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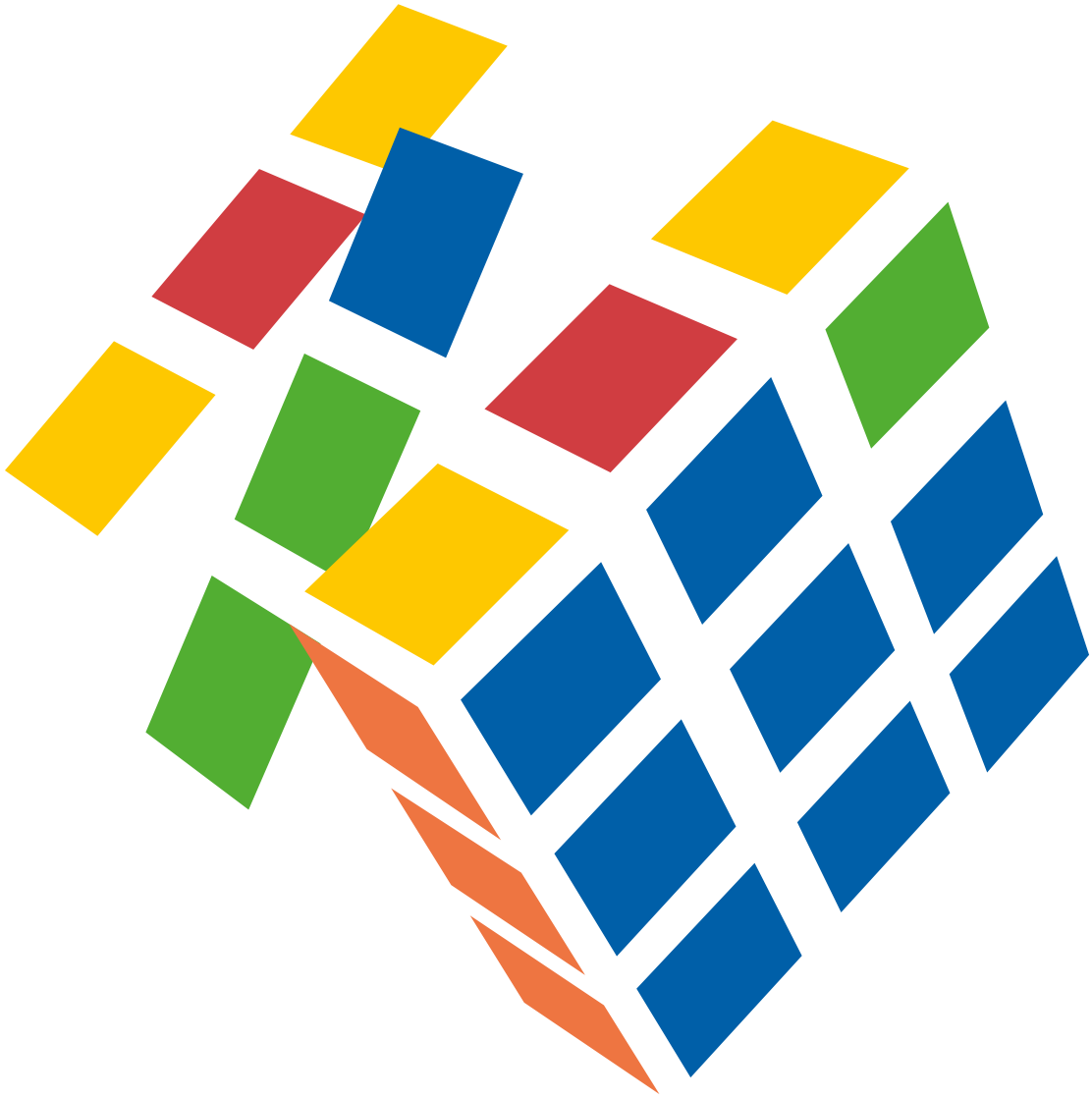


2023 skills forecast

Denmark

cedefop

SKILLS FORECAST 2023 DENMARK

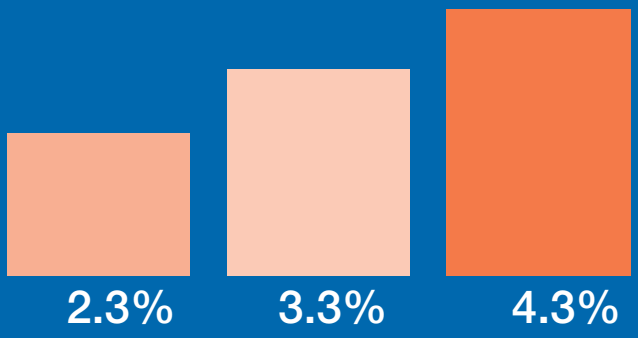
Employment in 2035

3 183 000

4.31%

increase 2021-35

% Employment growth 2021-35



Fastest-growing sectors

2021-35% growth

36% Information & communication

32% Real estate, professional, scientific & technical activities

Total job openings, 2021-35

2 057 000

Replacement needs (94%)

