Methodological Guide

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Contents

1. Introduction 4
2. Labour Market Concepts 6
2.1 Key Labour Market Concepts 6
2.2 Indicators that help to identify and characterize vulnerable groups in the labour market? 6
2.2.1 NEET Rate (15–29 years) 7
2.2.2 Early School Leaving Rate 8
2.2.3 Youth Unemployment Rate 8
2.2.4 Long-term Unemployment Rate 9
2.2.5 Labour Force Participation Rate (Women, Youth, +55) 9
2.2.6 Underemployment Rate 9
2.2.7 Temporary/Precarious Employment Rate 10
2.2.8 Low-skilled Employment Rate 11
2.2.9 Gender Employment Gap 11
2.2.10 Disability Employment Gap 11
2.2.11 Employment Gap between natives and foreigners 12
2.3 Structural Labour Market Indicators 14
2.3.1 Employment Rate 14
2.3.2 Unemployment Rate 14
2.3.3 Absolute Number of Employed/Unemployed 14
2.3.4 Contract Rotation Rate 14
2.3.5 Social Security Affiliation 14
2.3.6 Overqualification Rate 15
2.3.7 Hiring Trends 15
2.3.8 Occupational Mismatch Ratio 15
2.3.9 Digital/Green Skills Demand 15
2.3.10 Low literacy rate 15
3. Step-by-step process for conducting a good labour market diagnosis 18
3.1 Conducting a good socioeconomic analysis and its impact on the labour market 18

3.2 Conducting a good diagnosis of the labour market 24
4. Conducting a good analysis of hiring trends and mismatches generated by ups and downs of the labour market 33
5. Resources of Interest 39
5.1 LMI Sources 39
5.1.1 Useful Resources and Links 40
6. Project related information 41

1. Introduction

This methodological guide has been developed within the LMI4VET project as a practical tool to support vocational education and training (VET) providers, public employment services, TS_ETSP organisations (Third Sector Employment and Training Service Providers), and guidance professionals in effectively using Labour Market Information (LMI). Its purpose is to help these actors improve education and training programmes, particularly those targeting people with fewer opportunities and vulnerable groups.

To design the guide, a questionnaire was administered to a sample of TS_ETSP organisations in each partner country. The aim was to understand their current use of labour market information, identify the main challenges they face in their daily practice, and gather their preferences regarding the guide's format and usability. As a result, the guide is firmly grounded in the real needs of TS_ETSP organisations. After drafting the guide, its content was further validated through an in-person working session with representatives from these organisations.

Beyond supporting the daily work of these organisations, the guide also contributes to addressing a broader systemic challenge, the skill shortage. By providing a clear methodology for analysing labour market trends, identifying emerging occupations, and detecting mismatches between supply and demand, the guide helps stakeholders better understand where skill gaps are emerging and how training programmes can respond more effectively. In doing so, it strengthens the capacity of VET systems and employment services to better address labour market needs, anticipate future skill demands, and ultimately contribute to building a more efficient and inclusive labour market.

The guide offers a structured approach to understanding, interpreting, and applying labour market data. By linking indicators, socioeconomic trends, and labour market dynamics, it equips users with the tools they need to make informed decisions when planning, adapting, or evaluating VET curricula, career guidance strategies, and active labour market policies. Its emphasis on disadvantaged youth—including NEETs, early school leavers, and individuals at risk of exclusion—makes it particularly valuable for designing inclusive policies and targeted interventions.

The guide is organised into the following sections:

- Section 2: introduces key labour market concepts and essential indicators to interpret LMI, with a particular focus on vulnerable groups.
- Section 3: presents a step-by-step methodology for conducting a high-quality labour market diagnosis, integrating socioeconomic information and detailed employment data.

- Section 4: explains how to identify labour market trends, imbalances, and skill shortages, and discusses their implications for VET planning and decision-making.
- Section 5: provides curated resources and links to LMI tools and relevant data sources.
- Section 6: offers contextual information about the LMI4VET project, its objectives, and planned future developments.

As one of the key outputs of the LMI4VET project, this methodological guide is conceived not only as a reference document but also as a practical, evolving support tool to be used in training activities, co-design workshops, and digital resources, including online courses and intelligent assistants developed by the project consortium.

Although the guide focuses on the European context, its methodology is applicable to any European country or region, as it relies on official records, surveys, and standardised classifications.

