism sector.
- Chapter 2 summarises the data on the development of business structure and employment trends in the sector.
- Chapter 3 provides further information on the implications of the twin transitions for employment, work organisation, working conditions, skills and training. It also provides information on national policy and social partner initiatives to boost training and employment in the sector.
- Chapter 4 discusses the contributions of collective bargaining and wider social dialogue to managing change in the sector.
- Chapter 5 provides conclusions on the findings of the study.

Policy context

While tourism remains a competence of the Member States, the European Commission plays a key coordination and supporting role, with the aim of maximising the industry's contribution to growth and jobs and promoting cooperation between Member States to increase the attractiveness of Europe as a tourism destination. The EU's supporting competence in this area is based on Article 6(d) and Title XXII, Article 195, of the Treaty on the Functioning of the European Union (European Parliamentary Research Service, 2025).

EU regulations affecting the tourism space largely focus on air passenger rights (for example Regulation (EC) 261/2004 on passenger rights), but Directive 2008/122/EC on timeshare properties, for instance, is also of relevance. Other regulations are in place on passenger rights in relation to other modes of transport (European Parliamentary Research Service, 2025).

Sector-related policies have long focused on the importance of sustainability to ensure competitiveness. In 2007, the agenda for sustainable and competitive European tourism (Commission of the European Communities, 2007) emphasised how sustainable development can support the competitiveness of the sector in the long term. In 2010, the Commission adopted a new political framework for tourism in Europe, which analysed the factors that make the industry competitive and obstacles to its sustainable development (European Commission, 2010). A communication from 2021 focused on a common visa

policy for tourists from non-EU countries and, in 2014, a European strategy for more growth and jobs in coastal and maritime tourism was adopted (European Commission, 2014; European Commission: Directorate-General for Regional and Urban Policy, 2021). In 2020, the communication on transport and tourism in 2020 and beyond addressed the COVID-19 pandemic and its implications (European Commission, 2020).

A transition pathway for tourism was presented by the European Commission in February 2022. The pathway focuses on five main areas: governance, skills, digitalisation, the green transition and resilience. It encompasses 27 themes and 78 proposed actions. These actions aim to guide stakeholders in the tourism ecosystem towards a sustainable future, encouraging voluntary commitments. The transition pathway calls on the tourism community to implement measures such as:

- investing in the circular economy to reduce energy use, waste, water consumption and pollution and, at the same time, to better meet the increasing demand for sustainable tourism;
- enhancing data-sharing practices to allow for new innovative tourism services and to improve the sustainable management of destinations (the EU Tourism Dashboard was launched in 2022);
- investing in skills to ensure the availability of a qualified workforce and attractive careers in the ecosystem.

The Commission, along with stakeholders, has set up the Tourism Expert Group, which is divided into three subgroups: the green transition, digital skills and resilience. Employer organisations and trade unions are involved in the discussions.

Based on the transition pathway for tourism, the Council of the European Union adopted the European tourism agenda for 2030 in December 2022. The agenda includes a programme with actions to be taken by the Member States, the Commission and the tourism ecosystem in the areas of the green transition, the digital transition, resilience and inclusion, skills and support and the enabling policy framework and governance (Council of the European Union, 2022).

Other EU initiatives supporting the green and digital transitions relate to a shared data space. To enhance the exchange of information, the EU Tourism Dashboard has been created, which combines different data sources to generate indicators related to the green and digital transitions and the socioeconomic resilience of destinations. In cooperation with Member States and stakeholders, work on a common European data space for tourism is ongoing, with the aim of boosting data sharing and innovation across the tourism ecosystem.

The funding of transition measures plays an important role. The EU Recovery and Resilience Facility is funding substantial programmes and actions included in the recovery and resilience plans being implemented by various Member States. In addition, a number of other EU-funded, time-limited programmes were in place at the time of writing, including one developing product environmental footprint category rules for hotel accommodation in the EU (European Commission: Directorate-General for Mobility and Transport, 2025), which aims to develop a recognised calculation method to substantiate environmental claims in the sector; Tourism4SDG [1], a project that aims to ensure the achievement of sustainable tourism through the improvement of tourism policy instruments in the context of the UN sustainable development goals; and FU-Tourism [2], which supports small and medium-sized enterprises (SMEs) in the tourism sector to implement practices supporting the green and digital transitions.

Twin transitions in the tourism sector

This section discusses in turn the types of measures implemented to make the industry more sustainable and the key uses of digital tools, as well as the overlap and complementarity between the two. When discussing the green transition in tourism, specific attention is also paid to demand as a driver of sustainable practices.

Impact of climate change and climate change policy: making tourism more sustainable

As mentioned, the tourism sector is directly affected by climate change and also faces substantial environmental impacts linked to associated carbon emissions, unsustainable water use, contributions to biodiversity loss, disposable material use and waste generation. It is estimated that the tourism ecosystem contributed 10 % of total GHG emissions, placing it among the highest contributors of all industrial ecosystems (European Commission, 2022; WTTC, 2022). Transport for the purpose of tourism is considered the largest contributor to GHG emissions in the sector. With regard to the hotel and other tourist accommodation subsector, most of its GHG emissions are generated by energy consumption and suppliers and subcontractors, such as external laundry services, waste disposal and food and drink production.

(1) For more information, see the project website: https://www.interregeurope.eu/tourism4sdg.

(2) For more information, see the project website: https://www.fu-tourism.eu/about-us/.

These features – particularly in the case of tourism over-exploitation – run counter to goals of climate change mitigation and environmental protection and raise concerns about the unbalanced economic, social and environmental impacts of tourism. Beyond the protection of fragile ecosystems, examples of other recent controversies regarding overtourism involve sensitive issues at the national and regional levels, such as pressures on house prices and the availability of affordable rental homes.

The effects of climate change are expected to be varied and multifaceted, depending on the level of tourism development and the characteristics of each tourist area. The expected rise in temperatures may lead to a deterioration in the quality of the tourism product in both the winter and the summer, depending on the destination, but it may also contribute to a lengthening of the tourist season, potentially lessening the impact of overtourism during peak periods. Adverse weather events also increasingly affect the sector, requiring providers to implement not only strategies to address increasing occupational hazards but also contingency plans for such emergencies. A survey by the trade union General Union of Workers (UGT) in Spain showed that 65 % of providers had given consideration to new occupational health and safety risks and 67 % had made contingency plans for the adverse effects of climate change and adverse weather emergencies (UGT, 2021).

The green transition of the tourism ecosystem is therefore vital to tackle its potential negative environmental impacts and to preserve the attractiveness of tourist destinations and the value of nature, thus ensuring the future of the industry.

Various approaches can be used to limit the impact of tourism on the natural environment and potentially enhance its contribution to preserving local economies and ecosystems.

Reducing energy consumption and/or increasing the use of less polluting or renewable energy. This can be done in various ways, including by encouraging the use of less polluting transport systems or fuels. Means of achieving this might include, for example, increasing the use of sustainable aviation fuels (an increase to 63 % by 2050 is mandated at the EU level) and addressing practices such as 'fuel tankering' (loading planes with more fuel than is necessary to avoid refuelling in destinations where prices are higher) (ETF, 2022); providing electric vehicles for staff and in resorts; encouraging tourists to use trains and local public transport; switching to energy-saving light bulbs; using technologies to limit heating and cooling of unused spaces; and investing in renewable energy sources such as photovoltaic systems or wind turbines. A business survey of tourism SMEs showed that 28 % of businesses declared having invested in energy-saving technologies (European Commission, 2022).

Reducing water use. This can be achieved by limiting laundry through encouraging the reuse of towels and linens, installing water-saving showerheads or taps, reducing water flow rates, emphasising maintenance and the fixing of leaks, installing water-recycling systems and other methods.

Enhancing circularity. This can be done through separated waste disposal and the use of recycled materials, for example by using recycled cups and bottles and biodegradable packaging in hotels and restaurants. In the abovementioned survey, 30.6 % of SMEs indicated having adopted such practices (European Commission, 2022).

Reducing food waste. This includes the digitalisation of stock inventories, better food management and donations of unused food products to the local community. 26 % of tourism SMEs claimed to have introduced such approaches.

Encouraging sustainable tourism and eco-tourism. This can ensure a minimal impact on the natural environment or even contribute to regeneration through volunteering activities and integration into local communities by connecting tourists with local hosts for a more sustainable and authentic experience (including, for example, sustainable agritourism).

Managing visitor flows. The aim is to reduce the environmental impact of overtourism by managing the number of tourists who can visit certain regions/attractions, etc. at a given point in time (OECD, 2021).

The use of digital tools has an important role to play in the implementation of many of these practices, demonstrating the complementarity of the green and digital transitions in these areas.

Impact of green demand

While many of the abovementioned approaches to sustainable tourism are policy driven, consumer demand also has an important role to play. Surveys on the emphasis customers place on sustainability in travel and vacation planning highlight a potential dichotomy between aspiration and reality. In the *Sustainable travel report 2023*, which collected responses from 33 000 travellers around the world, Booking.com found that 76 % of respondents wanted to travel more sustainably over the next 12 months. However, the survey also demonstrated the perceived implications of cost on such decisions, with 49 % considering sustainable travel options to be too expensive. At the same time, 43 % of respondents indicated being willing to pay a little more to support sustainable travel options (Booking.com, 2023).

Several national surveys also reflect a growing awareness of the impact of tourism on the environment. However, it is not clear to what extent a survey response is matched by consistent behaviour, particularly when

there is a premium to be paid to arrive or stay in a destination that distinguishes itself by meeting environmental objectives, as noted. The Austrian Economic Chamber (Wirtschaftskammer Österreich) stated that, according to a survey conducted in December 2023, waste avoidance and regional sourcing of produce in the hospitality sector were key aspects for those guests who value sustainability during their trips. However, the survey also showed that only a third of the respondents had already once (and not more often) been willing to accept a higher price for 'more sustainability'. In Germany, a survey of travel businesses indicated an attitude–behaviour gap in terms of demand. The trade union ver.di reports that the reservation systems Amadeus and Savior can display the carbon footprint of bookings, but employees in tour operators report that this information is not widely requested by customers. Similar views are shared in Greece. Deloitte and the Institute of Greek Tourism Confederation (Insete) ([3]) conducted a study in 2023 on sustainability, surveying over 200 Greek Tourism Confederation members and tourism enterprises about consumer behaviour and preferences. The study found that most Greek tourism businesses believed that travellers were not willing to pay a premium for sustainable options (Deloitte and Insete, 2023, p. 27). However, the study highlighted that a recent global survey by Expedia indicated that travellers were willing to pay a significantly higher premium (38 %) for more sustainable travel options. Among the 42 % of respondents who thought clients would pay more for sustainable options, the majority (87 %) believed that the premium would be limited to no more than 10 % of the overall travel costs. In a similar vein, a Statista survey from 2022 found that over 80 % of global travellers regarded sustainable tourism as important. Additionally, the Booking.com survey (2023) reported that nearly three quarters of travellers prioritised environmental considerations even during a cost-of-living crisis. This sentiment was echoed by the World Travel and Tourism Council (WTTC), Deloitte and the Trip.com Group in *A world in motion*, which found that 69 % of travellers actively sought out sustainable travel options.

To summarise, contradictory results from surveys and the direct observations from tourism operators fail to provide a clear picture as to what extent tourists demand and would pay more for a sustainable destination or operator.

Impact of the digital transition in the tourism sector

Digital technologies have opened up a wide range of opportunities in the sector, but the precise impact of digitalisation depends on the subsector and occupation within the tourism ecosystem and the step in the tourism journey (pre-stay, during stay, after stay). For most of these applications, the purpose is market driven, with the goals of improving operational efficiency and reducing costs. For others, the aim is to improve customers' experiences throughout their journeys.

Digitalisation is reshaping the tourism offer in various ways.

Platformisation of travel, accommodation and experience booking. Arguably the most disruptive impact of digital technologies has been on tour operators through the platformisation of and use of AI in bookings, which have changed business models through the availability of new distribution channels that allow online intermediators to take bookings and payments. This has changed relationships within the supply chain (such as between tour operators and hotels), but also between customers/tourists and tourism service providers. Intermediation by travel agencies is no longer essential and customers have direct access to service providers, from whom they try to obtain the best conditions. Travel agencies and tour operators have had to adapt to competition from online platforms, which allow customers to easily compare prices and services. Chatbots are also increasingly used in the intermediation of these services. Today, travel agencies have mostly moved to offering customised travel packages – sometimes using data analytics – that are tailored to individual customer preferences. However, platformisation also comes with risks for providers of services, including the higher intermediation costs of the platforms and delayed payments. In some Member States, the impact of certain platforms in the tourism ecosystem has raised some concerns, including regulatory disparities with the traditional accommodation system, the impact on local property prices and a detrimental impact on hotel establishments compared with private rentals. Additionally, when algorithms manage the offers advertised by tourism service providers on platform marketplaces, offers can end up being aligned with the interests of the platforms rather than those of the direct providers (see Box 1).

([3]) Insete is a non-profit organisation founded in early 2013 by the Greek Tourism Confederation and partners that are very active in critical areas of the Greek tourism market.

Box 1: Use of the Digital Markets Act (Regulation (EU) 2022/1925) to designate Booking.com as a gatekeeper platform

Following long-term efforts by representatives of the hotel industry at the European level (Hotrec), in May 2024, the European Commission designated Booking.com as a 'gatekeeper platform' based on the Digital Markets Act, thus obliging the platform to comply with all the obligations and prohibitions that arise from this designation within the following six months.

This means that hotels, car rental companies and other providers of travel services that use Booking.com are now free to offer different (including better) prices and conditions on their own websites and on channels other than Booking.com. The platform is not allowed to increase commission rates or delist offers of business users if they provide different prices on other websites. Furthermore, hotels and other travel services have real-time and continuous access to data that they and their customers generate through the use of Booking.com and can transfer such data to alternative platforms.

Use of virtual reality (VR) and augmented reality (AR). Technology is used to provide information to customers in advance of travelling to allow them to build their preferred experiences through the use of virtual room and destination tours. During visits, museums and other cultural attractions are increasingly using AR and VR to enhance the learning experience.

Use of big data and analytics. Big data in tourism has been recognised as a way of gaining knowledge of and consequently predicting tourist behaviours to personalise the tourism offer and manage tourism flow. It also helps to improve digital marketing tools. Related AI models leverage vast amounts of data, including customer preferences, travel patterns and historical booking information, to offer tailored recommendations, dynamic pricing and efficient trip planning. These models are strongly affecting how tourism providers interact with tourists (Vaz, 2024). The use of big data helps to shape various aspects of the tourism industry, including by helping to manage tourism flows (for example in an effort to prevent overtourism), helping transport optimisation through the informed design of routes and scheduling (Exceltur, 2024; OECD, 2024) and assisting with the pricing or digital marketing of the tourism offer.

Digital applications to enhance marketing and efficiency. Digital tools can help with marketing to attract more customers. During the travel experience, examples of digital optimisation include options to check in online or from a mobile, the provision of virtual keys to open rooms via smartphones, online ticketing for attractions through websites, applications (apps) or the use of QR codes. Restaurants are also increasingly using digital ordering systems, which are thought to make ordering processes more efficient, including during staff shortages. In addition, the internet of things (IoT) is increasingly used for checking stock and monitoring consumption. The IoT and AI algorithms can be used to analyse data on food energy consumption, waste management and environmental impact to identify areas for improvement and support the implementation of sustainable practices in the tourism industry (García-Madurga and Grilló-Méndez, 2023). Social media is increasingly used not only by providers for marketing but also by guests to rate their experiences, which can have a significant impact on businesses and needs to be actively managed.

Digital applications including AI are therefore seen to offer the potential to promote more sustainable tourism and enhance efficiency and responsiveness by better managing resources through enabling waste reduction, reducing energy use, optimising tourist flows and improving staff allocation. However, it is acknowledged that the capacity of AI to perform such functions relies on the availability of high-quality, robust data that protect privacy and ensure an experience that allows for authentic person-to-person interaction.

In relation to the abovementioned digital applications, it is important to emphasise that, in the hotel and restaurant sector, digital transformation has taken place extensively in large hotels, in cultural heritage sites (often managed by the public sector) and among tour operators and booking platforms. As a result, it can be expected that these operators will be further ahead in implementing digitalisation processes, including AI tools and applications. However, these processes are not as widespread among smaller accommodation providers and in the restaurant business (beyond the use of digital platforms for delivery services).

Take-up of digital and sustainability measures in the tourism sector

The national contributions provided by members of the Network of Eurofound Correspondents from Austria, Croatia, Cyprus, France, Germany, Greece, Italy, Malta, Portugal and Spain and the case study of a hotel chain in Spain provide some insights into the application of the abovementioned measures and technologies on the ground. They demonstrate the differences between subsectors and among small and large providers and also the importance of cost as a driving factor in the introduction of such measures and technologies or the absence of implementation.

Box 2: Reducing the energy, water and material consumption of tourism

According to analysis by the Environment Agency Austria, the average energy consumption of tourism between 2017 and 2019 was 1.55 % of the total energy consumption in Austria (Federal Ministry of Labour and Economy, 2025) and, while overnight stays increased by around 20 %, energy consumption reduced by 44 % during this period, corresponding to a reduction in energy consumption of more than 50 % per overnight stay. In addition, 55 % of the energy used in tourism already comes from renewable sources.

In Germany, 3.3 % of domestic energy consumption is attributable to the German tourism sector, with absolute consumption being slightly lower than in 2015. 2.6 % of GHG emissions are attributable to the tourism sector and emissions have also decreased in absolute terms since 2015 (Federal Statistical Office, 2021).