New job openings (6%)

Highest-demand occupations

Largest creation of new jobs, 2021-35

38 000 Business & administration professionals

36 000 Information & communications technology professionals

34 000 Science & engineering professionals

increase in high-skilled labour demand 2021-35

31%

Total job openings by skill level 2021-35

High-skilled non-manual occupations (61%)

Skilled non-manual occupations (19%)

Skilled manual occupations (9%)

Elementary occupations (11%)

EU overview 2035

3.4%

employment increase in 2021-35

Fastest growing occupation

Legal, social and cultural professionals

Fastest growing sector

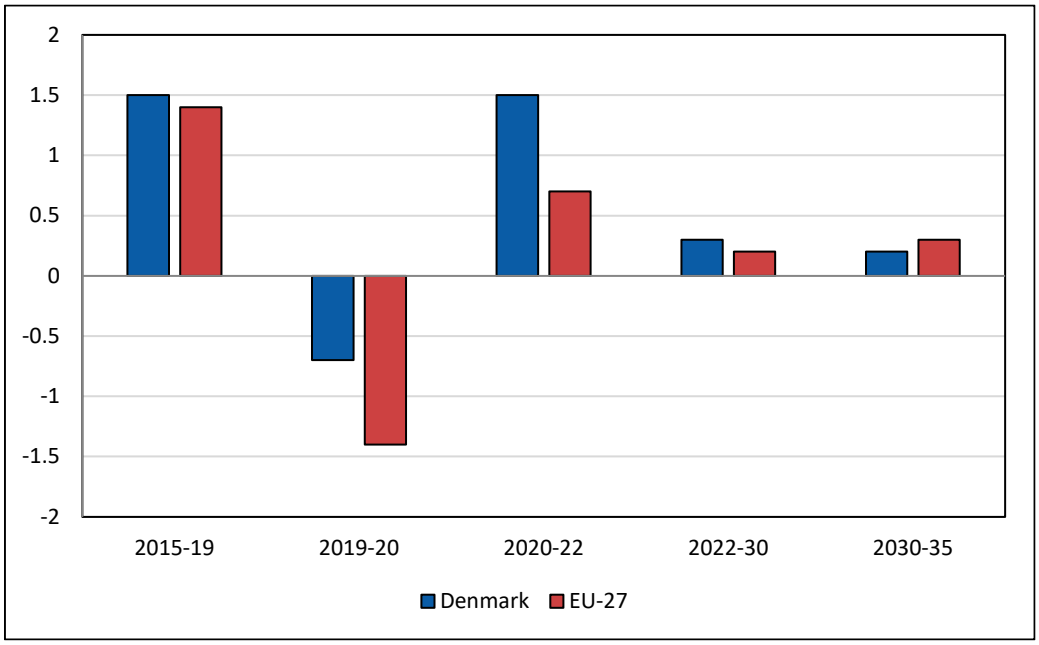
Information and communication

Cedefop skills forecast: Denmark

1. Employment outlook

Employment in Denmark is forecast to grow slightly faster than the EU-27 average, albeit at much slower rates than seen over 2015-19. Figure **1** shows that employment in Denmark grew slightly faster than the EU-27 average over 2015-19, and fell slightly less sharply in 2020 as the Covid-19 pandemic hit. Employment in Denmark is also estimated to have bounced back far more strongly than the EU-27 over 2020-22. Across the forecast period, employment in Denmark is forecast to grow by around 0.2-0.3% pa compared with growth of around 0.1-0.3% pa for the EU-27 as a whole.

Figure 1**. Annual percentage employment growth in Denmark and the EU-27, 2015-35**



Source: Cedefop (2022 Skills Forecast).