2. Labour Market Concepts

This section introduces the key labour market concepts needed to carry out an analysis aimed at designing training and guidance interventions for vulnerable groups. Understanding these concepts is essential to correctly interpret labour market data and to plan effective vocational and employment-oriented strategies.

2.1 Key Labour Market Concepts

The fundamental concepts to understand include:

- **Labour force**: the total number of people who are employed or actively seeking employment. It is the sum of persons in employment plus persons in unemployment. Together these two groups of the population represent the current supply of labour for the production of goods and services taking place in a country through market transactions in exchange for remuneration.
- **Employment**: the condition of having paid work.
- **Unemployment**: the condition of not having a job while actively looking for one.
- **Labour market participation**: also known as the labour force participation rate, refers to the percentage of the working-age population that is either employed or actively seeking employment. It's a key indicator of the health and size of a nation's workforce.
- **Underemployment**: is a measure of the total number of people in an economy who are unwillingly working in low-skill and low-paying jobs or only part-time because they cannot get full-time jobs that use their skills.
- **Skill mismatch**: imbalance between the skills demanded by employers and those possessed by workers.
- **Precarious employment**: unstable work conditions such as temporary contracts or limited career progression.
- **NEET**: 'Not in Education, Employment, or Training' refers to young people who are currently not engaged in any form of work, study, or vocational training.

2.2 Indicators that help to identify and characterize vulnerable groups in the labour market?

In the context of the LMI4VET project, the focus is on indicators that reflect the inclusion or exclusion of vulnerable groups from the labour market. The indicators not only provide a snapshot of labour market dynamics but can also guide training strategies.

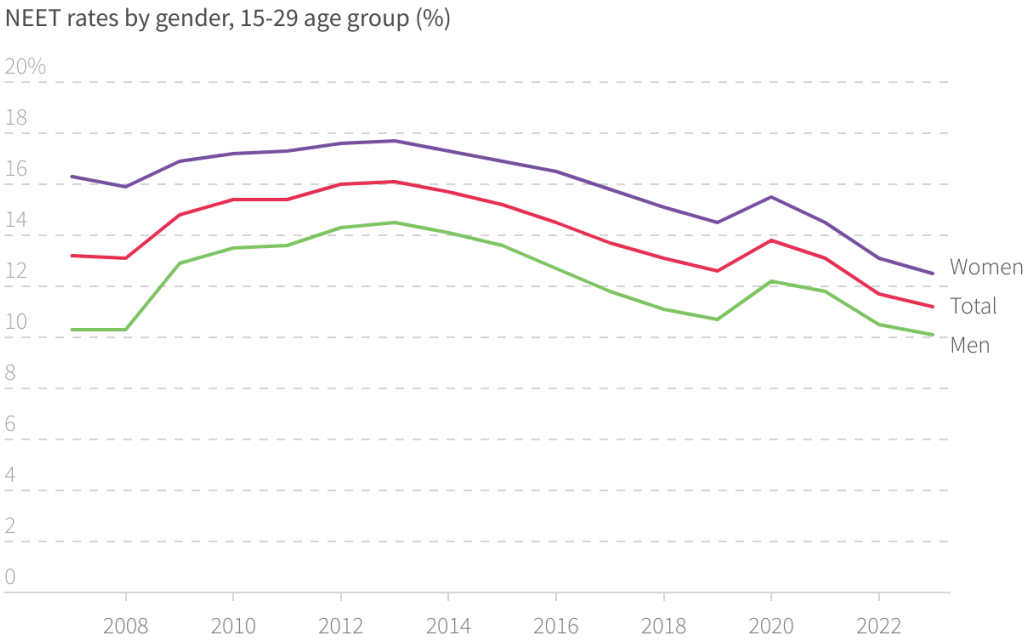
This sub-section presents the main labour market indicators relevant to vulnerable groups, with a focus on young people not in education, employment or training (NEETs), early school leavers, long-term unemployed, and other at-risk populations. This set of indicators is crucial for monitoring the integration of vulnerable populations into the labour market and for designing targeted interventions within education, training, and employment policies.

Below are the main indicators, their interpretation and how they can be calculated.