A case study of a hotel chain in Spain, carried out as part of this research, showed that the hotel reduced its energy consumption by 17 % between 2021 and 2023 by installing photovoltaic systems, adopting less polluting air-conditioning technologies, updating appliances and installing LED lighting systems. Over the same period, water use was reduced by 10 % through the installation of water-saving showerheads, use of water-recycling systems and investment in maintenance and the detection of leaks. The percentage of recycled waste increased from 16 % to 40 % through the introduction of sorting facilities, reduction of plastic use and provision of staff training on recycling and waste management.

Several Member States report that the application of energy- and water-saving measures such as light-emitting diode (LED) lighting systems, adequate thermal insulation, water flow reducers and the installation of solar panels or wind power systems (often with grant aid) are among the most common measures taken, combined with initiatives to reduce waste (including food waste) and increase the use of recycled materials (see Box 2).

An increasing number of hospitality businesses are sourcing produce locally to reduce emissions from transport and are also using this as a marketing tool. Efforts to encourage customers to participate in such measures are now commonplace, for example with hotels encouraging guests to reuse linens and towels to reduce water consumption, while also cutting laundry service costs. Somewhat more costly and more likely to be used in larger hotel chains are measures to replace heating and cooling systems with more energy-efficient alternatives and the installation of water-recycling systems. Some larger chains have invested in digital systems to connect customer requests with the delivery of services, housekeeping and maintenance to improve communication, while smaller accommodation and hospitality providers tend to be more limited in their digitalisation efforts, focusing on online marketing and booking systems (often assisted by collaboration with larger platforms). Resort hotels are also investing in electric vehicle fleets, while operators of spa or golf facilities are often reducing water or heating use or investing in the abovementioned recycling and energy efficiency measures.

Other measures include the implementation of programmes to measure carbon emissions and reduce or offset them through reforestation projects. In Croatia, the National Association of Family and Small Hotels (with the support of the Ministry of Tourism and Sports) has launched a new initiative on the decarbonisation of family and small hotels (*dekarbonizacija obiteljskih i malih hotela*), which aims to encourage its members to measure and reduce their carbon footprints. A new methodology has been created, aligned with the international hotel carbon measurement initiative methodology. This is part of a broader project called eco green hotels. However, as reported in other Member States, the fragmentation of small businesses within the sector limits the opportunities to contribute and participate in ambitious programmes and can hold back progress and collective action on, for example, emission reductions.

Many companies have voluntarily committed to achieving certain green targets via certification processes and seals. Across all Member States, there is widespread use of national certificates and seals for sustainability in the sector, representing claims of sustainability, green or environmental excellence, for example in hotel services. However, this makes it difficult for customers to make informed decisions based on these seals/certificates. In many cases, it is unclear to what extent these ecolabels are supported by rigorous components of the EU green agenda or transition. Creating transparency regarding the criteria for certification would help to develop environmental awareness and trust among tourism operators and tourists.

1 National policies helping to shape the twin transitions in the tourism sector

Key takeaways

- Public policies and strategies to support the transition towards a more competitive, digital and sustainable tourism model have been in place for some time, particularly in Member States where tourism plays a major economic and social role. While some of these actions are tourism specific, others are part of broader approaches to decarbonisation and digitalisation.
- Due to the limited competence of the EU in the tourism sector, the role of national and regional measures is paramount, although EU funding – notably through the Recovery and Resilience Facility – contributes to implementation, with around 2.6 % of the facility's total funding allocated to investments in tourism and related services.
- Sustainability strategies were introduced partly to address concerns about the harmful impact of overtourism in coastal regions and have since expanded to cover winter, inland rural and urban tourism, taking into account the growing impact of climate change on the sector.
- The main public policy measures supporting digitalisation include investment in big data platforms aimed at the management of tourism flows and improved targeting of the tourism offer, support for tourism tech start-ups and investment in digital training for the tourism workforce.
- Public policies and funding streams supporting the green transition generally focus on decarbonisation, water conservation and circularity, and the promotion of more sustainable tourism, including initiatives on renewable energy, waste recycling and sustainable mobility.
- Evidence from a large hotel chain in Spain illustrates how company-level digitalisation and sustainability measures have led to measurable reductions in water and energy use and improved waste management.

This chapter discusses the actions taken at the national level to support digitalisation in the sector and the development of a more sustainable tourism model. While these policies are influenced by EU actions in this field, given the relatively limited competence of the EU regarding tourism, the role of national and regional measures is more significant. However, EU funding also contributes to the implementation of such strategies. The degree of targeting and the intensity of this support vary considerably depending on the importance of tourism to the national economy and labour market and also on the industries concerned within the sector.

The EU supports the sustainability and transformation of the tourism sector through various programmes and actions. The Recovery and Resilience Facility has been a key resource for several Member States. The European Commission has estimated that 2.6 % of the total Recovery and Resilience Facility funding is allocated to investments in tourism and related services. Various national recovery and resilience plans of the Member States analysed in this report have a dedicated component on tourism (Croatia, Italy, Spain) and others have a significant number of tourism-related measures (Austria, Cyprus, France, Greece, Malta).

Overall, public policies and strategies to support the transition towards a more competitive, digital and sustainable tourism model have been in place for some time. This is particularly true in Member States where the economic and social significance of tourism is greatest and where sustainability strategies were introduced partly to address concerns about the potentially harmful impact of overtourism on sensitive ecosystems and the communities affected. While such debates initially focused on the impact of tourism in the coastal areas of Mediterranean countries, more recently, concerns about the unsustainability of tourism and its impact on the environment have expanded to also cover winter tourism, inland rural tourism and urban tourism in some of Europe's major capitals and larger cities.

Long-term strategies and policies to support national tourism often incorporate competitiveness improvements and development actions. Therefore, in many Member States, the actions envisaged go beyond assisting and promoting the digital and green transformations. Similarly, actions to promote greening and digital transformation that have an impact on the tourism sector are not necessarily sector specific but

rather part of broader agendas to support the reduction of GHG emissions from transport and buildings and the roll-out of funding for the implementation of digital technologies and related training. This makes it more difficult to quantify the level of investment in these areas benefiting the tourism sector specifically.

The following sections summarise some of the key initiatives in relation to the digital and green transitions, bearing in mind that some of the plans may cover both digital and green goals.

Public policies addressing digitalisation in the tourism sector

The main policies driving investments in the digital tourism space can generally be categorised into four types.

Support for public/private investment in the creation of big data platforms and applications

Big data platforms and applications enable the management of tourist flows, better targeting of the tourism offer (through the analysis of booking, facility use and feedback information) and the diversification of the tourism offer.

Austria's masterplan for tourism (Plan T) (2019; most recently updated in 2024) and the digitalisation strategy for the Austrian tourism sector (2017) provide funding for further developments regarding tourism data. Furthermore, in May 2023, several stakeholders signed a memorandum of understanding on cooperation in the field of data on Austrian tourism. The initiative is supported by several federal ministries and the Austrian Economic Chamber and it seeks to improve the tourism data space.

In France, the government launched a National Strategy for Managing Tourist Flows in 2023 that includes plans for the creation of a national observatory for major tourist sites. The observatory will measure the perceptions of tourist flows among locals and raise awareness of the positive and negative impacts of tourism, targeting tourists, locals and travel influencers (OECD, 2024).

In Malta, the Digital Strategic Roadmap for Tourism in the Maltese Islands for 2030, launched in 2021 as part of the Malta tourism strategy for 2021–2030, lists a number of actions in relation to investment in technology and data infrastructure, including the use of qualitative feedback and metrics from inbound tourists, to build a tourism-related knowledge base of socio- and psycho-demographic information covering, for example, preferences, itineraries, expectations, cultures, lifestyles, interests, behaviours and values.

Such non-personalised data are vital for third-party solution providers that wish to offer personalised services through apps, chatbots, airport digital channels, museums and booking systems – while taking into account context, time, location or proximity – in combination with AI, big data and other technologies.

In Spain, more than EUR 8.4 million has been invested in the tourism intelligence system, based on a big data platform, which studies and analyses information sources and makes them available to the tourism industry; in addition, the Open Innovation Platform has received EUR 48.3 million and the Network of Smart Tourist Destinations has received EUR 12 million.

Support for tech start-ups in the tourism sector

Investing in tech start-ups can boost the development of national, regional and local online booking offers and enable innovations in AI, VR and AR applications, among others.

The abovementioned strategies in Austria, France and Malta also seek to support the development of tourism tech start-ups to reduce reliance on international booking portals. They include measures to foster the creation of apps, online booking tools, support through chatbots and other digital systems.

Financial support for the implementation and improvement of digital technology applications at the individual provider level

Individual providers (namely, hotels and other tourism accommodation providers, restaurants and tourist attractions) can use digital technology applications to improve efficiency, attractiveness and accessibility.

Austria, Cyprus, Italy and Spain have invested in the 'last mile' digitalisation of individual providers by providing funding that allows providers to invest in or upgrade their digital infrastructure. In Cyprus, this is aimed at providers in rural and mountainous areas to make stays in these localities more attractive to tourists who might otherwise opt to stay in more urban areas or beach resorts.

Investment in training for the tourism sector's workforce to enhance digital skills

Investment in digital training for the tourism sector's workforce is high on the agenda in all Member States studied and arises from the recognition that current training provision within vocational and tertiary education systems still fails to take into account the shift towards the greater use of digital tools in the sector.

Public policies addressing the green transition in the tourism sector

Public policies and funding streams aiming to support the green transition, either aimed directly at the tourism sector or available to tourism providers indirectly, generally focus on the following areas.

Decarbonisation of the tourism offer

Decarbonisation actions include support for investments in renewable energy systems and e-mobility.

In Austria, the klimaaktiv climate protection initiative (in operation since 2004) focuses on four areas, namely construction and renovation, energy saving, renewable energies, and mobility and information on sustainable mobility management for tourism companies. Companies can become partners in the initiative on a voluntary basis; consultation and support are provided free of charge. Flat-rate funding is provided for e-mobility, covering electric cars and light electric commercial vehicles, electric minibuses and light electric vehicles, electric two-wheelers, electric bicycles, electric transport bikes and electric charging infrastructure. In addition, guidelines for practitioners on how to make a tourism destination sustainably mobile were published in 2023 and include information on co-funding for projects related to green mobility at the federal, regional and local levels. Initiatives in Croatia, France, Germany, Italy, Malta and Portugal support investment in the decarbonisation of heating and cooling systems as part of the renovation of buildings.

Portugal also supports e-mobility and the use of more sustainable forms of transport, including trains and other forms of public transport. In Malta, the 'Shore-to-Ship' project was launched in 2024, introducing shore-to-ship electricity systems for cruise liners visiting Malta (Infrastructure Malta, 2024). The use of an onshore power supply is expected to result in significant reductions in air pollution and GHG emissions.

Water conservation and circularity

Policies in this area include financial contributions to allow providers to reduce water use and increase recycling and the use of recycled materials.

As well as supporting the decarbonisation of tourism infrastructure, Portugal's 2027 tourism strategy emphasises investment in water conservation and waste-recycling systems.

Encouragement of more sustainable tourism

There is evidence of public support for marketing strategies promoting rural tourism, bike or walking holidays, and other measures that divert tourists from more 'stressed' traditional tourist destinations or encourage off-season tourism (see Boxes 3 and 4).

In Italy, one part of the tourism strategy is to encourage greener forms of tourism (such as walking or cycling) and off-peak tourism. Germany is also encouraging greener, including more rural, tourism.

Box 3: Sustainable tourism in Spain: towards the digital and green transitions

Tourism is one of the key economic activities in Spain. In 2023, tourism-related activities accounted for 12.3 % of GDP, while the sector provided employment for 11.6 % of the total workforce. The tourism industry is among the most vulnerable sectors identified in the National Plan for Adaptation to Climate Change (Gómez Martín, 2017; UGT, 2021). The idea of sustainability is pivotal to the National Plan for the Modernisation and Competitiveness of the Tourism Sector, which is part of the 2023 National Recovery and Resilience Plan. The plan sets out interventions aimed at ensuring the transformation of the Spanish tourism model in response to the challenges of the green and digital transitions. It anticipates a total investment of EUR 3.9 billion from both EU and national sources, dedicated to the comprehensive transformation of the sector across various areas of intervention, including:

- reducing the environmental impact of tourism through the promotion of energy efficiency and efforts to address excessive seasonality and the concentration of tourism activities;
- supporting the digital transformation of tourism destinations through public–private cooperation;
- developing specific strategies for non-mainland destinations.

The main policy instruments in the field of environmental sustainability are the Plans of Tourism Sustainability in Destinations. These plans aim to ensure the transformation of territorial tourist ecosystems, in line with the sustainability criteria set in the 2030 Agenda, through the involvement of public and private stakeholders. Territorial plans address the specific needs of different tourist destinations (rural, urban, coastal) and provide for different initiatives in the fields of the green transition, energy efficiency, the digital transition and competitiveness.

Specifically, in 'sun and beach' destinations, these measures include the regeneration of coastal areas and climate change mitigation, the reduction of building density and the improvement of waste management and transport infrastructures. For popular urban destinations, the plan aims to promote sustainable mobility practices and redistribute tourism activities to different city areas (Ministry of Industry, Trade and Tourism, 2021). Along these lines, the city of Madrid has recently announced the implementation of a sustainable tourism model based on two main strategies: decentralising tourist visits beyond traditional circuits and promoting more accessible and sustainable mobility alternatives (Hosteltur, 2025).

Based on findings from a UGT survey on the implications of climate change in various sectors, 97 % of tourism companies are implementing energy efficiency plans and 82 % are taking measures to conserve and/or reuse water in response to water-scarcity scenarios as their primary adaptive strategies. Of the measures included in this chapter, the construction work to reduce energy loss, the replacement of carbon-based energy systems with sustainable sources and the improvement of equipment electricity consumption are among the most commonly mentioned (UGT, 2021).

Box 4: Digitalisation and sustainability in a large hotel chain: plans and achievements

Impact of digitalisation

The impact of the increasing importance of digital applications for large hotel chains can be demonstrated by the example of a company in Spain. Having decided to centralise data management in a single, company-owned database, instead of maintaining several data management centres with external support, the company's information technology (IT) department has increased its staff tenfold over the past 25 years, reaching nearly 300 employees in 2025.

The company has developed its own hotel management system, which automates low-value-added tasks and existing processes, and improves workplace communication internally and between customers and staff. Digitalisation is seen as interrelated with sustainability policies. For instance, the hotel's IoT systems allow for the measurement and control of hotel consumption. While digitalisation has driven some innovations in client services, including apps for room bookings, pre-check-in, food orders, other service and maintenance orders and post-stay evaluations, it is emphasised that business clients still very much value tailored, personal support to plan their event experiences.

Digital systems solely developed for the internal management of the hotel include a single employee database, automatic online document-reading tools and an app for task management. This app enables coordination of different tasks across departments using mobile devices, improving task assignment and real-time supervision of housekeepers, maintenance workers and management departments. The design of the app has relied on the involvement of employees from different hotels, who proposed improvements and functionalities based on their experiences. The system also integrates with the guest app, allowing for the rapid resolution of any service requests or concerns raised by customers. The tool is considered to have improved communication and reduced workload.

For recruitment, an online recruitment platform has been developed, reducing paperwork and workload while allowing for better ongoing communication between candidates and the hotel.

In order to comply with a new law on the 37.5-hour working week, the company plans to introduce a new card-based time registration system. Worker representatives have expressed concerns about issues such as the exact location of the registration clocks, as most of the hotels are extensive and the distance from the entrances (or the changing rooms) to the registration clocks can be significant. This could lead to discrepancies between actual and registered work time. This issue will be monitored by the works councils at the workplace level.

Impact of the green transition

The approach to sustainability is being managed by the corporate social responsibility department, which was set up around 15 years ago. Both customer demand and public policy are seen to play key roles in driving company commitments and measures in this area. The sustainability strategy adopted emphasises the following.

Reduction in water usage. Related measures have been in place for over a decade and focus on the introduction of conservation and recycling systems. Initiatives include the installation of water-saving showerheads and taps, drip irrigation, dual-circuit water reuse systems and regular inspections to detect and prevent leaks and wastage.

These efforts led to a 10 % reduction in water usage between 2021 and 2023.

Minimised waste generation. Initiatives include the implementation of waste-sorting facilities, staff training on recycling and waste management, the reduction of plastic usage and the replacement of plastic containers with containers made from recycled or biodegradable materials. Specific measures have also targeted food waste reduction. The percentage of treated waste increased from 16.2 % in 2021 to 40.3 % in 2023.

Energy efficiency improvement and emission reduction. This involves a commitment to photovoltaic energy, with nearly 20 % of the hotels equipped for solar energy self-generation. Other measures include introducing low-consumption LED lighting, updating appliances and equipment and using automatic air-conditioning disconnection devices. As a result, energy usage declined by 17 % between 2021 and 2023.

Circular economy practices. As well as measures to increase the use of recycled materials, there have been efforts to convert organic waste into compost for farming. This supports the production of fruit and vegetables for the hotels, as well as biogas for electricity production.