2. Labour force overview

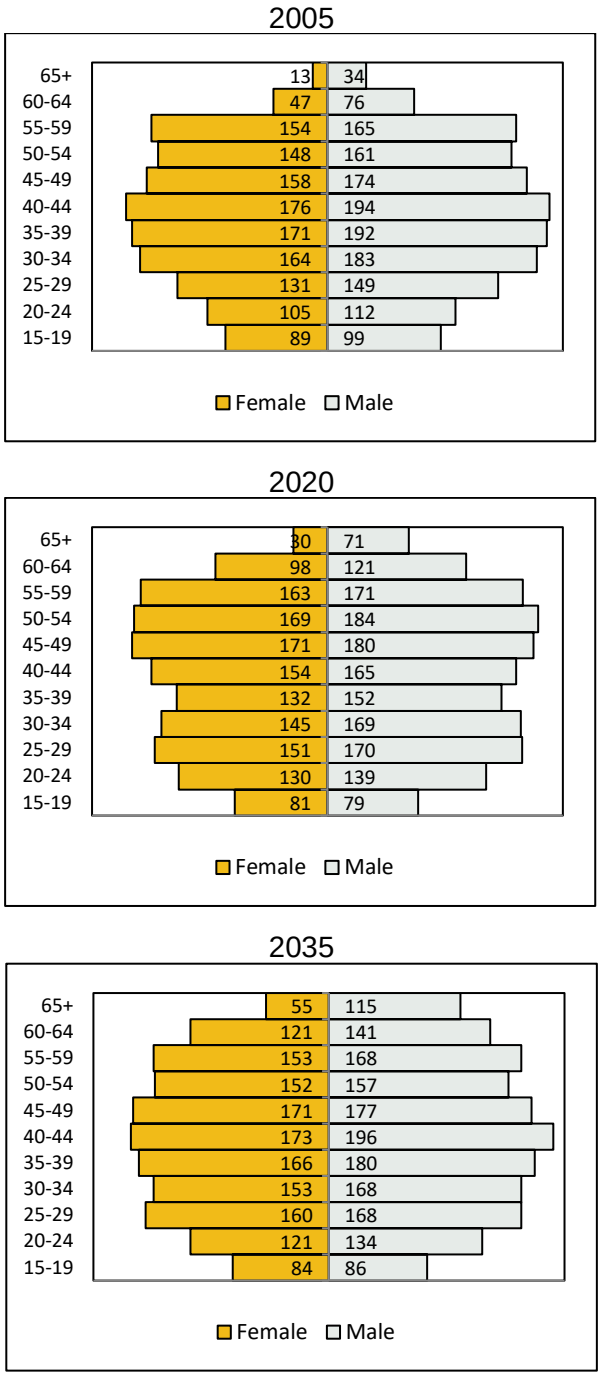
Figure 2 shows Denmark's labour force by age group in 2005, 2020 and 2035. Changes in the labour force in Denmark over the forecast period will continue to be driven by the ageing population, although perhaps less than in the EU as a whole and increasing participation rates in most age groups. The total labour force in Denmark is projected to increase by just under 6% over 2020-35, which is actually faster than the growth of around 4.5% seen over the previous 15 years. This compares with an expected increase in the labour force of just under 3% over 2020-35 for the EU-27 as a whole. The total participation rate in Denmark is forecast to increase by 1 pp over 2020-35, similar to the increase in the total rate for the EU-27 as a whole. Total population is forecast to grow by 3.9% over 2020-35, compared with a growth of 11% over 2005-20.

Although the population aged 15-29 and 45-59 in Denmark is forecast to decline during 2020-35, the population aged 35-44 is forecast to grow quite strongly, as is that aged 60 and over, reflecting trends in the relevant younger cohorts in preceding periods.

The participation rates of all age groups in Denmark are forecast to grow quite strongly over 2020-35, with the strongest increase projected for the 25-29 age group (10 pp) and the increase for most age groups expected to be at least 5 pp.

The differences between male and female participation rates in Denmark are not generally as great as the EU-27 average, and, also unlike the EU-27 average, female participation rates in Denmark are not generally forecast to increase more than male rates – the picture is mixed. Overall, the total participation rate for females and males are forecast to increase by 1 pp over 2020-35.

