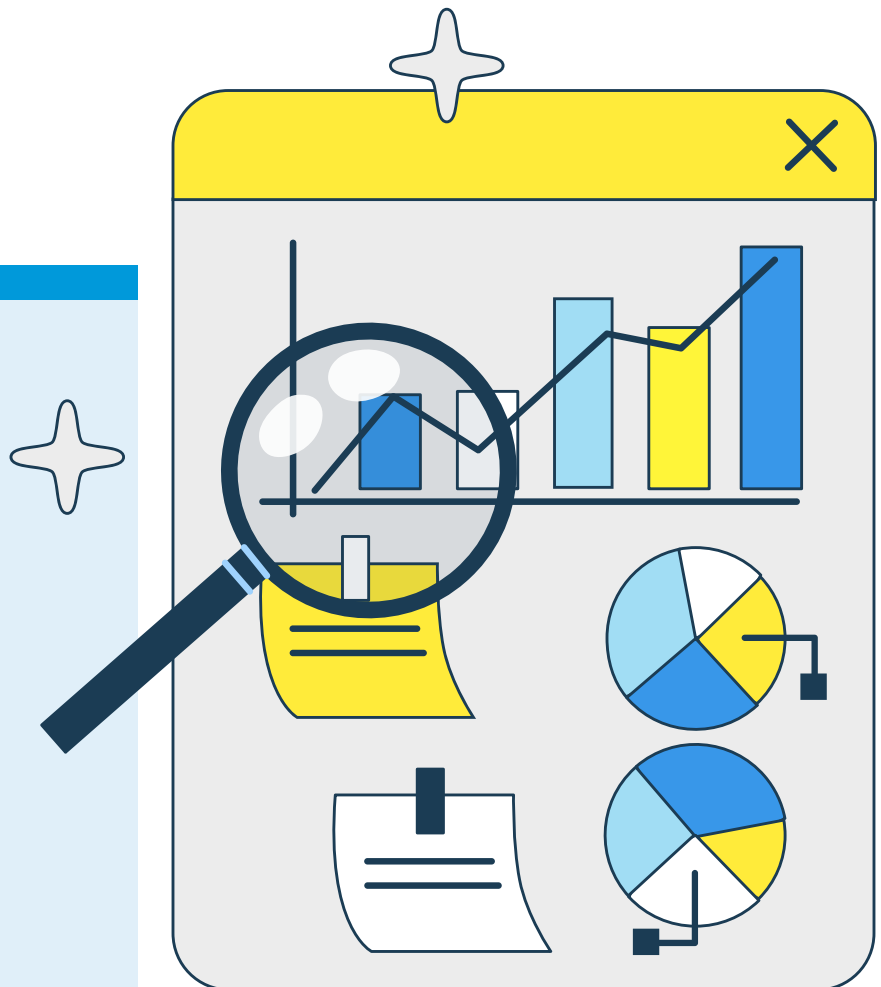


# CEDEFOP LABOUR AND SKILLS SHORTAGE INDEX

How employment growth, replacement needs and skills imbalances will **affect EU labour markets**



Cedefop’s Labour and Skills Shortage Index (LSSI) aims to provide a standardised measure of occupational shortages that can inform decision-making regarding workforce and learning needs in the European Union.

First published under a different name in the ‘[Employment and social developments in Europe](#)’ report, Cedefop’s LSSI leverages information provided by [Cedefop’s skills forecast](#) on future labour market and skills trends across EU Member States.

Three pillars are identified and measured as potential drivers of future labour shortages, namely demand, supply and supply–demand imbalances.

- **Demand** uses the estimated pressure exerted by

future employment growth as a potential proxy for shortages. High-growth occupations are likely to have lags in the provision of the right types of qualifications and skills by education institutions and make it more difficult for employers to find the right employees.