2 Employment and company structures in the tourism sector

Key takeaways

- The tourism ecosystem discussed in this report contributes around 10 % to EU GDP and employs 10.3 million workers across over 2.1 million enterprises, 90 % of which are microenterprises.
- Food service activities dominate the tourism sector, employing 7.2 million people (70.1 % of total tourism employment), followed by accommodation with 2.3 million employees (22 %).
- Employment trends in the sector show a high sensitivity to economic trends alongside the significant employment losses triggered by the COVID-19 pandemic. Between 2010 and 2019, the sector added approximately 1.6 million jobs, with the vast majority (1.1 million) concentrated in the food service activities subsector.
- With the growth of the platform economy, the food service activities subsector continued to increase employment numbers throughout the pandemic, adding 248 000 jobs between 2019 and 2023. In contrast, during this time, all other tourism subsectors registered significant employment losses. As a result, employment growth between 2010 and 2023 was driven exclusively by the accommodation and food service activities subsectors. With a 22 % reduction in employment between 2019 and 2023, the travel agency subsector experienced the most significant collapse in employment and the lowest level of rebound, in part as a result of the increasing platformisation of travel bookings.
- Tourism employment exhibits substantial geographical concentration, with Spain, Germany, Italy and France together accounting for around 6.4 million jobs, or 61 % of total EU employment in the sector.
- Women represented 53 % of employment in 2023; accommodation and travel agency and tour operator activities are female-dominated subsectors, while air transport remains a male-dominated subsector. The food service activities subsector shows near gender parity at 50.9 % women.
- In 2023, 18.5 % of workers in the sector were aged 17–24 . The share of workers aged 55+ increased from around 10 % in 2010 to 16.7 % in 2023, reflecting broader demographic changes and more stringent early retirement rules.
- The share of self-employment is high in travel agency and tour operator activities and food service activities, with the share of self-employment being close to one in five in both sectors in 2023.
- The share of part-time employment in tourism increased from 26.0 % in 2010 to 28.9 % in 2023, mainly driven by food service activities. Air transport exhibited the lowest part-time employment rate, at 16.6 % in 2023.
- Approximately one in five tourism jobs remain on fixed-term contracts, reflecting the continued need for flexibility linked to seasonality in the sector.

Before assessing the impact of the green and digital transitions on employment and working conditions, this chapter provides an overview of key employment and business trends in the tourism sector, focusing on the parts of the ecosystem discussed in this report – namely, accommodation and food service activities (NACE I) and the travel agency subsector (NACE N79).

Business demography of the tourism sector

Tourism is a key economic sector in the EU, contributing approximately 10 % to EU GDP and employing 10.3 million workers as of 2023. In 2023, the industry comprised over 2.1 million enterprises across the four main subsectors, with the vast majority of enterprises (74 %) operating in the food service activities subsector.

The business landscape is overwhelmingly characterised by small-scale operations, with microenterprises (0–9 employees) representing approximately 90 % of all tourism businesses.

Table 2: Enterprise structure in the tourism sector, 2023, EU-27

Subsector	People employed per enterprise (average)	Number of enterprises	Share of enterprises (by enterprise size in people employed) (%)					
			0–1	2–9	10–19	20–49	50–249	250+
Air transport	46	6 582	75.2	14.5	3.0	3.2	2.4	1.5
Accommodation	6	435 409	58.7	30.9	5.4	3.4	1.5	0.2
Food service activities	6	1 554 194	35.6	53.5	7.5	2.7	0.6	0.1
Travel agency and tour operator activities	4	113 022	68.3	29.0	0.4	1.6	0.6	0.1

Source: Eurofound calculations based on the Structural Business Statistics Survey (sbs_sc_ovw).

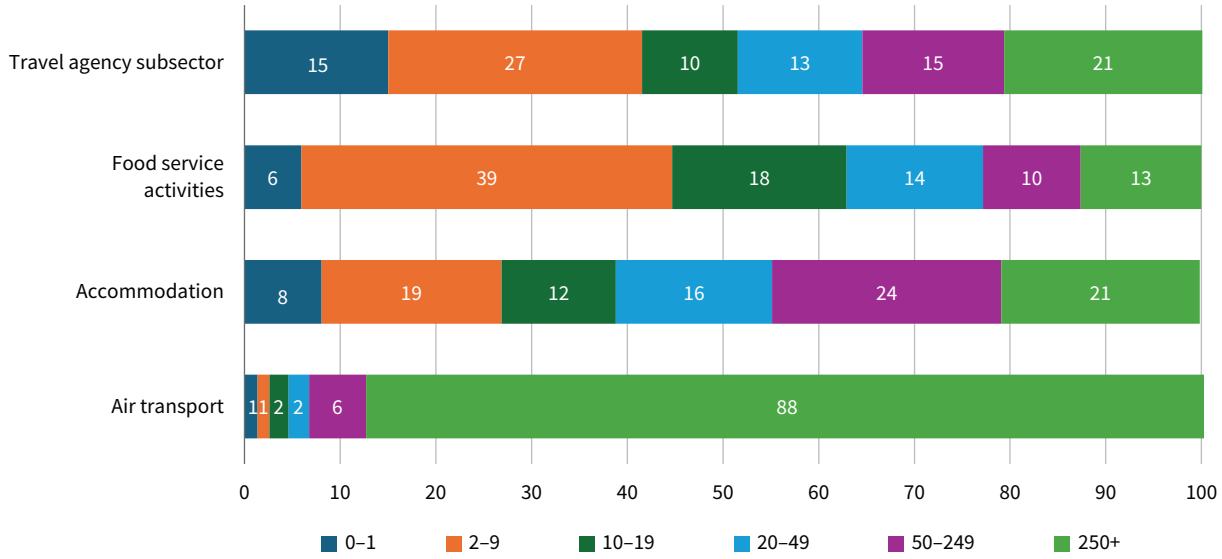
However, as Table 2 demonstrates, there are important differences between the four tourism subsectors. Food service activities represent the largest subsector, with 1.55 million enterprises in 2023, generating EUR 510 billion in turnover. The contribution to employment (Figure 1) from microenterprises is significantly higher in this subsector than in others: while 89.1 % of enterprises employ 0–9 people, they provide 44.7 % of all sector employment. Small enterprises (10–49 employees) alone account for 42.7 % of employment, while large enterprises (250+ employees) employ only 12.6 % of the workforce.

The accommodation subsector comprises 435 409 enterprises, with an average of 6 employees each, generating EUR 245 billion in turnover in 2023. While 89.6 % of enterprises are microbusinesses, they employ 26.9 % of the sector's workforce, indicating a moderate employment contribution from these establishments. The subsector has the most balanced employment distribution: small enterprises (10 - 49) employ 28.4 % of the workforce, medium-sized enterprises (50–249 employees) contribute 23.9 % and large enterprises (250+ employees) employ 20.7 % of workers (see Figure 1).

The travel agency subsector has the highest concentration of microenterprises, at 97.3 % among 113 022 enterprises, averaging 4 employees each. However, microenterprises employ only 27.2 % of the subsector's workforce. Medium-sized enterprises (50–249 employees) and large enterprises (250+ employees) represent less than 1.0 % of all businesses but employ 35.6 % of workers.

The air transport sector comprises 6 582 enterprises, with an average of 46 employees each, generating EUR 157 billion in turnover as of 2023. While 89.7 % of enterprises are microbusinesses (0–9 employees), these employ only 2.4 % of the sector's workforce. The employment distribution reveals an extreme concentration: large enterprises (250+ employees) represent just 1.5 % of businesses but employ 87 % of all air transport workers, demonstrating the capital-intensive, scale-dependent nature of aviation operations.

Figure 1: Share of employment by enterprise size in each tourism subsector, EU-27, 2023 (%)



Note: Values may not total 100 % due to rounding.
Source: Eurofound calculations based on the Structural Business Statistics Survey (sbs_sc_ovw).

Employment trends in the tourism sector

Food service activities dominate the tourism sector, employing 7.2 million people (70.1 % of total tourism employment), followed by accommodation with 2.3 million employees (22 %). Air transport and travel agency and tour operator activities represent smaller but important segments, with 371 000 and 448 000 employees, respectively.

Employment dynamics in the sector demonstrate its cyclical nature and the significant effects that the COVID-19 pandemic had on tourism employment. The employment trend data show the sector's typical boom-and-bust cycles alongside the significant employment losses triggered by the COVID-19 pandemic. Between 2010 and 2019, the sector added approximately 1.6 million jobs, with the vast majority (1.1 million) concentrated in the food service activities subsector. Positive employment growth was evident across all tourism subsectors, with net job creation of 411 600 in accommodation, 93 600 in travel agency and tour operator activities and 12 600 in air transport.

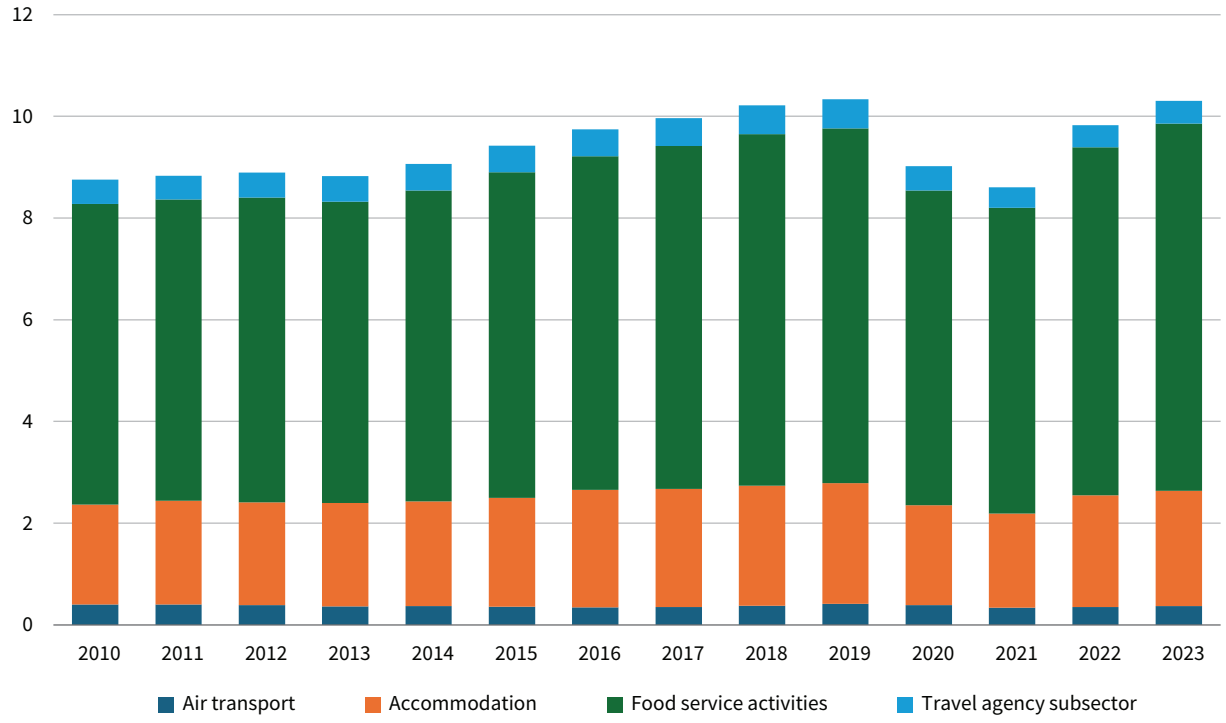
With the growth of the platform economy, the food service activities subsector continued to increase employment numbers throughout the pandemic, adding 248 000 jobs between 2019 and 2023. In contrast, amid travel bans and meeting restrictions, all other tourism subsectors registered significant employment losses: travel agency and tour operator activities lost 128 000 jobs, followed by accommodation with 108 000 job losses and air transport with 43 000 jobs losses.

As a result, employment growth between 2010 and 2023 was driven exclusively by the accommodation and food service activities subsectors. With a 22 % reduction in employment between 2019 and 2023, the travel agency subsector experienced the most significant collapse in employment and the lowest level of rebound, in part as a result of the increasing platformisation of travel bookings (Figure 2).

Employment by Member State and subsector

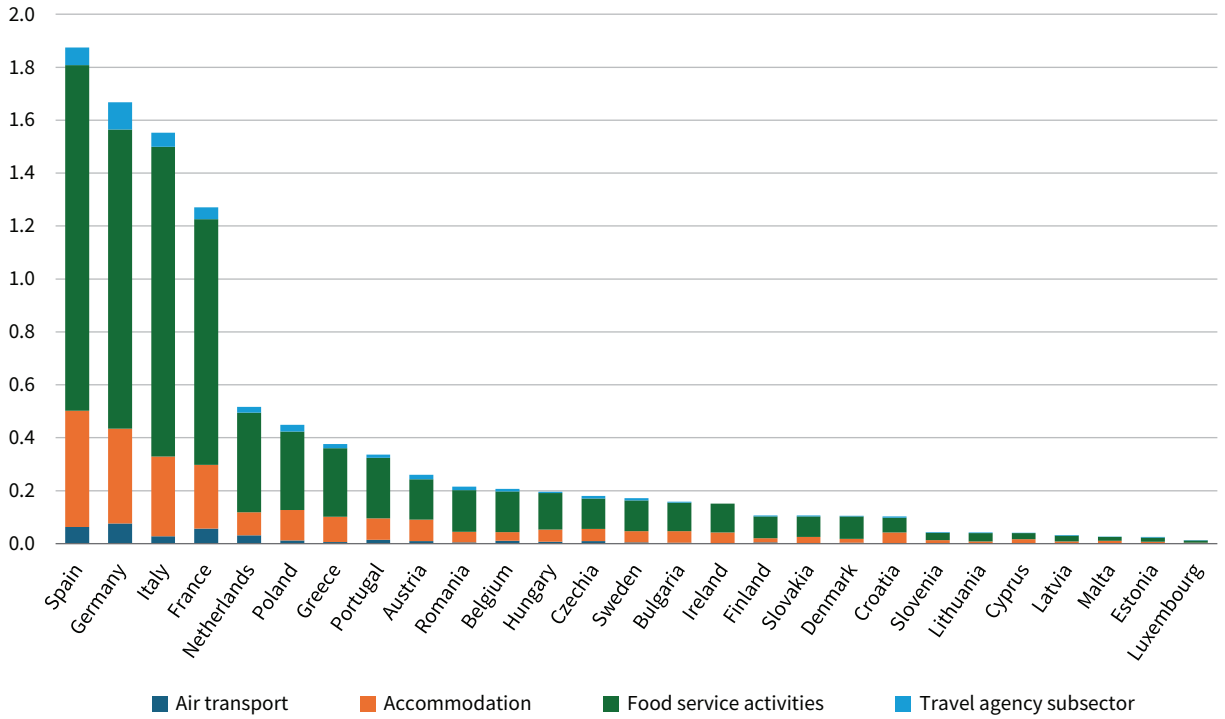
Tourism employment exhibits substantial geographical concentration, with Spain, Germany, Italy and France together accounting for around 6.4 million jobs, or 61 % of total EU employment in the sector (Figure 3). The intrasectoral breakdown also indicates different national specialisations. Specifically, in several smaller Member States, including Austria, Cyprus, Croatia, Malta and Slovenia, accommodation accounts for more than 30 % of employment in the broader tourism sector. In contrast, in Belgium, Denmark, Finland and Italy, food service activities account for 75 % or more of tourism employment. Taken together, air transport and travel agency and tour operator activities account for 10 % or more of tourism employment in eight Member States (Austria, Czechia, Germany, Latvia, Lithuania, Luxembourg, Malta and the Netherlands).