Figure 2**. Distribution of the labour force (thousands), 2005-35**

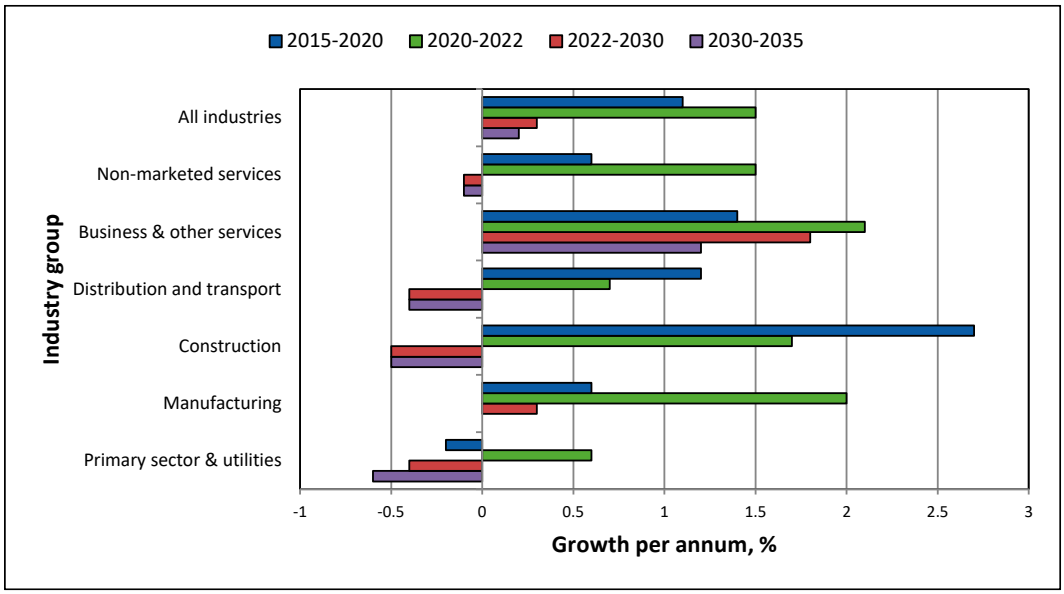


Source: Cedefop (2022 Skills Forecast).

3. Sectoral employment trends

Figure **3** shows annual average employment growth by broad sector in Denmark between 2015 and 2035. Although total employment in Denmark is expected to continue to grow over the forecast period, the picture among the broad sectors is mixed. In fact, the only broad sector that is expected to see positive and relatively strong growth in employment over this period is *Business & other services*, which is forecast to grow by around 1.5% pa over 2022-35. *Manufacturing* is the only other broad sector that is not forecast to see a decline in employment over the whole forecast period, but even here growth is forecast to be weak. *Non-marketed services* is expected to see a very slight decline in employment over this period, while the remaining three broad sectors are forecast to shrink by around 0.5% pa.

Figure 3**. Employment growth by broad sector of economic activity, 2015-35**



Source: Cedefop (2022 Skills Forecast).

In terms of sub-sectors (i.e. below the level of the six broad sectors discussed above), the pattern of growth is much more mixed. The growth in *Business & other services* is forecast to be driven by growth in the sub-sectors of *computer programming & information services*, *real estate activities*, *research and development*, *telecommunications*, *architectural & engineering services* and *legal, accounting and consulting services*, all with growth of more than 2% pa over 2022-30. Most sub-sectors in this broad sector are expected to see relatively strong growth. Within *Manufacturing*, where the sub-sectors tend to be smaller, accounting for a lower percentage of total employment, growth in employment is

forecast to be driven by *electrical equipment*, *other transport equipment* and *other chemicals*. Within *Primary sector & utilities*, only *electricity* is forecast to see positive and relatively strong growth in employment over the whole of the forecast period.

4. Job openings by occupational group

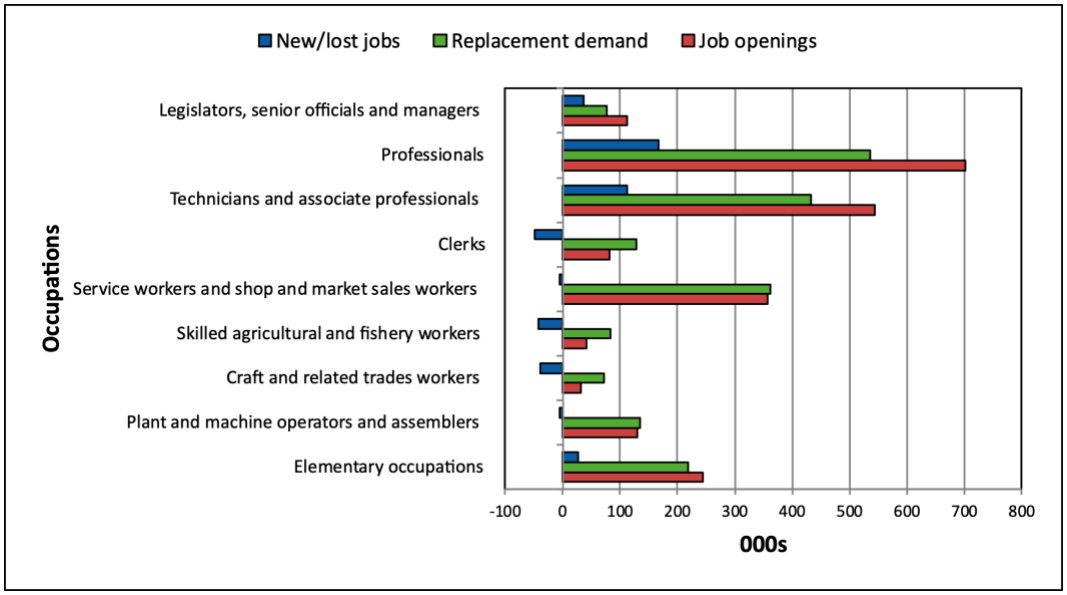
Cedefop skills forecasts estimate the total job openings by occupational group as the sum of net employment change and replacement needs. Net employment change refers to new jobs created or jobs lost due to the expansion or contraction of employment in that sector or occupation. Replacement needs arise as the workforce leaves the occupation due to retirement or career changes. Replacement needs, generally, provide more job opportunities than new jobs, meaning that significant job opportunities arise even in occupations declining in size (i.e. agricultural workers are a typical example, as ageing workers employed in the sector will need to be replaced).