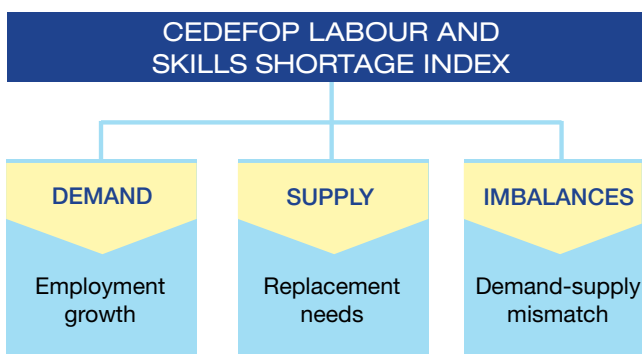
- **Supply** looks at future requirements arising from replacement needs. These refer to the employment needs that arise when workers leave an occupation due to retirement, career changes, family reasons or health issues, for example. These replacement needs often generate more job opportunities than new job creation. As a result, significant job opportunities can exist even in declining

sectors.

- **Imbalances** in the labour market occur when there is a mismatch between supply and demand for specific qualifications within occupations. There might be too few workers with the right qualifications, leading to an allocation of workers with lower-than-needed qualifications, often associated with skill gaps and reduced productivity. Alternatively, an occupation might be using workers who are overqualified for tasks usually associated with lower job satisfaction and higher turnover, thus leading to higher costs for the employer.

The current version of Cedefop's LSSI investigates occupational shortages by 2035 across two-digit occupational groups for each Member State, in line with the estimates provided by the 2025 Cedefop skills forecast.

Figure 1. Structure of Cedefop Labour and Skills Shortage Index (1)



Source: Cedefop Labour and Skills Shortage Index.

## Shortages across the skills spectrum

The need to identify labour shortages in a timely manner is currently at the top of the European Union policy agenda. Thus, Cedefop's LSSI is of critical importance. Indeed, 'The future of European competitiveness' report has used Cedefop's LSSI to showcase how future shortages can hinder EU competitiveness. Building on the [European pillar of social rights action plan](#), in March 2024 the European Commission presented an [action plan to tackle labour and](#)

[skills shortages](#), which gives a higher priority to the improvement of skills intelligence and data gathering.

Figure 2 illustrates the results for the European Union, showing the overall outcome based on three key factors indicating shortages: employment growth, replacement needs and supply–demand imbalances. These factors are ranked into four types (1 to 4 based on the intensity of the shortage), with each factor contributing an equal weighting to the final score. For example, legislators, senior officials and managers have a score of 2.66, which reflects a high demand for expansion, a high need for replacements and a moderate supply–demand imbalance. This suggests a high demand for workers in this occupation, driven by the need for both expansion and replacement, but with a somewhat less severe imbalance between supply and demand.

Overall, labour shortages are estimated to appear across the skills spectrum, as professionals (high skill level), service workers (medium skill level) and elementary occupations (low skill level) are all due to experience a type 3 shortage by 2035. However, the causes of these shortages vary, suggesting that different policies are needed to tackle them. For instance, for professionals, while the shortage is expected to come from demand for both expansion and replacement, imbalances are less likely to cause shortages as the future workforce will be equipped with a high level of skills. In contrast, for elementary occupations, even though they will not expand as much, there are likely to be shortages due to the need to replace existing workers, drawing from the pool of higher-educated workers that will be in excess supply by 2035. As for service workers and shop and market sales workers, all three elements will create a type 3 shortage, making the shortage for this group a multi-faceted issue for the future. However, one must look deeply within each occupational group and across Member States to continue the investigation of future labour shortages.

In terms of detailed occupational groups, the highest shortages among high-skilled occupations are seen in legal, social and cultural professionals, along with the various associate professionals. Higher-level professionals face strong employment growth and high replacement needs, driving the demand for workers in this field. Associate professionals also experience strong employment growth but with slightly lower replacement needs due to a younger age profile. Supply–demand imbalances for higher-level professionals are relatively low, suggesting that shortages are more concentrated in occupations requiring intermediate or lower qualifications. Health professionals are also expected to face shortages in the forecasted period, driven by both strong employment growth and high replacement demands,

(1) The calculation of individual outcomes from the three pillars for occupations involves ranking and standardising them by assigning quartile outcomes at the two-digit level, with each occupation characterised by three components rated from 1 to 4, where a rating of 4 indicates the highest level of shortage in each pillar. The LSSI is derived as the arithmetic mean of these underlying pillars, which suggests that the impacts of employment growth, replacement needs and identified imbalances are all considered equally important in evaluating potential labour market shortages.