Figure 2: Employment in the tourism sector, EU-27, 2010–2023 (millions)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

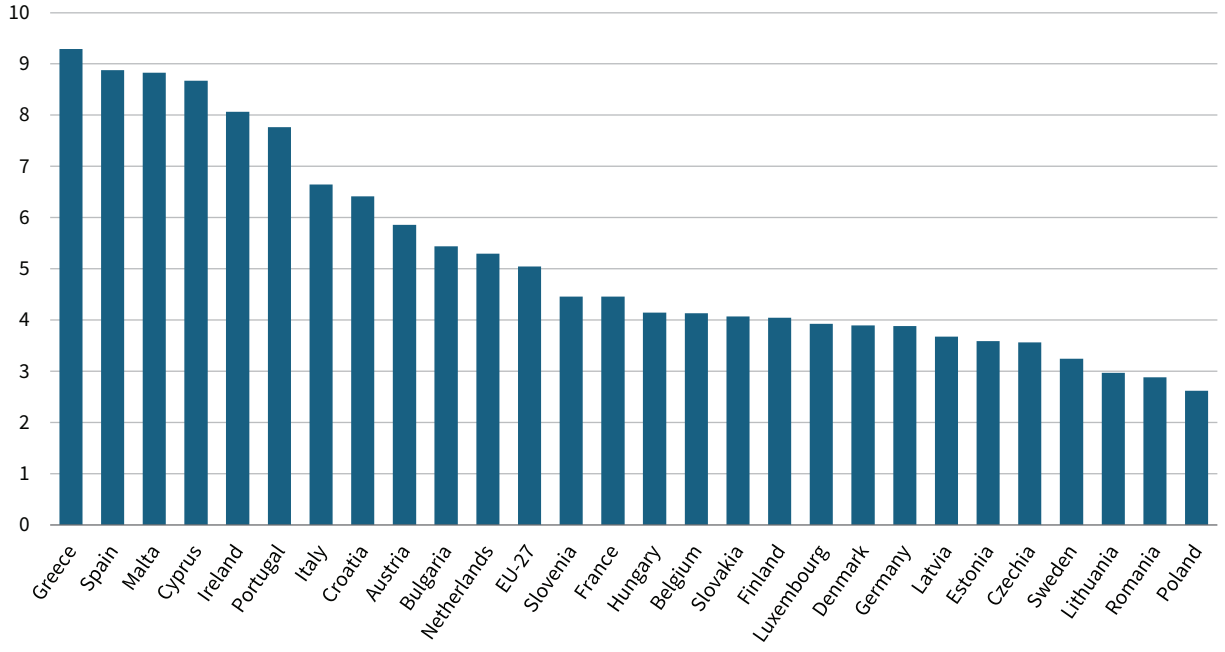
Figure 3: Employment in the tourism sector by Member State, 2023 (millions)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

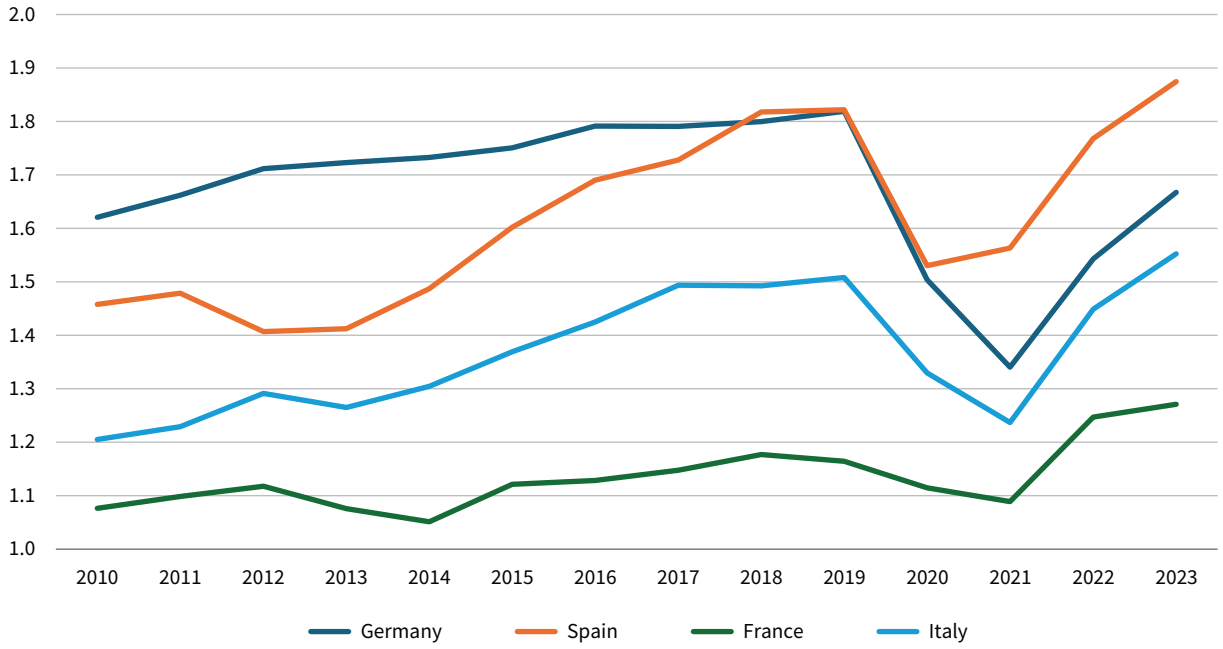
The relative importance of the sector for national economies also varies significantly in the EU. In Mediterranean and island countries, tourism represents more than 6 % of total employment (Figure 4). In Greece, Spain, Malta and Cyprus, almost 1 in 10 workers are employed in tourism. By contrast, in larger, more diversified economies such as Germany and France, tourism accounts for less than 5 % of total employment, despite employing substantial numbers of workers. The sector is also a marginal employer in Romania and Poland, where it employs fewer than 3 % of workers in the national economies.

Figure 4: Tourism as a share of total employment by Member State, 2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

Figure 5: Tourism employment in Member States where the sector employs more than 1 million people, 2010–2023 (millions)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

Trends in Member States where the sector employs more than 1 million people show the different employment trajectories that marked the sector after 2010.

Spain demonstrates the strongest pre-pandemic growth trajectory, with employment expanding from 1.46 million to 1.82 million tourism jobs between 2010 and 2019 (25 % increase; Figure 5). Following an initial dip in employment during 2012–2013, the Spanish tourism sector registered consistent year-over-year growth from 2014 until 2020.

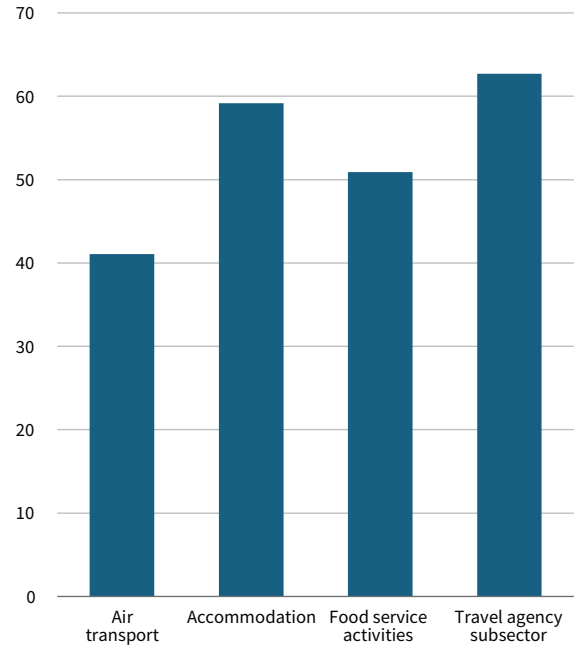
Italy registered a similar pattern of pre-pandemic employment growth, with strong performance between 2014 and 2017 and stagnating employment levels between 2017 and 2019. In contrast, the German tourism sector exhibited more modest and steady job growth during the pre-pandemic period, adding 200 000 jobs. Finally, employment in the French tourism sector was more volatile before 2015 and registered a relatively small level of growth between 2015 and 2018.

This heterogeneity was also mirrored in the employment effects of the COVID-19 pandemic, despite it creating severe disruptions in all four Member States. Between 2019 and 2021, Germany experienced the steepest decline in employment, with 2023 employment levels still 8 % below the 2019 levels. Spain and Italy also registered significant employment declines due to the pandemic. However, by 2023, employment levels in these Member States had rebounded and exceeded pre-pandemic levels. Employment in the French tourism sector also rebounded in the aftermath of the pandemic and registered significantly higher growth rates than in the pre-pandemic period.

Gender distribution of employment in the tourism sector

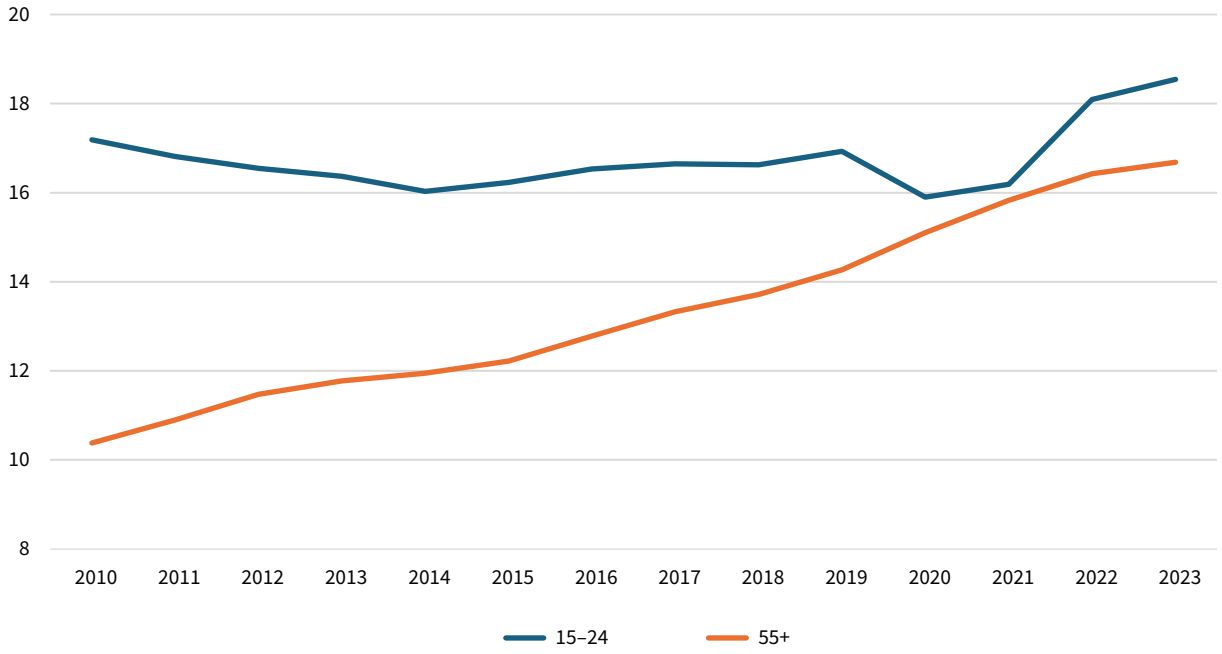
Employment in tourism is predominantly undertaken by women. Women represented 53 % of tourism employment in 2023 whereas, in the overall non-financial business economy, 36 % of people employed were women (Eurostat, 2024). Figure 6 shows significant

Figure 6: Shares of women in the tourism subsectors, EU-27, 2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

Figure 7: Shares of younger and older workers in the tourism sector, EU-27, 2010–2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

disparities in women's employment between tourism subsectors. Accommodation and travel agency and tour operator activities are female-dominated subsectors, with women representing 59.2 % and 62.7 % of employment, respectively, while air transport remains a male-dominated subsector, with women comprising only 41.1 % of workers. The food service activities subsector shows near gender parity at 50.9 % women, making it the most balanced subsector in terms of gender representation.

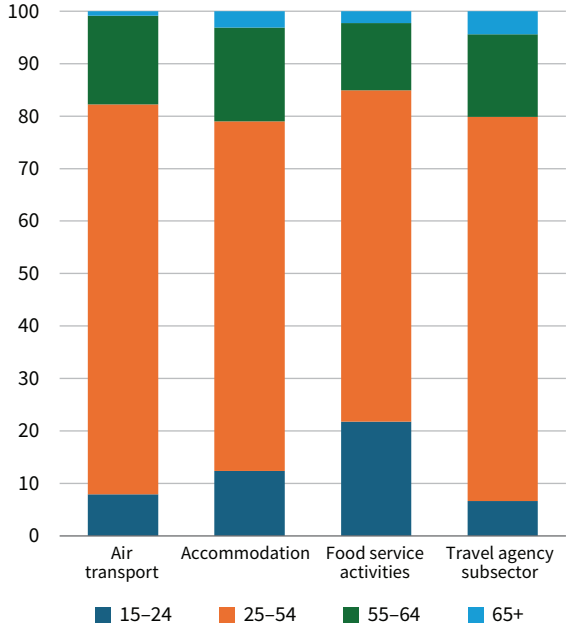
Age composition of the workforce

The tourism sector also serves as an important entry point into the labour market for younger workers. In 2023, 18.5 % of workers in the sector were aged 17–24. As Figure 7 demonstrates, prior to the COVID-19 pandemic, the share of younger workers in the sector had remained relatively stable, hovering around 17 % over 2010–2019. The pandemic caused a significant but temporary decline in the employment of younger workers, falling to 15.9 % in 2020 and recovering to 18.5 % in 2023.

However, the overall age composition of the workforce underwent a notable transformation between 2010 and 2023, with older workers gaining substantial representation while the share of prime-age workers diminished slightly. The share of workers aged 55+ steadily increased from around 10 % of the sector's labour force in 2010 to 16.7 % in 2023. It is also noteworthy that, unlike that of younger workers, the employment of older workers appears less sensitive to economic changes. This trend reflects broader demographic changes in European labour markets, including population ageing and more stringent early retirement rules aiming to keep workers in the labour market for longer (Eurofound, 2025), as well as the capacity of the tourism sector to accommodate the employment of older workers through flexible working conditions.

Figure 8 demonstrates that each of the tourism subsectors has a different age profile. Food service activities, the largest subsector in terms of employment,

Figure 8: Age profiles of tourism subsectors, EU-27, 2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

also has the largest share of younger workers (21.8 %), reflecting the subsector's role as a primary entry point for young people entering the workforce. This pattern aligns with the industry's relatively lower skills barriers, flexible scheduling options and part-time employment opportunities, which can suit students and entry-level workers (while at the same time also contributing to retention challenges). The subsector also has a substantial prime-age workforce (63.2 %) while employing fewer older workers (15.1 %). This suggests that many jobs in the subsector are of a transitory nature and tend to be physically demanding.

Air transport presents a markedly different age profile: only 7.9 % of youth employment are younger workers but 74.3 % are prime-age workers (25–54 years), indicating the different occupational profile and career pathways of the subsector.

Travel agency and tour operator activities display yet another pattern, with low youth employment (6.6 %) but high shares of prime-age (73.3 %) and older workers (20.1 %). This subsector also records the highest share of workers above the standard retirement age (4.4 %).

In the accommodation subsector, employment is also skewed towards the older workforce, with 21.0 % aged 55 or over. At the same time, the subsector also has a relatively large share of young people (12.4 %), indicating a mix of occupational profiles that include both entry-level jobs and specialised positions that require experience.

Self-employment in the sector

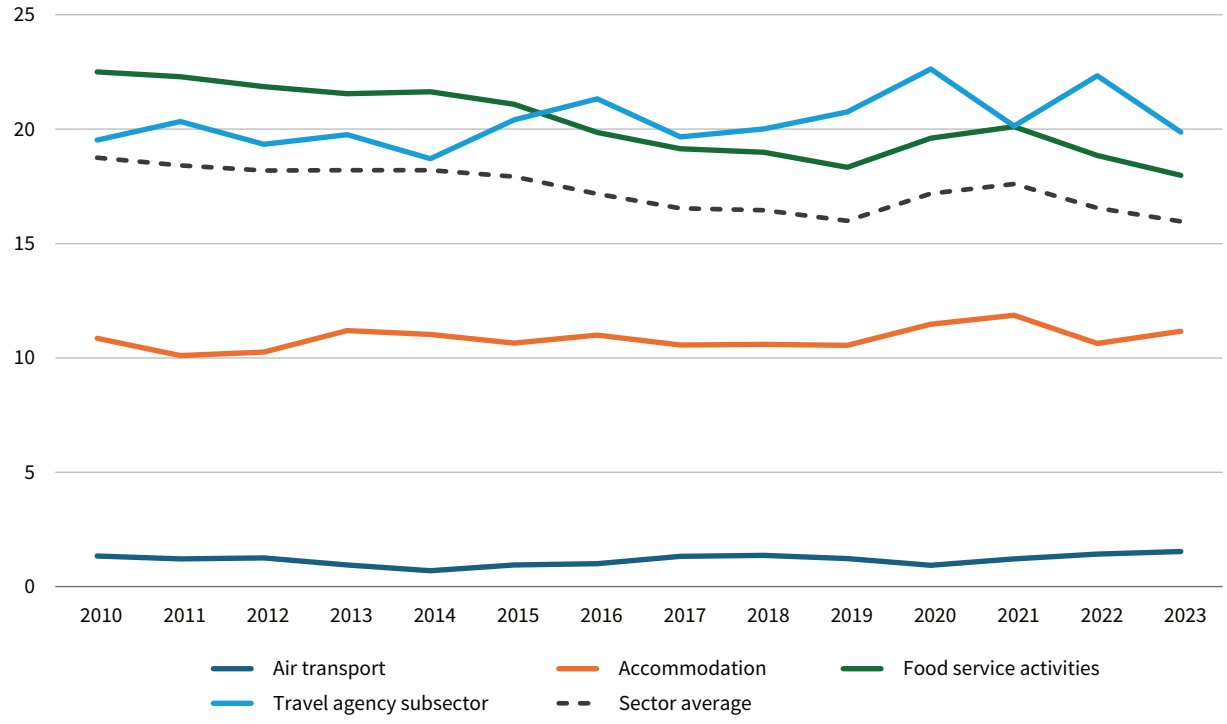
The share of self-employment varies considerably within the overall tourism sector. The two smaller subsectors, air transport and travel agency and tour operator activities, exhibit opposite trends in the prevalence of self-employment (Figure 9).

In air transport, self-employment is marginal, with 1.5 % of workers being self-employed in 2023. The marginal use of self-employed contracts reflects the highly regulated, capital-intensive nature of aviation, which requires larger establishments and formal employment relationships.

In contrast, travel agency and tour operator activities demonstrate the highest propensity for self-employment, with nearly one in five workers operating as independent contractors or business owners in 2023. This reflects the industry's development towards specialised or niche services, the roles of independent travel consultants and the relatively low capital requirements for establishing travel advisory services.

The share of self-employment is also high in food service activities: in 2023, it accounted for 18.0 % of the labour force in the subsector, representing 1.3 million self-employed individuals. It is also worth noting that the share of self-employment in food service activities declined from 22.5 % in 2010. In accommodation, the share of self-employment remained stable from 2010 to 2023, accounting for around 11 % of employment in the subsector throughout the period.

Figure 9: Share of self-employment in tourism subsectors and sector average, EU-27, 2010–2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

Contractual arrangements

In 2023, the share of part-time employment in tourism was significantly higher than in the overall non-financial business economy (Eurostat, 2024). The share of part-time employment in tourism increased from 26.0 % in 2010 to 28.9 % in 2023, a 2.9-percentage-point increase, which was mainly driven by growth in part-time employment in the food service activities subsector (Figure 10).