Figure 4 shows the total job openings by broad occupational group over 2020-35. The number of job openings indicates the number of jobs that are required to be filled due to lost/new jobs and those that are in need of replacement workers. All occupations are expected to have job openings driven by high replacement needs. Net employment change is expected to be negative for *Clerks*, *Service workers & shop & market sales workers, Skilled agricultural & fishery workers, Craft & related trades workers* and *Plant & machine operators & assemblers*, meaning a contraction of employment in these occupations. *Professionals* is the occupation that is expected to have the highest job openings through job creation (167,000) and replacement demand (535,000) and hence the highest number of overall job openings (702,000).

At the more detailed level, the greatest number of job openings (taking both new/lost jobs and replacement needs together) are generally expected to be in high skill occupations such as *business & administration associate* professionals, *science & engineering associate professionals*, *business & administration professionals*, *teaching professionals*, *health professionals* and *science & engineering professionals*. Among these, only *teaching professionals* are forecast to see a decline in jobs, which is easily compensated by replacement demand. Some skilled non-manual occupations, found mostly in services, such as *personal care workers* and *personal service workers* are also expected to provide a large number of job openings – in the case of *personal care workers* a fall in jobs is compensated by high replacement demand. Although *skilled manual* occupations,

mostly found in *manufacturing* and *construction,* are expected to still provide some job openings, this is mainly due to replacement needs rather than through job expansion. Among *elementary* occupations, *labourers in mining, construction, manufacturing & transport* are expected to provide a significant amount of job openings, thanks to a large growth in jobs as well as replacement demand.

Figure 4. **Job openings by broad occupational group, 2020-35**



Source: Cedefop (2022 Skills Forecast).

5. Drivers of occupational change

Within the Cedefop skills forecast, future employment growth (or decline) of occupations is further broken down by separating national economic components from regional industrial and economic effects, helping to interpret what is driving the change. From this perspective employment growth can be explained by three possible drivers: (a) overall trends of the economy (i.e. growth or decline), (b) shifts of employment between sectors and (c) changes in the occupational structure within sectors (i.e. factors making some occupations more important than others).

The occupational composition of employment in Denmark is mainly characterised by changes in the level of specialisation within occupations. Overall, it is not driven by changes in industry size. Stronger occupation-specific and industry effects are expected to lead, overall, to an increasing share of *professionals (*with an exception for *teaching professionals),* in *legislators,* in *senior officials and managers, technicians and other associate professionals*. High-skilled occupations that can

benefit from these trends are, for example *health associate professionals, science and engineering professionals*, and especially *chief executives, senior officials and legislators*. Despite the negative impact of the industry size, several occupations, such as *managers in service, labourers in agriculture, forestry, fishery, mining, construction and manufacturing,* will continue to increase significantly, thanks to the strong influence of the employment effect.

Therefore, the overall effect of occupational change depends on a number of factors that need to be considered together. Increasing digitisation and moves toward a service-oriented economy, including within manufacturing, will lead to a greater use of higher-level occupations at the expense of medium and some low-level occupations. Among lower-level occupations only *cleaners, refuse, street and related service occupations* are forecast to decrease.