Figure 2. Cedefop Labour and Skills Shortage Index, EU-27



NB: The scores within the bars show the type of shortage for each of the three factors (growth, replacements and imbalances).

Source: 2025 Cedefop Labour and Skills Shortage Index.

which will create challenges in filling positions in the future.

Among skilled non-manual occupations, personal service workers and personal care workers have the highest labour shortage indices. In contrast, low shortages are expected across most clerical occupations, except for customer service clerks. In skilled manual occupations, shortages are most notable in the building sector, particularly among building and related trades workers (excluding electricians), as well as the roles of assemblers, and drivers and mobile plant operators. At this level, the supply–demand imbalance – one of the key factors in the index – becomes more significant, as some positions are being filled by lower-qualified workers, who are also forecasted to be in shortage.

## Shortages in Member States

The occupations of chief executives, senior officials and legislators are expected to face shortages across most Member States. Typically, such shortages come from the demand side. Nevertheless, within these occupations, personal attributes and experience often make a difference, meaning replacements will need to be carefully curated.

Legal, social and cultural professionals are expected to be in shortage in most Member States. Their associate professional counterparts are in a similar, even more intense situation. As in the case above, shortages will be demand-driven, so while

assessing the situation in these occupations, one must consider the potential impacts of artificial intelligence that might alleviate the intensity these shortages will create in the future. In contrast, shortages of health professionals and health associate professionals may be a problem in about half of Member States. However, directing the future workforce towards these fields requires much effort, as they are very resource-intensive and difficult to automate. Similarly, personal care workers will be in shortage in more than half of Member States. Even though the formal qualifications level is not as demanding as in the case of health professionals, the quality of interpersonal skills is what matters most in offering such services. Given the difficult working conditions, shortages in these occupations may be among the most difficult to tackle, also due to the demographic trends pointing towards an intense ageing of the population of Europe, thus increasing the need for care and health services.

Science and engineering professionals and associate professionals are another group of occupations in need of attention. Even though shortages will occur in approximately one third of Member States, their role in realising the twin green and digital transition and ensuring future competitiveness is pivotal. This is also the case with information and communications technology professionals, with about 10 Member States experiencing a type 3 shortage or above by 2035.

Figure 3. Cedefop Labour and Skills Shortage Index, EU-27, by detailed occupational group



NB: The scores within the bars show the type of shortage for each of the three factors (growth, replacements and imbalances).

Source: 2025 Cedefop Labour and Skills Shortage Index.

On the other hand, towards the middle level of the skills spectrum, occupations such as general and hybrid clerks and numerical and material recording clerks are showing the lowest future shortages. Towards the lower level of skills, some occupations show future shortages for a significant number of Member States. However, in some cases these shortages may be significantly eased by new technologies – e.g. for assemblers or machine operators – or by providing elementary training to the existing workforce, such as for refuse workers, street and related sales and service workers.

Looking at individual Member States, the pattern

of future labour shortages varies considerably. For instance, in Czechia, Italy, Poland and Slovakia, labour shortages are concentrated in the higher level of skills, and no shortages appear for lower-skilled occupations. This is the opposite for Member States such as Bulgaria and Ireland, where shortages appear mainly in lower-skilled occupations. In other cases, such as Greece, Spain and the Netherlands, shortages appear across the skills spectrum.

Cedefop’s LSSI provides a good starting point for assessing future labour shortages in the European Union as it utilises a solid database and looks at the various causes underlying the shortages. To

understand LSSI outcomes better, these must be coupled with more nuanced, Member-State-specific insights, as the same type of shortage may be more or less impactful in one Member State than in another. Across occupations, factors such as the working conditions within each occupation, the deployment of technology and artificial intelligence, demographic trends, the green and digital transitions and the readiness of education and training policies to tackle shortcomings can help prioritise labour shortages and ensure better preparedness for current and future challenges and opportunities.