In 2023, almost one in three workers in the food service activities subsector worked on a part-time basis. Food service activities alone added 625 000 part-time contracts between 2010 and 2023.

In contrast, accommodation and travel agency and tour operator activities display minimal variation in their shares of part-time employment over time. In both subsectors, the share of part-time workers varied between 20 % and 22 % throughout the entire period.

Air transport exhibited the lowest part-time employment rate, at 16.6 % in 2023, with only 62 000 part-time workers among 371 000 total employees. This reflects the subsector's emphasis on full-time professional roles, its regulatory requirements and the technical nature of aviation work.

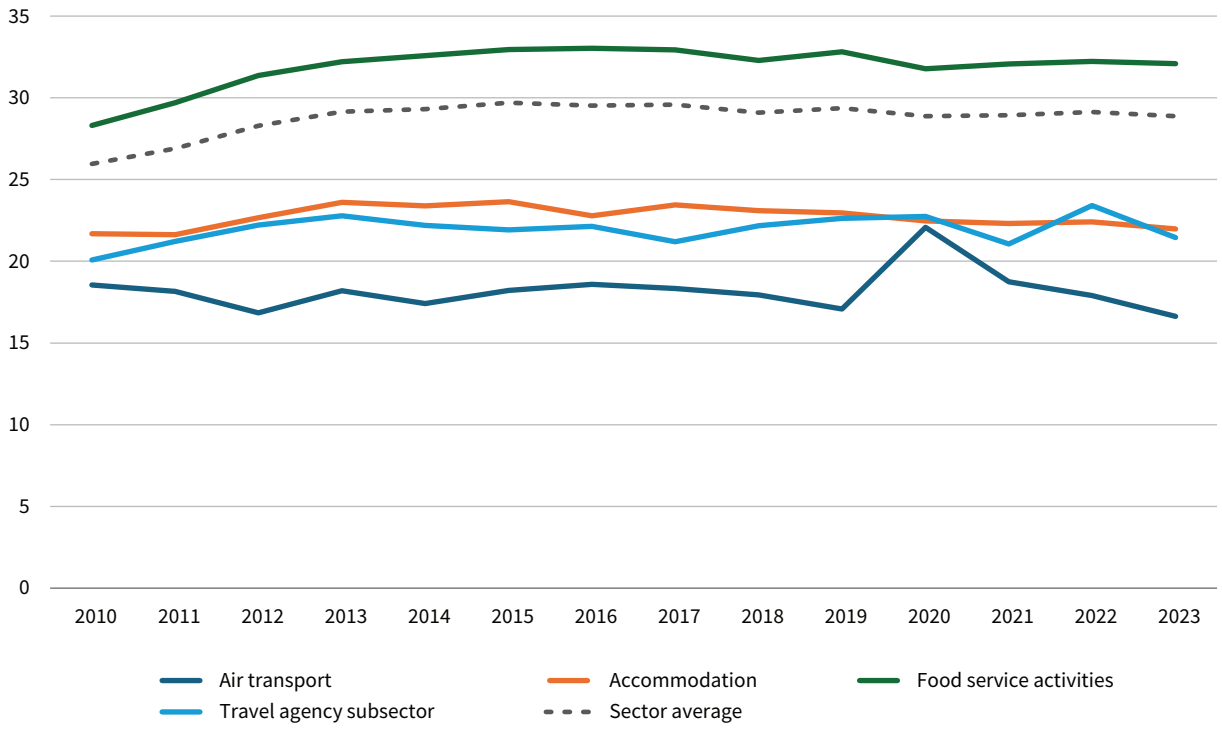
The data reveal that approximately one in five tourism jobs remain on fixed-term contracts, reflecting the sector's continued need for seasonal flexibility and temporary staffing arrangements (Figure 11).

The likelihood of occupying a temporary job is significantly higher in tourism than in the overall non-financial business economy (Eurostat, 2024), with large variations between Member States. In Greece, where the tourism sector employs almost 10 % of the labour force, more than 40 % of employment contracts were temporary in 2023.

While the share of temporary employment in tourism subsectors remained relatively stable before 2019, the COVID-19 pandemic generated significant employment losses for temporary workers, particularly in the accommodation subsector, which shed 375 000 temporary jobs in 2020.

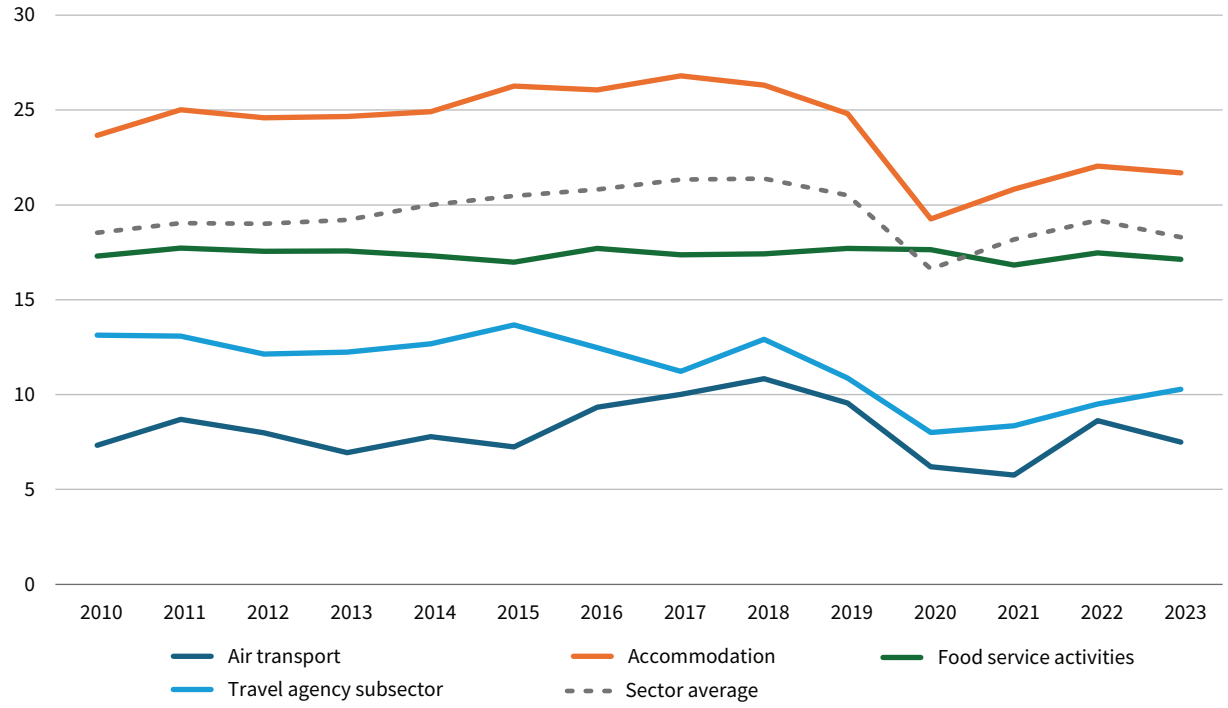
The post-pandemic recovery has not resulted in a return to pre-crisis patterns, suggesting that labour shortages may have limited the use of temporary contracts in the sector.

Figure 10: Share of part-time employment in tourism subsectors and sector average, EU-27, 2010–2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

Figure 11: Share of temporary employment in tourism subsectors and sector average, EU-27, 2010–2023 (%)



Source: Eurofound estimates based on Eurostat ad hoc data extractions.

3 Implications of the twin transitions for employment, skills and working conditions

Key takeaways

- The only data currently available that demonstrate an impact of the digital transformation on employment relate to the 22 % decline in jobs in the travel agency subsector (NACE 79), which can – at least in part – be attributed to the platformisation and concentration of booking services.
- The adoption of digital technologies in the sector has focussed on the use of platforms and technologies for the management and control of work processes. Big data-and AI-driven applications are beginning to emerge, often in the context of public–private partnerships due to high investment requirements. The high share of microenterprises in the sector contributes to limiting the use of many such technologies beyond the platformisation of intermediation.
- Although the direct impact of climate change on different regions is becoming evident, its effects on employment, working conditions and skills in the longer terms are complex and difficult to predict. Some countries have estimated, for example, the impact of rising temperatures on tourist arrivals, which will in turn having negative employment implications.
- Evidence from a large hotel chain in Spain shows that the twin transitions have been accompanied by organisational adjustments, new training initiatives and task shifts. While workloads have shifted in some areas, no significant reduction in jobs has been observed, and working conditions have remained broadly stable.
- The tourism sector continues to suffer from intense labour shortages among both skilled and unskilled workers, a trend aggravated by the pandemic. Shortages are particularly acute in lower-level jobs such as waiters, cooks, kitchen assistants and back-of-house staff.
- Demand for more specialised occupations linked to digital and sustainability management in the sector is emerging but tends to remain limited to large providers. General discussions on labour shortages still overshadow the topic of the green and digital transformations, despite the fact that these transformations could provide opportunities for upskilling and enhanced working conditions.
- Most Member States where tourism represents a significant share of GDP and employment have put in place strategies and plans to integrate training aimed at facilitating the digital and green transitions within the tourism workforce, but implementation is at a relatively early stage.
- EWCS data indicate contrasting trajectories in employer-funded training: the share of workers receiving such training increased markedly in accommodation services but grew only modestly in food service activities. The tourism sector lags behind other sectors in the use of informal training.
- Structural features of the tourism sector – the high concentration of small and microbusinesses, high levels of seasonality, low qualification levels, a high level of part-time work and a high share of migrant workers – act as barriers to training provision and participation.

This chapter discusses evidence regarding the impact of the green and digital transitions on employment in the tourism sector, with particular attention paid to labour shortages. It assesses any changes in occupational and skills requirements and presents available information on the impact of the twin transitions on working conditions in the sector.

Implications for employment

The only data currently available that demonstrate an impact of the digital transformation on employment relate to the 22 % decline in jobs in the travel agency subsector (NACE 79). This reduction can – at least in part – be attributed to the platformisation and concentration of such booking services.

Despite the rise in popularity of accommodation booking sites such as Airbnb and despite the anecdotal evidence at local level pointing to a detrimental impact on the hotel sector, employment in the overall accommodation subsector has risen over the past decade. The same is true for the wider accommodation and food service sector and the air transport subsector, which have recovered from the impact of the COVID-19 pandemic, registering higher levels of employment than a decade ago.

Beyond these observations, there is a dearth of data and research on the current and likely future impact of the green and digital transitions on overall employment levels in the tourism sector. Measuring the implications of the digital transition for employment is particularly challenging because, although digital applications are increasingly used in hotels, other accommodation and restaurants, their use remains relatively limited in a sector dominated by small and microcompanies. Moreover, other big-data- and AI-driven applications remain in a state of development in the sector, often in the context of public–private partnerships due to the amount of investment and coordination needed. Their impact on employment therefore remains difficult to assess, as it is affected by aspects beyond the core tourism sector.

In relation to green and sustainable tourism and the implications of climate change, it is too early to assess their effects on employment. Changes in this area are particularly complex – for example, a potential shortening of winter seasons due to global warming could contribute to extended summer tourism, while more frequent and extreme heatwaves might reduce tourism flows in peak summer periods as tourists choose other regions or times of the year. This outcome will depend on the quality of the tourism strategies implemented.

As an example, in Spain, where 81 out of the top 100 national tourist destinations (measured by accommodation capacity) are coastal destinations, it is estimated that a 3°C rise in temperature could reduce tourist demand in the summer months by 10 % or by 15 % if July and August temperatures were to rise by 4°C (Matei et al., 2023). These developments would have significant implications for employment, particularly during peak holiday seasons, on which many hospitality businesses rely. Such reductions in tourist arrivals would clearly affect employment in the sector. Based on data from 2000 to 2018, it is estimated that every 1 000 additional tourist arrivals are associated with 20 additional jobs in affected EU regions. In reverse, it could be assumed that a 10 % fall in tourist arrivals could lead to a 0.9 % reduction in employment (Marques Santos et al., 2020).

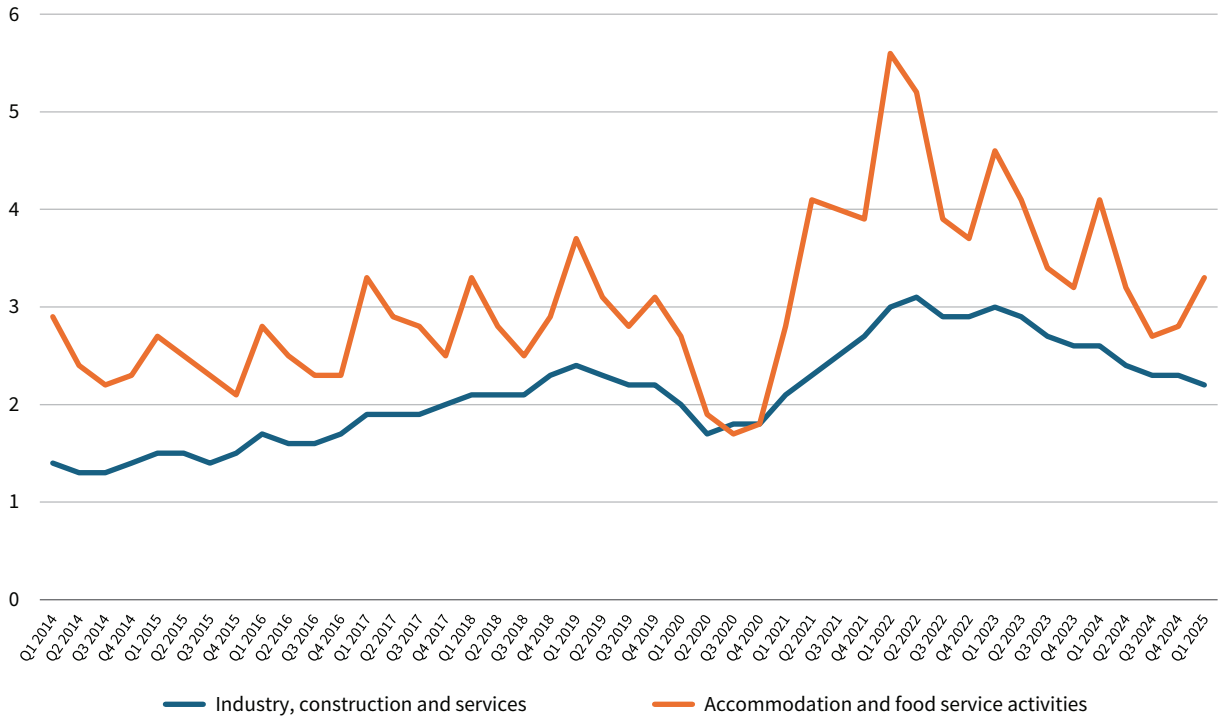
Another relevant consideration when investigating the relationship between the twin transitions and employment is the persistent impact of the COVID-19 pandemic on the tourism sector. Although activity has recently recovered to pre-pandemic levels in most Member States, the sector continues to suffer from intense labour shortages among both skilled and unskilled workers. These shortages, which predate the pandemic, were aggravated by the health crisis.

The reasons for the insufficient labour supply are multifaceted. Apart from the perception of challenging working conditions in the sector, another factor, accelerated by the health crisis, is the desire for working arrangements that make remote work possible. The perception of the sector is influenced by the higher visibility of service employment in cafes, bars and restaurants (some of which are only partly linked to the tourism sector), with less attention paid to higher-skilled roles in hotel and tourism flow management and infrastructure.

Additional reported structural factors that further aggravate labour shortages include an ageing population, with implications for replacement demand and outward mobility, mainly among young people, in some Member States.

Figure 12 highlights both the seasonality of employment demand in the sector and the substantial impact of the pandemic in 2020 and 2021, followed by a spike in job vacancy rates in early 2022.

Figure 12: Job vacancy rates in the EU hotels, restaurants and cafes (Horeca) sector and the whole economy by quarter, 2014–2025 (%)



Note: Q, quarter.
Source: Eurostat indicator jvs_q_nace2, accessed May 2025.

A number of occupations in the tourism sector regularly appear among those experiencing the greatest shortages, as reported by the European employment services (European Labour Authority, 2024). Waiters, cooks and chefs regularly appear among these occupations, a finding reflected in national-level data.

According to a survey by the French Public Employment Service (France Travail, 2024), 3 of the top 10 occupations with shortages are related to tourism: waiters in cafes and restaurants, kitchen assistants and cooks. Occupations related to accommodation services rank close behind, coming in 11th place. Similarly, in Italy, according to employers surveyed, there is high worker demand and significant recruitment challenges in the restaurant and hospitality sector (58.2 %) and among receptionists and customer information workers (32.5 %; Crilda, 2024). According to the Malta Employers' Association, labour shortages are particularly acute in lower-level jobs, such as back-of-house staff, kitchen helpers and food and beverage servers. This observation is mirrored by the Spanish Public Employment Service, which finds the most acute shortages among lower-skilled canteen and kitchen staff (SEPE, 2023).

A shortage of candidates for apprenticeship schools within formal education systems was also reported in the years immediately following the pandemic. Although this trend predates the pandemic, the last two years (2024 and 2025) have seen a worsening of the problem, with a large number of vacancies in traditional tourism and hospitality studies. This is the case in Austria, where tourism has consistently recorded an above-average surplus of apprenticeship placements for the number of applicants, compared with other sectors. The establishment of a specific apprenticeship for vegetarian and vegan cooks was designed to attract young people motivated by ethical considerations.