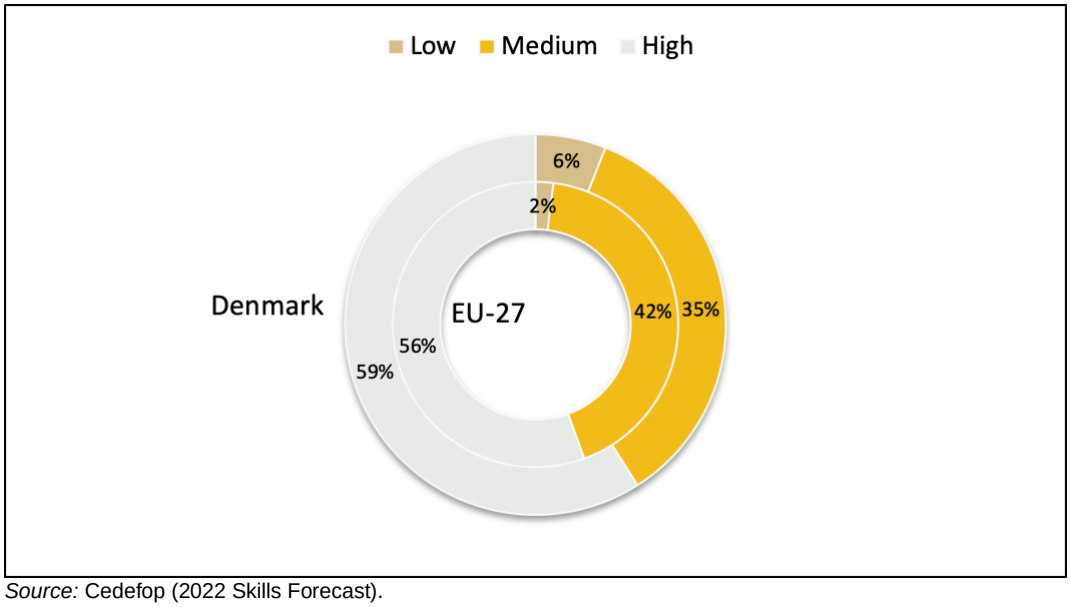
With few exceptions, such as *assemblers*, drivers, *and mobile plant operators*, intermediate occupations are expected to decrease significantly. However, the overall increase in high and low-skilled occupations is enough to ensure employment growth for all occupations combined.

6. Demand for and supply of skills

Within the Cedefop skills forecast, skills are proxied by the highest level of qualification held by individuals in the labour force and in employment. Three levels are distinguished, high, medium, and low, which correspond to the official ISCED classification. The occupational group also offers an indication of the skill level required, as some occupations (e.g. professionals) typically require high-level skills, while some others (e.g. elementary) typically require only basic ones. Therefore, occupational groups are also linked to a skill level.

Figure 5 shows that well over half (59%) of the total job openings that are expected to be created in Denmark over 2012-35 will require high level qualifications, slightly above the EU-27 average. Around 6% of total job openings are expected to require low level qualifications while 35% are expected to require medium level qualifications.

Figure 5**. Shares of total job openings by level of qualification, 2022-35**

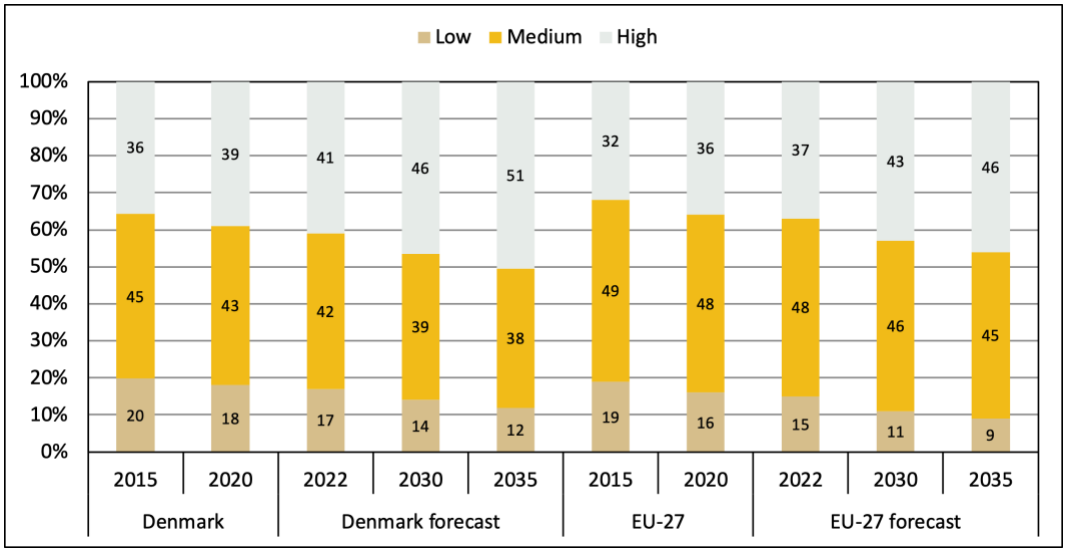


Source: Cedefop (2022 Skills Forecast).