Overall, it appears that the scale of demand for more specialised occupations, including those related to digital and sustainability management and implementation skills, remains limited and these do not yet feature among the key occupations with shortages in the sector. However, this does not imply that there are no recruitment challenges for such skills.

In public debate, the scale of existing labour shortages in the tourism sector tends to overshadow discussions about the effects of the digital transformation or environmental demands in the workplace. For employers, employer organisations and collective bargaining, the immediate focus is on alleviating current challenges rather than preparing for future needs.

Furthermore, anecdotal evidence from a case study of a large Spanish hotel chain – which will be discussed in more detail in Box 5 – shows that, while digitalisation and the implementation of sustainability practices are leading to some task shifts and increased requirements for information and communications technology (ICT)

staff and new digital and green skills, there is no evidence of job elimination. Where new skills are needed, training tends to be provided in-house. In the case study hotel, emerging skills needs have led to the design of a new in-house apprenticeship and vocational training courses to meet specific requirements that are perceived to be underserved in current education and training provision.

New and increasing skills requirements linked to the twin transitions in the tourism sector are discussed in more detail in the next section.

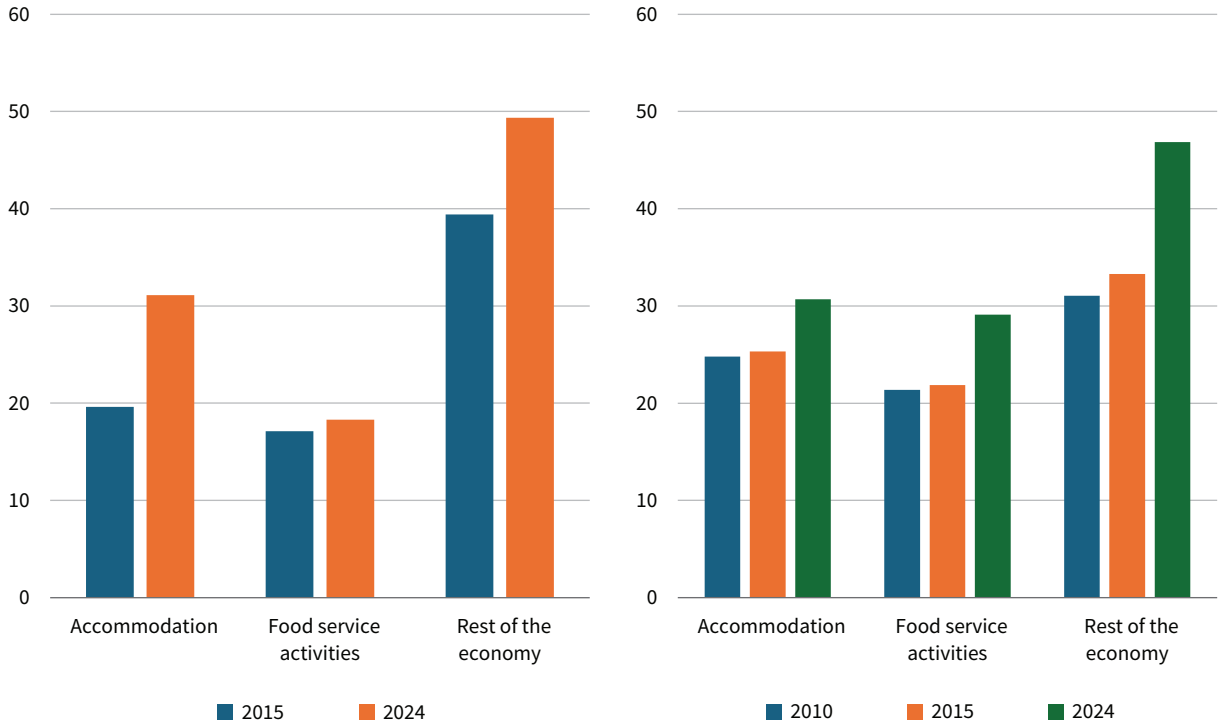
Emerging skills requirements and their impact on training

Research on emerging skills requirements in the tourism sector linked to the green and digital transitions and their impact on training remains scant. Research from Cedefop (2020) and the Pact for Next Generation Tourism Skills (Pantour) seeks to contribute to this area. Existing estimates tend to be very generalised, with government projections within the frameworks of approved strategies and roadmaps providing some information, especially when designing plans and actions for the training of workers.

EWCS data indicated contrasting trajectories in employer-funded training from 2015 to 2024 in the tourism sector. In accommodation services, the share of workers receiving employer-funded training increased from 19.6 % to 31.1 %, an 11.5-percentage-point increase over the nine-year period. In contrast, training in food service activities remained far below the average levels in the economy and grew only modestly from 17.1 % to 18.3 %. This suggests persistent underinvestment in formal skills development despite changing economic conditions.

The tourism sector also lags behind other sectors in the use of informal training. As Figure 13 indicates, although the share of workers receiving informal training has risen in both accommodation and food service activities, both subsectors fail to match the broader labour market trends in the use of informal training.

Figure 13: Shares of workers who received training paid for by their employer (left panel; 2015 and 2024) and shares of workers who received training on the job (right panel; 2010, 2015 and 2024) in tourism subsectors and the rest of the economy, EU-27 (%)



Source: Eurofound calculations based on EWCS 2010, 2015 and 2024.

Skills requirements in the digital sphere

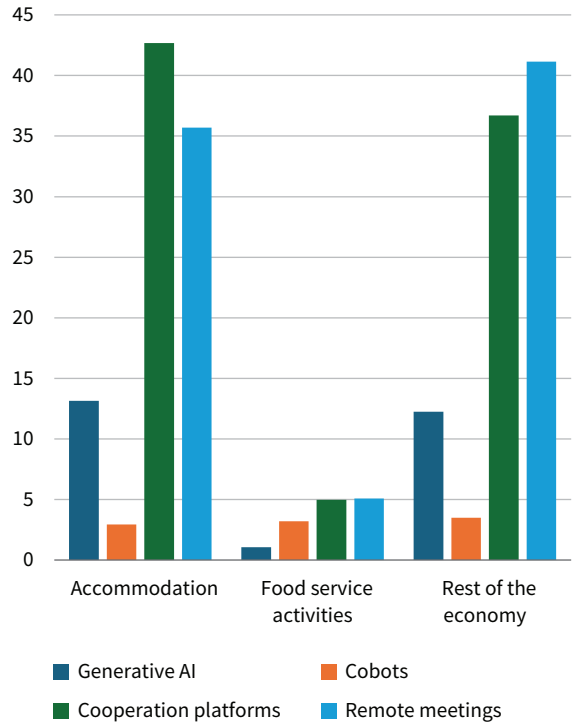
There is a general assumption that most workers will become acquainted with the use of digital and AI tools and will, to a certain extent, be involved in greater recycling and waste management activities. Beyond that, in terms of more specialised professions and skills linked to the digital transition, the following have been highlighted (OECD, 2021, 2024; Pantour, 2024).

- **Digital marketing experts.** A greater shift towards online promotion and the use of social media creates demands for this expertise.
- **Software developers and web designers.** Tourism companies and providers will need to develop or improve their online platforms, create mobile apps and user-friendly websites to promote their offers and manage bookings in order to remain competitive.
- **Data scientists.** Data analytics plays an increasingly important role in the tourism industry, helping businesses to understand customer behaviour, optimise marketing strategies and improve the customer experience.
- **Cybersecurity experts.** As online transactions in the tourism industry grow, so does the risk of cybersecurity breaches. Tourism businesses may need cybersecurity experts to protect sensitive customer data and prevent cyberattacks.
- **Experts in AI and IoT applications.** These professionals support data analytics to allow for the more sustainable management of resources.
- **Experts in the planning and implementation of AR and VR applications.** Demand is growing for such applications in the marketing and presentation of tourism locations and specific cultural sites and destinations.

Technology adoption varies greatly among tourism subsectors (Figure 14). Accommodation workers report significant usage of cooperation platforms (42.7 %) and remote meetings (35.7 %), along with moderate adoption of generative AI (13.1 %) and minimal use of collaborative robots (cobots) (2.9 %).

In contrast, food service activities show dramatically lower technology adoption across all categories: cooperation platforms (5.0 %), remote meetings (5.1 %), generative AI (1.1 %) and cobots (3.2 %).

Figure 14: Use of digital technologies in tourism subsectors and the rest of the economy, EU-27 (%)



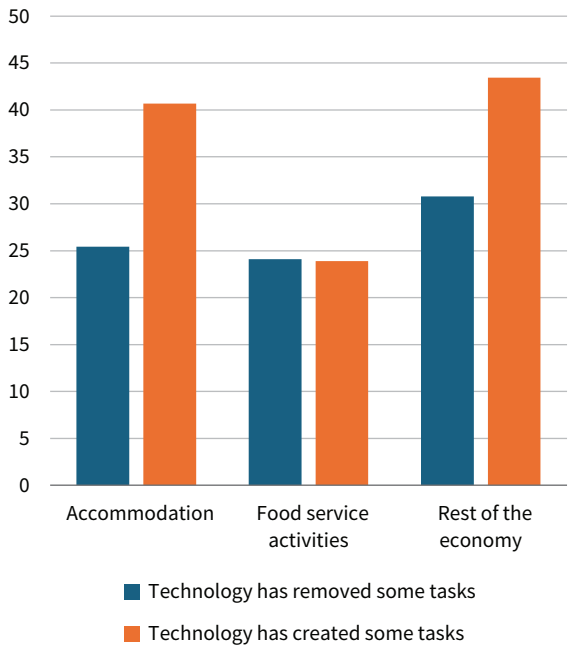
Source: Eurofound calculations based on EWCS 2024.

These different patterns reflect the varying operational models and customer service requirements across tourism subsectors. In the accommodation subsector, the higher level of integration of technology and, particularly, of communication tools is driven by guest services.

The perceived impact of digital technologies on tasks varies between tourism subsectors (Figure 15). In accommodation services, 40.7 % of workers report that technologies have created new tasks, while only 25.4 % report task removal – a positive net impact of + 15.3 percentage points. This is in line with trends in other parts of the economy and suggests that technologies are used to complement, rather than replace, work.

Food service activities show a markedly different pattern, with 23.9 % of workers reporting that technology has created tasks and 24.1 % reporting task removal, resulting in a nearly neutral net impact (– 0.2 percentage points). This suggests that, in food service activities, technology focuses primarily on efficiency enhancement, with the automation of routine tasks roughly balanced by the creation of new operational or service responsibilities.

Figure 15: Perceived impact of technologies on tasks in tourism subsectors and the rest of the economy, EU-27 (%)



Source: Eurofound calculations based on EWCS 2024.

EWCS data on skills-matching trends in the tourism industry reveal similar patterns across accommodation and food service industries. In both subsectors, most workers reported that their skills corresponded well with duties (Figure 16).

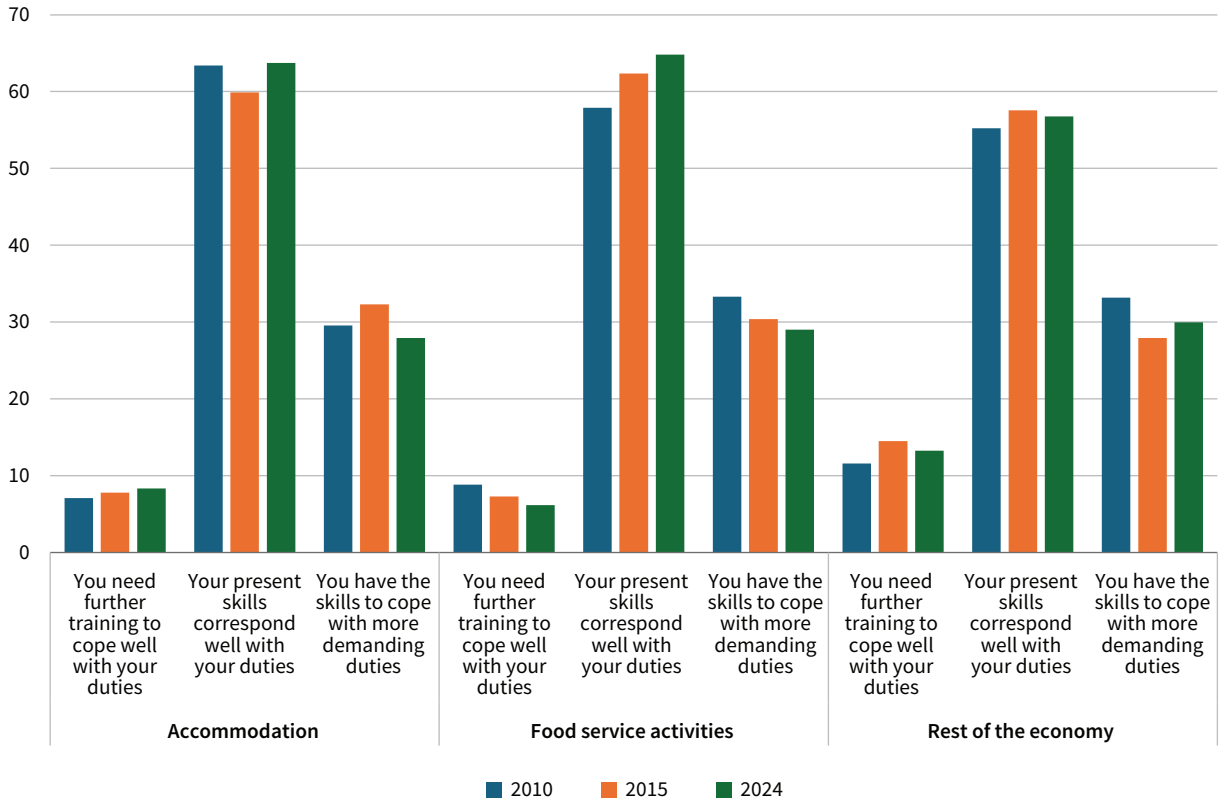
The improvement in this indicator was larger in food service activities, which is surprising given that workers in that subsector reported the lowest levels of formal and informal training. At the same time, in both subsectors, the share of workers who reported needing further training to cope with their duties was relatively small, with training needs rising in accommodation and declining in food service activities.

Furthermore, the scale of underutilised resources was similar in the two subsectors and in line with the rest of the labour market: around one in three workers reported having the skills to cope with more demanding duties.

Sustainability profiles

While some of these profiles are also relevant to the green transition in the sector (for example, big data analytics should contribute to more sustainable tourist flow management and IoT applications should contribute to energy conservation and waste management), a number of additional profiles are likely

Figure 16: Skills matching in tourism subsectors and the rest of the economy, EU-27, 2010, 2015 and 2024 (%)



Source: Eurofound calculations based on EWCS 2010, 2015 and 2024.

to become increasingly relevant in the sector (UGT, 2021; Fundación Biodiversidad, 2023; Pantour, 2024):

- water managers
- energy efficiency experts
- experts in recycling and waste management
- professionals in corporate social responsibility reporting
- biodiversity managers
- specialist tour guides with a focus on the natural environment
- those trained in the marketing of eco-tourism activities.

Implications for training provision and national training strategies

Most Member States where tourism represents a significant share of GDP and employment have put in place strategies and plans to integrate training aimed at facilitating the digital and green transitions within the tourism workforce. In some Member States, specific funding is provided via the Recovery and Resilience Facility. However, limited information is currently available on the precise nature and scale of the training offered under these plans, and outcome evaluations are not yet available.

Other initiatives and programmes to reskill workers in the sector are more difficult to identify, as they are part of broader schemes targeting all sectors. Many of these general programmes are co-financed by the Recovery and Resilience Facility or other EU funding sources. Overall, social partner indications suggest that the planning and implementation of skilling, reskilling and upskilling measures for future requirements related to the digital and green transitions are at a relatively early stage.

In Austria, one pillar of the January 2024 action plan for the masterplan for tourism (Plan T) is 'Making training and the labour market fit for the future'. This aims to highlight the attractive career opportunities in the tourism sector (Federal Ministry of Labour and Economy, 2024).

In 2023, the Ministry of Tourism of Greece published a report on the digital skills of employees in Greek tourism businesses (Ministry of Tourism of Greece, 2021). The research revealed a significant lack of information and knowledge regarding the digital skills of employees in Greek tourism businesses. Through its operational programme 'Human resources development, education and lifelong learning' (using funds from the European Social Fund), the ministry is implementing a continuous vocational training programme for self-employed individuals, seasonal workers and entrepreneurs employed in tourism businesses, with a total budget of EUR 4.5 million.

In Croatia, numerous education, training and skills programmes for the tourism sector are provided by various public and private educational institutions and funded by different sources, including the Croatian Employment Services, various hotel chains and tourism associations. There are 17 vocational schools specialised in tourism and hospitality education, with a further 74 schools offering some form of tourism and hospitality programme. At the tertiary level, around 2 000 students enrol each year at the 15 universities and colleges offering tourism programmes. The Faculty of Economics, Business and Tourism of the University of Split has implemented the project 'Career for green, digital and sustainable tourism', while the Faculty of Tourism and Hospitality Management Opatija at the University of Rijeka has launched an online study programme 'Sustainable tourism development'.

In Italy, the national strategic AI programme for 2022–2024 provides programmes for 11 sectors, including tourism. Italy is also targeting actions under the European tourism skills pact. These skills include the creation of national/regional skills clusters and the upskilling and reskilling of 10 % of the tourism workforce by 2030, with a focus on green and digital skills. In addition, the programme also provides for annual reviews and updates of skills demands, along with the real-time detection of skills shortages through data mining and cooperation between public and private employment services.