Total job openings are highest among *Business and administration associate professionals, Science and engineering associate professionals,* and *Business and administration professionals*.

Future labour supply trends depend on the size of the working age population (defined as aged 15 or older), labour market participation rates, and the extent to which people acquire formal qualifications.

Figure 6. **Labour force share by level of qualification, 2015-35**



Source: Cedefop (2022 Skills Forecast).

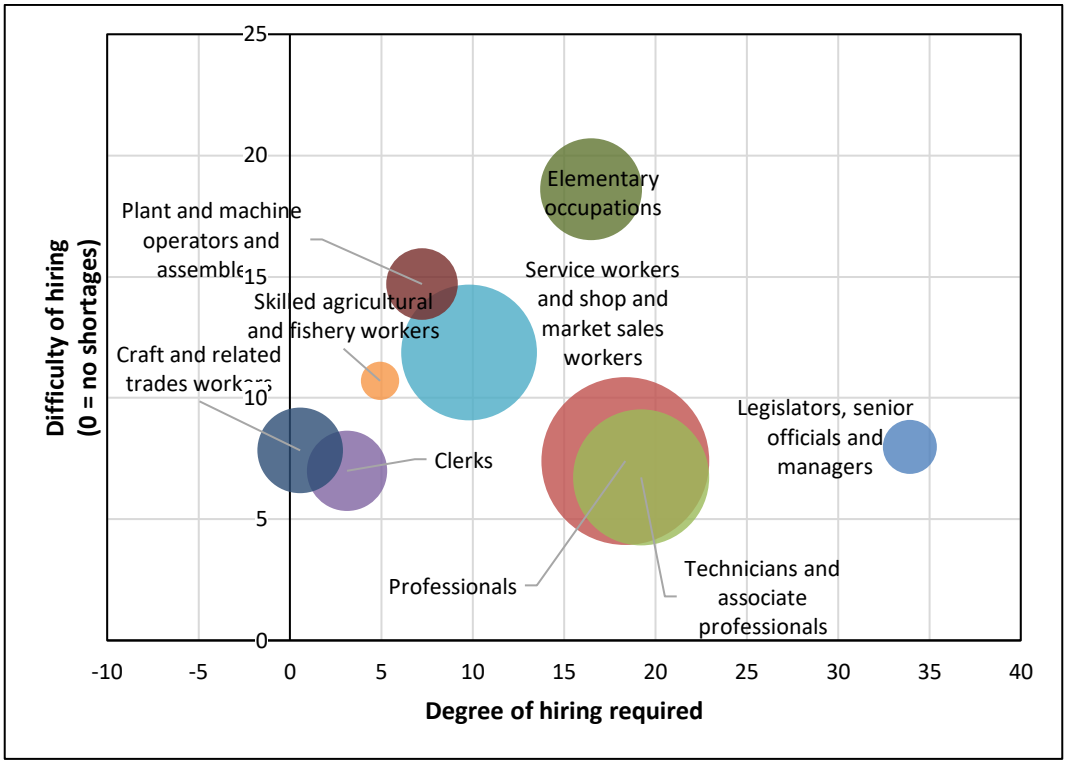
In general, Denmark is expected to experience substantial changes in shares of qualifications of the labour force over 2022-35, as can be seen from Figure **6**. The share of people with high level qualifications in Denmark is expected to increase over the period up to 2035 (reaching 51%), becoming the largest qualification group at the expense of workers with medium qualifications. The share of medium qualified labour force will decrease towards 38% in 2035. The share of those with low levels of qualification is expected to drop from 15% in 2022 to 12% in 2035. In Denmark, the share of the labour force with high qualifications is expected to reach a higher level than the EU-27 average, and, while the level of low qualified is expected to fall within the EU-27 as a whole, the Danish share is expected to remain some way above this average.

In Denmark, the supply of workers with medium and high qualifications is expected to be enough to meet the corresponding demand, while the supply of workers with low qualifications is expected to be below the demand for those. Therefore, some more qualified workers might have to fill positions requiring low qualifications.