In Germany, the TUI Group, the Works Council and management have concluded an agreement on securing the future through workforce qualification. Based on the agreement, TUI is making EUR 3 million available for the qualification of employees to prepare them for future requirements by providing them with appropriate skills. Furthermore, a group-level works council agreement will be introduced on the use of 'qualification guides', which help employees determine their qualification needs and opportunities.

In Spain, future training needs have been identified in the digital area and include training in data analytics, online marketing, AI and cybersecurity. In the area of sustainability, further training is needed on carbon footprint and water footprint measurement and the circular economy, among other things (SEPE, 2023). To fill these gaps, the Spanish public employment service has launched initiatives to train workers in the hospitality and tourism sectors, within the framework of the Recovery and Resilience Facility.

In Malta, the digital strategic roadmap for tourism in the Maltese Islands for 2030 states that technical professionals must enhance their skills to develop and implement the innovative solutions required to strengthen tourist attraction to Malta. The roadmap therefore emphasises the importance of collaboration between key institutions – including the Institute for

Tourism Studies (ITS), the Institute for Tourism, Travel and Culture at the University of Malta, the Malta College of Art, Science and Technology, the eSkills Foundation Malta, industry stakeholders and other educational and vocational training institutions – to develop employee training programmes that equip the tourism workforce with digital skills. As an example, in February 2023, the ITS launched the ITS Training School to provide training programmes and short courses to current and prospective workers within the hospitality and tourism industries.

In Portugal, the national recovery and resilience plan provides for the creation of two interlinked training programmes that use innovative approaches to bridge gaps in the digital skills of workers (employees and entrepreneurs) and companies. One of these programmes, the upgrade 3.0 programme, is aimed at professionals in small and microcompanies in the tourism sector. It helps professionals acquire new knowledge and develop new skills, which will enable them to structure their businesses using new value propositions that are more sustainable and capable of responding to the future demands of the sector. Where possible, it will also contribute to increasing the level of qualification of professionals.

Barriers to training

The promotion of training and reskilling is a central pillar of the strategies to professionalise and enhance the attractiveness of the sector in the context of labour shortages. It also plays a pivotal role in addressing the challenges of the twin transitions in tourism activities. However, there are a number of factors intrinsic to the sector that can act as barriers to training provision. These relate to the nature of the tourism sector and its seasonality, the structure of businesses and the nature of the tourism workforce.

The high concentration of small and microbusinesses means that it is more challenging for companies to deliver training. Challenges include low staffing numbers, the difficulty in making workers free to attend training, the absence of dedicated human resources departments to identify training needs and greater financial and practical difficulties in sourcing relevant training.

High levels of seasonality also limit training participation. During peak season, the time available for training is limited; during low seasons, many workers move to different occupations or regions, while reduced staffing levels can also limit the possibility of pursuing training during working hours.

Many employees in the hospitality subsector have low levels of qualifications, come from other sectors and perceive their occupation as temporary or as an entry point into the labour market. Since low-skilled workers have been shown to have more limited access to training, this provides a further barrier and the level of motivation for any upskilling might be limited if the occupation or sector is not perceived to be a longer-term prospect for the worker. Part-time work is also more common among the hospitality workforce, which again makes these workers less likely to have access to training opportunities.

In addition, the share of migrant workers is high, with a high level of workforce turnover. Language barriers and a lack of language skills may also limit participation in training. Employers are likely to be more reluctant to invest in training a more transient workforce, while such workers may be less likely to be open to training offers.

Impact of the twin transitions on working conditions

Research and evidence on the implications of the twin transitions for working conditions in the tourism sector are scarce. As discussed, this is partly due to the comparatively slow implementation of significant digital innovations across a sector dominated by small and microcompanies. In terms of job quality, it is generally acknowledged that working conditions in the accommodation and hospitality industries are demanding.

The following are some of the most commonly cited features of the working conditions in the industry, with most aspects unlikely to change as a result of the green and digital transitions. Many tourism businesses operate on a 24-hour basis, requiring shift and night work, which, while suitable for some workers, can pose challenges for others. The sector demands considerable flexibility regarding shift patterns, which often requires negotiations between employers and employees, but offers limited possibilities for remote work. Employment patterns are highly seasonal, and workers experience stress related to the high levels of consumer demand, particularly during peak season, and from some physically demanding tasks.

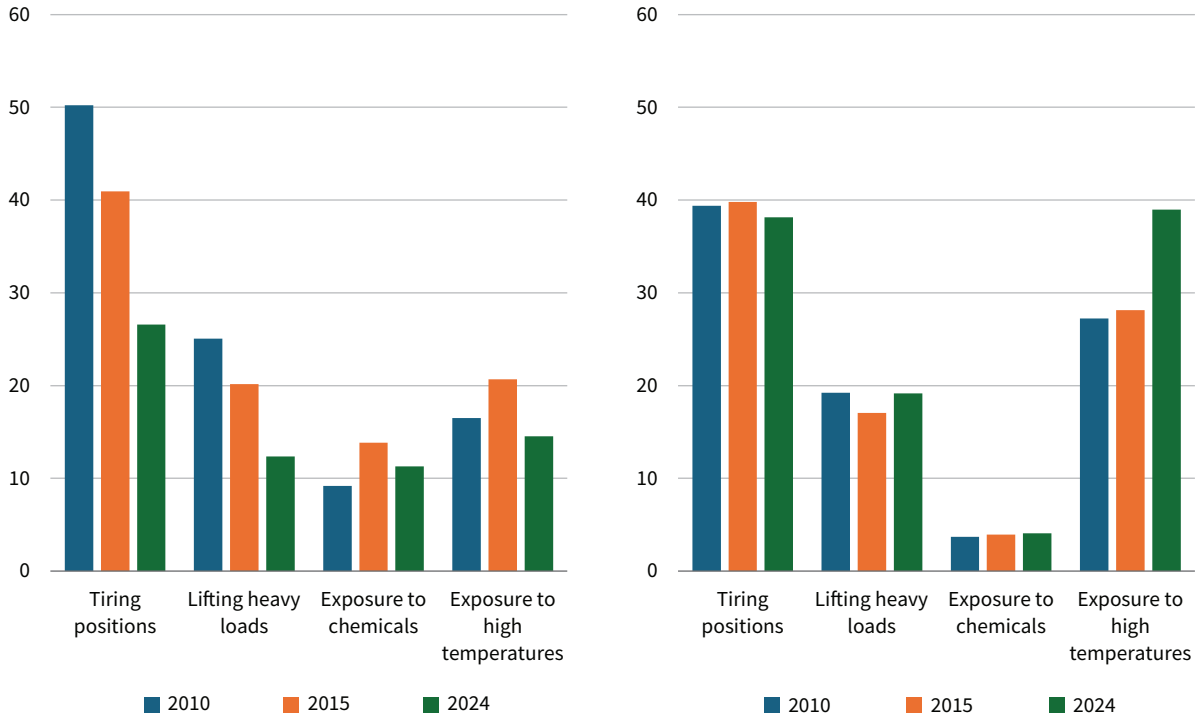
As the need for more technical profiles increases with digitalisation and greening, more high-skilled, office-based profiles may emerge, particularly among larger providers. This could contribute to a growing divide in wages and working conditions between more customer-facing workers and those in these higher-skilled roles.

Climate change itself is considered likely to have implications for working conditions in the sector, as working in heat becomes more prevalent and workers are more likely to have to deal with emergencies arising from adverse weather conditions. Moreover, climatic shifts could also lead to changes in the seasonality of certain destinations, potentially affecting aspects such as contract duration.

EWCS data indicate a substantial improvement in health and safety, particularly in the accommodation subsector (Figure 17). The share of workers experiencing tiring positions in this subsector declined substantially from 50.2 % to 26.6 % – a 47 % relative reduction, representing the most significant safety improvement in any tourism subsector. Exposure to tasks involving heavy lifting also decreased substantially from 25.1 % to 12.4 %, while exposure to high temperatures declined from 16.5 % to 14.5 %). However, exposure to chemicals increased from 9.2 % to 11.3 %, indicating emerging safety challenges.

In contrast, food service activities exhibit more limited improvements in physical working conditions, with mixed trends across the different hazard categories. The share of workers reporting working in tiring positions showed a modest decline from 39.4 % to 38.1 % (a 3 % relative improvement), while the share reporting heavy lifting remained unchanged. Reported exposure to chemicals increased slightly from 3.7 % to 4.1 % (an 11 % relative increase), while exposure to high temperatures increased substantially, rising dramatically from 27.2 % to 39.0 % – a 43 % relative increase, representing the most concerning trend in tourism occupational health and safety.

Figure 17: Shares of workers exposed to occupational health and safety risks in accommodation (left panel) and food service activities (right panel), EU-27, 2010, 2015 and 2024 (%)



Source: Eurofound calculations based on EWCS 2010, 2015 and 2024.

Box 5: Implications at the employer level: findings from a large hotel chain in Spain

Since research and data on the impact of the twin transitions on working conditions remain scarce, case studies at the workplace level are a useful way of establishing the types of changes taking place on the ground. As all indications are that larger providers are more likely to engage in wider-scale sustainability measures and to exploit the efficiency benefits of digital applications, looking at a larger hotel chain is therefore of particular interest. Box 4 outlined the measures taken by the hotel in relation to the twin transitions. The following implications were reported at the organisational level with regard to shifting job tasks, working conditions (including the physical and social environment), new skills demands and training provision.

Organisational impacts at the employer level

The process of adapting to the green and digital transitions has been accompanied by a series of organisational adjustments. At the management level, a consultative body – the Sustainability Committee – has been created to lead the design, implementation and monitoring of the company's sustainability strategies. The committee is the organisation's first cross-functional structure, with the participation of all business areas and the direct

involvement of senior management. Its objective is to define and promote a common strategy in an area that affects all parts of the business. Although consultative in nature, its ability to submit proposals directly to the Management Committee demonstrates the company's commitment to positioning sustainability as a management priority for both business areas and the company as a whole.

At the level of business departments, the need to have the capabilities and skills necessary for the transition to greener and more digital practices is largely the reason why a dedicated training department was created in 2019. One of the department's key initiatives has been the implementation of dual vocational education and training courses, launched in 2022, designed to bring on board additional talent in the area of digital development. The initiative responded to the need to incorporate web designers and other IT profiles and the difficulty of finding workers to fill those profiles in the market. Since the implementation of this training programme, the thematic coverage of the vocational training provided has widened to cover training for cooks, bar staff and front-office staff. Each year, between 65 and 70 trainees take part in these training activities. Furthermore, the number of hours devoted to cross-functional training in digitalisation and sustainability highlights the importance of developing these skills among hotel staff.

As previously mentioned, the company's IT Department has increased its staff tenfold over the last 25 years, now employing close to 300 workers, as the number of digitalisation projects managed has steadily increased. The Corporate Social Responsibility Department has also grown in size. Although both departments remain centralised in the hotel chain's head office, they have staff in each of the group's hotels to oversee implementation on the ground. Importantly, this includes a network of technical staff (known as 'supervisors'). While this role was previously focused on occupational health and safety issues, the brief has now expanded to cover sustainability initiatives and work advising, supporting and monitoring other functions and profiles.

Implications for job tasks and working conditions

The changes in daily tasks and working conditions – including the physical and social environment resulting from organisational changes and the transition to digital and green practices – vary depending on the professional profile. There has been a notable shift in the types of tasks undertaken, especially within operational areas like housekeeping and maintenance, although without a reported overall rise in workload. While the adoption of green practices has led to an increase in both operational and record-keeping and record-checking tasks, the adoption of digital tools and methods has provided some compensation through a reduction in repetitive tasks, improved communication and a simplification of the reporting process. However, it is acknowledged that this balance has not occurred uniformly across all jobs and areas.

For example, the housekeeping department has seen a significant increase in its involvement in sustainability initiatives, with modifications to routines and procedures that generally require more time or can involve heavier workloads. Among these, at the practical level, are tasks such as the refilling of cleaning containers (compared with the previous use of single-dose containers), improved recycling and waste disposal after room cleaning and the use of more time-intensive cleaning methods. On the other hand, there is a perception, including among worker representatives, that the implementation of digital tools has led to a reduction in the time spent communicating with intermediaries and recording the tasks performed.

However, it is difficult to determine whether the final balance in terms of workload is positive or negative. The number of people working in housekeeping has not changed significantly since the introduction of the sustainability strategy and digitalisation initiatives, although the fact that this service is outsourced makes any assessment difficult.

The food production area has also experienced significant changes in its work practices, in this case due to, on the one hand, greater control and recording of its activities and, on the other, the adoption of improved cleaning and hygiene measures. Maintenance is another department that has seen significant changes in its work routines due to the implementation of sustainability practices and digitalisation. These changes have been largely due to the need to perform increased maintenance work on hotel facilities (particularly to reduce energy and water consumption). However, the introduction of sustainability certifications and the need to record actions and their results to inform the reporting and auditing of environmental outcomes derived from these certifications have also played an important role in this increase in workload.

The introduction of digital tools was cited by those interviewed as an element that has facilitated the management of these new tasks. In particular, this includes communication of incidents and requests for interventions from various departments, the communication and recording of an intervention and its results through an app and the automated generation of activity reports. Notably, in one of the chain's hotels, the rising

workload in maintenance has led to a more than doubling of staff numbers within three years.

Other departments primarily identified that there had been the substitution of one task for another, without any significant change in workload or the physical or environmental conditions. This is the case, for example, in the sales and commercial department, where functions such as social media optimisation (for which dedicated personnel have been hired) have been introduced, and the workload associated with reservation management, already almost completely automatised in the vacation reservation sector, has been reduced. However, the greatest changes were identified in document management and administrative procedures, which have become less burdensome through the application of digital tools, and in specific tasks such as pricing for reservations, which may be further affected in the near future by the introduction of AI. The department's core tasks, however, which include promoting the hotel at events and maintaining relations with tour operators, have not changed significantly. The situation is similar in the front-office and reception departments, where there has been a decrease in check-in and check-out tasks (especially during periods of high arrival numbers) and in document management as a result of the introduction of digital tools.

In addition to the physical and environmental conditions of the workplace, the possibility of using new digital tools to supervise and control the tasks performed by employees, task completion times and the achievement of individual goals can increase work-related stress and raise issues such as concerns about the use of personal data. However, interviews with management and worker representatives at the hotel did not reveal any real concern about this use. The shared perception was that data were used to monitor activities and their results but that there was no evidence that they were used to measure individual performance.

Skills profiles in increasing and declining demand

When analysing the changing skills demands in the new selection processes, a distinction can be made between recruitment procedures at head office and those conducted directly at the level of individual hotels. These differences reflect the different profiles for which each hires workers and the different responsibilities they assume within the company.

On the one hand, head-office hiring processes are trying to cover the need for capacities and experience in new fields like AI. Furthermore, the new skills required for the ecological transition at the central level include knowledge related to environmental management systems.

On the other hand, at the individual hotel level, the abovementioned changes in work routines and procedures are not perceived to have led to significant shifts in demand for new skills when hiring kitchen, reception, bar and restaurant staff, which are the most commonly recruited professional profiles. Similarly, there have been no new skills or knowledge requirements related to digitalisation or green strategies for housekeeping staff provided by the subcontracted company or for those hired temporarily through employment agencies. Since the company uses proprietary digitalised systems, training on these is provided on the job. No specific prior knowledge is required to acquire these skills, beyond basic digital literacy.

In certain profiles where prior knowledge of environmental aspects (such as management systems, for maintenance technicians) could be an entry requirement, the difficulty in finding candidates on the market means that this knowledge is considered added value but not a requirement. Therefore, if the candidate does not have prior knowledge of environmental issues, the company prefers to train them once recruited rather than ruling them out by making such knowledge a job requirement.

Thus, generally speaking, it is thought that the green and digital transformations will modify work routines but will not lead to the disappearance or substantial reduction of any existing professional profiles. The profiles mentioned as the most affected in terms of the disappearance of tasks currently performed are sales technicians (due to the automation of certain activities such as reservations or pricing), front-desk staff (due to check-in automation) and administrative staff. However, for all of these roles, it is believed that there will be a change in activities and an increase in productivity, but not a significant reduction in jobs. AI is identified as a factor that could have a significant impact in areas such as front-desk work in the coming years. In general, the possibility of job losses is dismissed due to the company's focus on maintaining the 'human touch' in its relationship with end users (customers).

Training provision

The abovementioned training department, established in 2019, collects information on the training and development needs reported by the various departments and establishments on an annual basis. This information is used to develop an annual training plan, which is jointly implemented by the department and the hotels' human resources departments.

At the individual hotel level, the annual training plan can involve between 10 and 20 training projects, each divided into several sessions to cover the entire workforce. All training is delivered during working hours and is considered working time. The training plan is presented to the works council of each workplace but is not shaped by input from the works council.

The company also has an online training platform for the continuous training of its employees. It has implemented a dual vocational education and training programme to address skills needs, primarily in the field of ICT. The bulk of the digitalisation training focuses on management and line manager roles and primarily aims to improve trainees' skills in using the digital tools for management and communication that the company has introduced in recent years. The introduction of AI into the management of certain areas (human resources and sales, among others) has led to the inclusion of specific actions in the training plans on understanding the applicable AI tools and how to manage them correctly.

Maintenance personnel are mentioned as the main recipients of digitalisation training among the more operational roles, due to the increase in digitally driven tasks for the monitoring of environmental issues.

The sustainability strategy also includes a specific training programme for company employees and the development of sustainability training materials for onboarding new employees. Owing to the cross-cutting nature of the strategy, training activities initially began at the management level of all departments; since 2024, they have been extended to all professional profiles. In these cases, the training has focused on motivation, on the one hand, and training in specific aspects of sustainability actions, on the other.

4 Implications for social dialogue and industrial relations

Key takeaways

- National social dialogue practices vary greatly across Member States because of differences in traditions, legal frameworks and the representativeness of employer organisations and trade unions.
- Overall, the tourism sector is characterised by a low trade union density, and formal employee representation is more limited than in the rest of the economy.
- Collective bargaining coverage in the Horeca sector varies widely between Member States, from above 80 % in some to below 35 % in others.
- Collective bargaining can play an important role in adapting the economy to long-term challenges such as the digital and green transitions; however, innovations in collective bargaining tend to be incremental and limited and there is limited evidence of collective bargaining in the sector addressing the challenges posed by the twin transitions thus far.
- In recent years, labour shortages and measures to make the sector more attractive have gained importance on collective bargaining agendas, with recent agreements including pay rises and improved working conditions.
- There is a shared understanding that digitalisation and the green transition have thus far not altered the structure of social dialogue or industrial relations in the tourism sector as a result of the emergence of new tasks or occupational profiles.
- Tripartite social dialogue initiatives specifically addressing the challenges of the twin transitions in the tourism sector have been rather scarce across the Member States analysed. Where such activities exist, they tend to focus on training and the promotion of sustainable tourism.

National social dialogue practices vary greatly across Member States because of the diversity of traditions and legal frameworks, the different ways in which social partners are involved and the levels of membership (density) and representativeness of employer organisations and trade unions, among other factors. This also applies to sectoral social dialogue in tourism and its various related industries.

Apart from the abovementioned platformisation of booking and payment businesses, there is a shared understanding from both sides of the industry that digitalisation and the green transition have thus far not altered the structure of social dialogue or industrial relations in their Member States in relation to the main players involved.

According to the national reports received, tripartite social dialogue initiatives specifically addressing the challenges of the twin transitions in the tourism sector have been rather scarce across the 10 Member States analysed. Since digitalisation or specific aspects of the green transition can be considered cross-cutting issues, it could be the case that cross-industry social partners have discussed such issues with governments without directly involving the social partners in the tourism sector. In this regard, the recovery and resilience plans in some Member States have helped to implement initiatives, particularly when it comes to organising skilling and training activities.

Where such tripartite (or bipartite – usually between industry organisations and governments) activities exist, they tend to focus on training and the promotion of sustainable tourism. For example, in Cyprus, the Ministry of Tourism and the Cyprus Employers and Industrialists Federation collaborate on a measure to promote the circular economy in hotel facilities, financed by the recovery and resilience plan. It aims to strengthen the competitiveness and resilience of hotel businesses by consolidating and implementing circular economy practices and by adopting a sustainable and resilient business model.

The programme is divided into two phases, with 50 hotels participating in the silver phase, which involves the cataloguing of needs relating to the circular economy, the provision of a three-day circular economy training workshop for managers, the development of an action plan and tools that assist with the implementation of the circular economy plan, and staff training. After the conclusion of the silver phase, 20 of those 50 hotels will participate in the gold phase, which involves monitoring the implementation of the action plan, preparing for certification through the circular economy certification scheme and then obtaining

certification by an independent body. The employer organisation has been involved in conducting research and publishing reports regarding the green transition and the circular economy in the tourism sector for a number of years. These include a preliminary evaluation study on promoting the circular economy in the hotel industry in Cyprus and Greece (2019) and a study on the use of technologies and sustainable solutions in the hospitality industry for the transition to zero emissions (2021).

In Austria, there are unilateral social partner activities and also collaborative actions between organised business, the State Secretary for Tourism and the Austrian National Tourist Office. These include a dialogue series on sustainable tourism and the organisation of the annual Sustainable Tourism in Austria Summit, which started in 2024. The Austrian Economic Chamber offers online information on sustainability, for example a guide to online tools, a guide to energy management, information on green events, a climate portal for SMEs, sustainability checks for companies and an online toolkit on sustainable food and beverages.

In France, the social partners are involved in tripartite social dialogue through an employment and skills development commitment agreement signed in 2018 between the government and several professional organisations in the tourism sector. It is a multiannual agreement designed to provide technical and financial assistance to anticipate and support changes in jobs and qualifications and to secure the career paths of those in employment. The text stresses that tourism-related activities are facing numerous economic, structural and socioeconomic changes, particularly those linked to digital technology, which are having an immediate impact on the skills needs of businesses and employees. For the signatories, the digital revolution is having a direct impact on the skills needs of companies and employees, by changing the content of jobs and organisations through the introduction of new software and hardware in networks, new operating systems and dematerialised collaborative tools.

The social partners are involved in assessing training needs associated with the digital and environmental transitions and then developing appropriate training courses with training providers, with a view to enhancing the skills of employees in the sector. Furthermore, to better coordinate public and private tourism governance, the Tourism Sector Committee (Comité de filière du tourisme) was set up in 2020 by the Interministerial Committee for Tourism. It has 300 members and is a forum for consultation between the government, local authorities and economic players, including representative social partners. The Tourism Sector Committee proposes actions to be approved by the Interministerial Committee for Tourism, focusing on the following priority areas: employment and training, the sustainable development of tourism, regulatory issues and competitiveness, the digitisation of the sector and innovation.

In Malta, the implications of the twin transitions are discussed at the national level, most notably through the Malta Council for Economic and Social Development. Since the Malta Hotel and Restaurants Association has a seat (that is, representation) on the council, sector-specific issues are discussed there.

The social partners in Spain, together with the central and regional governments, are immersed in a participatory process that aims to reach a consensus on the tourism industry model for the coming years, within the framework of the 2030 Sustainable Tourism Strategy for Spain. Furthermore, social partners are involved through agreements and stable social dialogue in the programmes and initiatives launched by the government – for example, the social sustainability plans for tourism and the 2023 fair hotels programme (*programa de hoteles justos*).

In Italy, round tables have been established at the regional level. They include regional and local government representatives and social partners in discussions on the strategic plans for the green and digital transformations of the tourism sector.

Role of collective bargaining in the digital and green transformations

Collective bargaining can play an important role in adapting the economy to long-term challenges such as the digital and green transitions. However, innovations in collective bargaining tend to be incremental and limited, mostly involving the updating of processes and topics in response to change (Eurofound, 2022). Wages, working time and employment have always been priority issues for workers in all sectors. Integrating new topics into collective bargaining agendas is difficult and takes time.

Overall, the tourism sector is characterised by a low trade union density due to, inter alia, the prevalence of small and microbusinesses, the high share of migrant workers and the informality of work in the sector, with many such workers still lacking a collective and representative voice (ILO, 2022). Low trade union density can undermine the ability to carry out effective bargaining. Furthermore, collective representation through trade unions or works councils at the workplace level can be more difficult when there is a high level of workforce fluctuation and two-season models (with closures between the summer and winter seasons).

Data from the EWCS indicate that formal employee representation is more limited in the tourism sector than in the rest of the economy (Figure 18). In 2024, formal employee representation in the food service activities subsector stood at 22.2 %, a 5-percentage-point increase since 2015. The increase in the share of workers reporting the presence of a formal employee representation body in the food service activities subsector is in line with broader trends in other sectors. The subsector's lower representation level reflects its more fragmented structure, dominated by small enterprises that employ a large share of the workforce. In contrast, the presence of collective representation bodies in the accommodation subsector declined substantially between 2015 and 2024, with a decrease of almost 10 percentage points.

However, the decline in the presence of formal employee representation in the accommodation subsector was matched by an increase in informal workplace participation: such employee participation increased from 35.8 % to 57.1 %, a significant 21.3-percentage-point increase over nine years. Conversely, in food service activities, informal workplace participation underwent a marginal decline from 34.4 % to 33.6 %, despite broader labour market trends in favour of employee involvement.

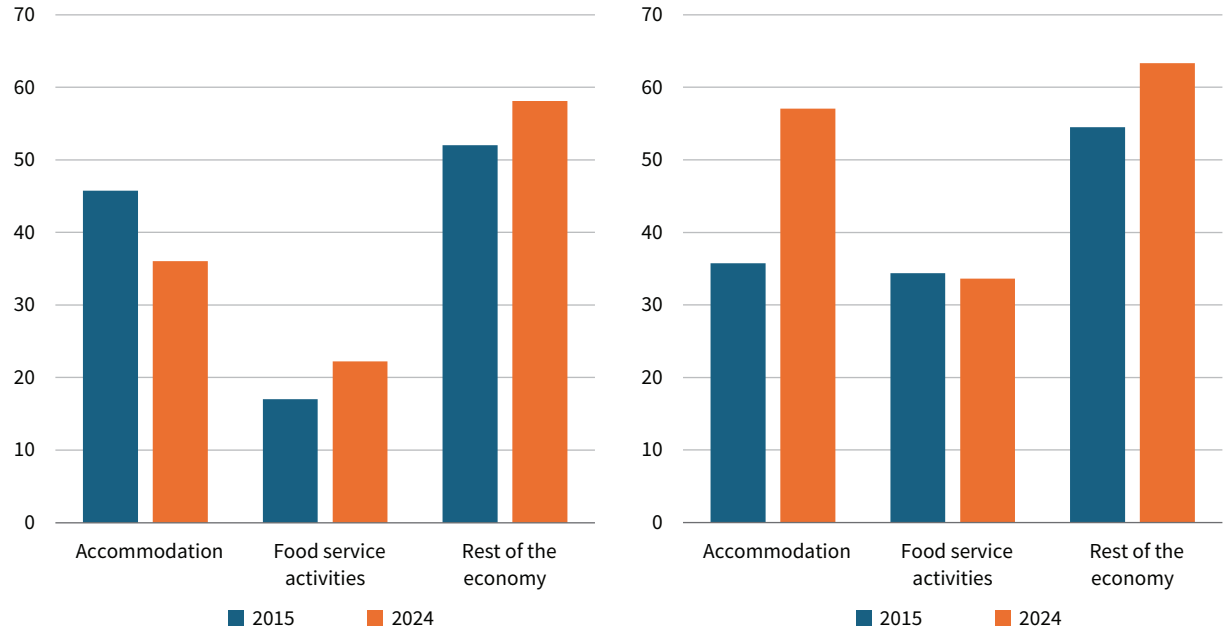
A study on the representativeness of social partner organisations in the Horeca sector indicated that collective bargaining coverage in the sector was above 80 % in Member States such as Austria, Belgium, Croatia, Finland, France, Hungary, Italy and Portugal, and below 35 % in Cyprus, Czechia, Estonia, Germany, Luxembourg, Malta, the Netherlands, Poland, Slovakia and Slovenia (Eurofound, 2018). In addition to these national differences, bargaining is more prominent in large hotels and resorts, where workers tend to be more organised. However, even in these workplaces, the level of involvement of worker representatives in the preparation of changes pertaining to the green and digital transitions can be limited, as demonstrated by the case study of a large hotel carried out as part of this research.

In recent years, both prior to the pandemic and even more so since, the issue of labour shortages and measures to make the sector more attractive have gained importance on collective bargaining agendas.

To address these areas, the most recent collective agreement, at the time of writing, for the sector in Austria (May 2024) provides for wage rises of 8 % in 2025, a collectively agreed minimum wage of EUR 2 000 from May 2025 and improved working conditions (12 free Sundays per year and a standardised night allowance for all workers; in turn, a longer period was agreed for averaging working hours).

In Greece, the latest sectoral collective agreements (signed in 2025) for the hotel and catering sector ensure that the lowest monthly salary in the sector is 14.5 % higher than the minimum monthly wage stipulated in

Figure 18: Shares of workers in tourism subsectors and all sectors reporting the existence of formal employee representation in the workplace (left panel) and having a regular meeting in which employees can express their views about the organisation (right panel), EU-27, 2015 and 2024 (%)



Source: Eurofound calculations based on EWCS data from 2015 and 2024.

national legislation. The minimum (monthly) wage is set at EUR 950, a level that the statutory minimum wage is forecast to reach in 2027. The new collective bargaining agreement also envisages the creation of a professional insurance fund – potentially the largest private occupational insurance fund in Greece – for the sector's employees, with employers to contribute 2 % of workers' primary monthly salary.

In Germany, there is no sector-level collective agreement in the tourism sector. Instead, the trade union ver.di has concluded many company agreements, the most important ones being in large multinational companies such as TUI and BCD. These agreements do not contain any specific provisions on digital transformations, except those aspects related to working-from-home arrangements and generalised provisions regarding access to training. However, it is notable that, in relation to digitalisation, TUI signed a framework agreement on the use of AI with the Works Council in March 2024, which states that no jobs can be lost as a result of the introduction of AI and there can be no downgrading of employees, for example in terms of pay.

In Malta, very few companies in the tourism sector have collective agreements in place, and the agreements that are in place are concentrated in the hospitality sector. Only a few hotel chains are involved in collective bargaining. A recent development concerns Air Malta ceasing operations in March 2024, after which the state-owned KM Malta Airlines was launched. Whereas the General Workers' Union represented Air Malta's workers prior to March 2024, KM Malta Airlines has not yet recognised any of the unions that previously represented Air Malta employees, and no collective agreement exists.

In Portugal, despite the declines in trade union membership and employer organisation density in the hotel and restaurant sector, high collective bargaining coverage (above 90 %) has been maintained due to the predominance of sectoral bargaining and the administrative extension of collective agreements to non-affiliated workers and companies (Campos Lima et al., 2023). However, in both Portugal and Italy, collective agreements at the sectoral level lack specific mention of and provisions regarding the impact of digitalisation or sustainable tourism.

5 Conclusions

Tourism is a key sector in the EU, supporting economic development and sustaining employment for between 12.3 million and 20.3 million workers. The sector both contributes to and is affected by climate change, being a significant contributor to GHG emissions, mainly from air travel. In the medium to long term, in the absence of effective policies to halt the impact of global warming, **many tourism destinations are set to be affected by longer and more intense heatwaves, rising sea levels, reduced snowfall in winter sport destinations and more frequent adverse weather events**. Policymakers at different levels therefore need to consider the longer-term view of what this will mean for the economies and employment in some of Europe's key tourism destinations, with the goal of enhancing sustainability and diversification.

Demand plays a critical role in the tourism offer and, thus far, surveys and evidence surrounding transportation and destination choices show a conflict between sustainable travel aspirations and the lived reality, despite some increase in the eco-tourism offer. Customer education and awareness raising will therefore continue to play important roles, as will the expansion of the sustainable travel and tourism offer.

Big data analytics, together with the use of VR and AR, has an important role to play in managing tourism flows and targeting marketing. These developments require workers with enhanced data analytics and cybersecurity skills. Vocational and tertiary education for the tourism workforce has been relatively slow to adapt to this and other new requirements arising from the integration of sustainability and corporate social responsibility measures.

The longer-term effects of climate change on the sector, including in terms of employment, remain difficult to predict. Therefore, the main evidence regarding the impact of the twin transitions on employment comes from the travel agency subsector, where platformisation and the increasing offer of direct travel bookings by customers, together with the pandemic effect, contributed to a 22 % decline in employment between 2019 and 2024. In other parts of the sector, employment has rebounded after the pandemic and the main challenge is one of labour and skills shortages. In some Member States, social partners have addressed this through wage increases in collective agreements.

The sector has also been affected by increases in the minimum wage, given the prevalence of low-paid employment, particularly in the Horeca sector. Labour shortages and the renegotiation of collective agreements in several Member States after the pandemic have also contributed to rising wages. However, seasonality, the perception of the sector as having relatively challenging working conditions and limited possibilities for remote working saw workers leave the sector during the pandemic, making the employment of migrant workers – including those from non-EU countries – increasingly common. Further awareness raising is needed in the sector regarding the availability of highly skilled roles that increasingly require digital, AI and sustainability training.

Seasonality and the transient nature of the workforce are among the barriers to ongoing education and training to upskill workers in line with the new digitalisation and sustainability requirements. Having said that, for the majority of the workforce in the sector, this requires relatively limited, modular upskilling, which is often provided at the employer level. At the same time, more technical and managerial profiles are emerging for which the vocational and tertiary training offer remains underdeveloped, leading some large hotel chains to institute their own training programmes for ICT and sustainability management profiles.

Beyond the travel agency and tour operator subsector, there is no substantial evidence of an occupational shift in the sector in the immediate future, although digitalisation and sustainability measures are contributing to some task variation and requiring some modular upskilling.

There is little evidence of specific national social dialogue initiatives addressing the green and digital transformations in the tourism sector. Industrial and employment relations across the sector have not changed and no new actors have appeared, except those linked to platform businesses for booking and accommodation. No changes in membership patterns or in occupational and skills structures are apparent. The green and digital transitions have affected the content of collective bargaining in the various industries only to a very limited extent, leaving scope for greater engagement in this area.

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This report assesses the impact of the green and digital transitions on the EU's tourism sector in relation to employment, skills, work organisation and working conditions. It also examines the contribution of social dialogue to addressing these challenges. The sector is both directly and indirectly affected by climate change. So far, digitalisation has had the greatest measurable impact on employment in the travel agency subsector, which witnessed an 11 % reduction in employment between 2014 and 2024, at least in part as a result of the shift of services to platform and online services. There is greater demand for skills in the areas of environmental sustainability, big data, AI and virtual reality applications, particularly among medium- to high-skilled workers in the sector.

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