Figure **7** shows an indicator, *difficulty of hiring*, whose aim is to approximate shortages of supply by qualifications and its impact on occupations. This measure, shown along the vertical axis, indicates increasing difficulties to fulfil demand given the available supply of qualifications used in the occupation. Along the horizontal axis, the *degree of hiring required* in the occupation is depicted. Higher values indicate that to reach the forecast result that occupation will need to adjust more (in terms of workers with particular qualifications) relative to the base year (2018) levels. These changes (degree of hiring required) can be due to a change in the qualifications required or increases in the number employed. The size of the bubble indicates the *overall employment level*, bigger bubbles indicate more employment while smaller bubbles less employment.

Occupations with both a high *degree of hiring required* and a high *difficulty of hiring* (i.e. towards the top right of the figure) are likely to have the most difficulties in achieving a suitable workforce.

Figure 7. **Indicators of future hiring difficulties (Denmark), 2022-35**



Source: Cedefop (2022 Skills Forecast).

Note: Indicators were calculated at the level of the underlying 2-digit occupation groups. Aggregation was based on the employment weights within each 1-digit occupation group.

Figure 7 shows that occupations within *Legislators, senior officials and managers* are forecast to experience changes that will require more extensive hiring of new workers. Within this group only minor hiring difficulties are expected as it feeds from high qualified personnel Workers in *elementary occupations* and

plant and machine operators and assemblers are expected to experience higher levels of hiring difficulties, mainly from lower and intermediate qualified personnel. *Professionals, technicians* and *Associate professionals, legislators, senior officials and managers* and t*echnicians and associate professionals* have a modest degree of new hiring required. Still, they are expected not to have significant difficulties to hire.

Within professionals, hiring difficulties are expected to be very low across all underlying occupations. Future imbalances in the Danish labour market will likely be driven by the decrease in intermediate qualifications. While the increasing share of the higher qualified follows the general trend of more specialisation and is also reflected in the demand, hiring difficulties will arise within specific occupations, as the indicator of hiring difficulties suggests. How far high skilled occupations experience shortages will depend on the degree to which the supply, in its specialized fields, will match the demand of skills in higher and intermediate occupations. The shortage among low skilled occupations might lead to the employment of higher skilled in these occupations which would lead to overqualification.

Cedefop methodology

The Cedefop Skills Forecast offers quantitative projections of future trends in employment, by sector of economic activity and occupational group. Future trends in the level of education of the population and the labour force are also estimated. Cedefop's forecast uses harmonised international data and a common methodological approach allowing cross-country comparisons between employment trends in sectors, occupations and qualifications. The forecast and methodology is validated by a group of national experts. The forecast does not substitute national forecasts, which often use more detailed methodologies and data, while they also incorporate in-depth knowledge of a country's labour market.

The latest round of the forecast covers the period up to 2035. The forecast takes account of global economic developments up to May 2022. The European Economy experienced a sharp downturn in 2020 due to the global pandemic, and partially bounced back in 2021. However, the strength of the recovery in the short term is threatened by global factors such as supply chain disruptions, the consequences of the war in Ukraine and high inflation.

The key assumptions of the baseline scenario incorporate the Eurostat population forecast available in May 2022 (Europop 2019) ([1]), and the short-term macroeconomic forecast produced by DG ECFIN in May 2022 ([2]). Several revisions to the data affect the Cedefop Skills forecast 2022, when compared to the 2019 update. For example, the population projections used in the 2022 update are generally more pessimistic than those used in the 2019 update (i.e. Europop 2015), with a corresponding impact on labour force figures. The source of historical labour force data is the European Labour Force Survey, which in 2021 underwent important methodological changes causing a break in the time series for several variables, including labour force. As a consequence, in many Member States the participation rates in 2021 are noticeably above/below historical trends, which causes the Cedefop Skills forecast 2022 to be revised in the same direction, compared to the 2019 update. Moreover, some Member States experienced significant revisions in the historical data series for sectoral employment from the National Accounts.

The Cedefop Skills forecast 2022 is made consistent with the objectives set by the European Green Deal by incorporating suitable assumptions in terms of additional investment, power sector technologies, energy balances and carbon pricing.

Energy and commodity price forecasts from the World Bank and the IEA are used as inputs to the Cedefop Skills forecast, which therefore incorporate the recent surge in prices.

([1]) https://ec.europa.eu/eurostat/web/population-demography/population-projections/database

([2]) https://ec.europa.eu/info/business-economy-euro/economic-performance-and-forecasts/economic-forecasts/spring-2022-economic-forecast_en

For the latest update and access to more detailed Cedefop skills forecast data visit our Skills forecast project page.

For more details, please contact Cedefop's Skills Forecast team at: Skills-Forecast@cedefop.europa.eu