2.2.1 NEET Rate (15–29 years)

- Meaning: measures youth disengagement from education, training, and employment.
- How to calculate: NEET Rate = (NEET Population aged 15–29 / Total Population aged 15–29) × 100
- Interpretation: a high NEET rate suggests a significant portion of young people are not engaged in productive activities, requiring targeted training or outreach programmes.

NEETs emerged as one of the most vulnerable groups following the 2008–2013 Great Recession. Youth unemployment soared above 40% in many EU countries, highlighting how young people are more vulnerable to economic recession than other age groups. In the EU27, the share of NEETs aged 15–29 peaked at 16.1% in 2013 with some improvement in the subsequent years due to policy measures like the Youth Guarantee. By 2019, the rate had fallen to 12.6%, the lowest point in 10 years. The COVID-19 pandemic and related economic restrictions have contributed to an increase in the NEETs rate to 13.8% in 2020, as a result of job loss and barriers to education and training for young people. The rate of NEETs has been steadily declining since 2021 and reached an all-time low of 11.2% in 2023. Furthermore, the proportion of discouraged workers among the NEET population is also at its lowest recorded level. The NEETs rate for young women aged 15–29 in the EU stood at 15.5% in 2020 and remains higher at 12.5% in 2023 than the rate of 10.1% for young men. The share is higher for young women in almost all Member States. In many countries, young mothers are now more likely to be NEET than young men, with family responsibilities the biggest reason for being NEET. However, EU policy measures specifically aimed at young mothers or young women more generally are scarce. Increased emphasis may be needed on the gender dimension of the NEET rate.



Source: Eurostat

Eurofound

2.2.2 Early School Leaving Rate

- Meaning: share of 18–24 years old not continuing education after lower secondary school.
- How to calculate: early School Leaving Rate = (Number of early leavers aged 18–24 / Total population aged 18–24) × 100
- Interpretation: indicates risk of long-term exclusion from quality employment. Relevant for designing second-chance education or upskilling offers.

In 2024, 9.3% of young people aged 18–24 in the EU left education and training early (having at most lower secondary education and not being in any form of training), with 10.9% of men and 7.7% of women affected. Country variation is wide: Croatia, Ireland, Greece, and Poland report rates below 5%, while Romania stands at 16.8%. After a long-term decline of about 1.8 percentage points since 2014, the rate has dropped from roughly 11.1% in 2022 to 9.6% in 2022, nearing the EU's <9% target for 2030.

2.2.3 Youth Unemployment Rate

- Meaning: percentage of 15–24 years old without a job but actively seeking one.
- How to calculate: youth Unemployment Rate = (Unemployed youth / Labour force aged 15–24) × 100
- Interpretation: high rates indicate barriers to labour market entry. Useful for evaluating the impact of vocational programmes.

As of April 2025 the EU youth unemployment rate stood at 14.8%, a slight decline from 15.0% in March 2025. In November 2024, the rate was 15.3%, up marginally from 15.2% in October. Among EU countries, Germany had one of the lowest youth unemployment rates at 6.4%. Historically, the rate has improved from higher levels seen during the COVID-19 pandemic and economic crises, yet it remains substantially higher than the overall EU unemployment rate, reflecting persistent challenges in transitioning young people from education into stable employment.

2.2.4 Long-term Unemployment Rate

- Meaning: people unemployed for more than 12 months.
- How to calculate: long-term Unemployment Rate = (Long-term unemployed / Total labour force) × 100
- Interpretation: reflects structural barriers and the need for intensive activation policies.

The long-term unemployment rate in the EU—defined as the share of unemployed individuals out of total unemployed who have been jobless for 12 months or more—fell to a record low of 1.9% in early 2025, the lowest since data collection began. This marks a modest rise from 1.8% in late 2024, yet the overall trend remains firmly downward. The drop reflects improved labour market conditions and stronger integration measures. However, geographical disparities persist: countries like Slovakia (3.5%), Spain (3.8%), and Greece (5.4%) report significantly higher rates, while the Netherlands, Malta, Czechia, Denmark, and Poland remain below 1%.

2.2.5 Labour Force Participation Rate (Women, Youth, +55)

- Meaning: share of working-age people active in the labour market.
- How to calculate: Participation Rate = (Labour force / Working-age population) × 100
- Interpretation: low participation may indicate social or economic exclusion, especially among women, disadvantaged youth or people over 55 years of age.

In Q1 2025, the overall EU labour force participation rate (ages 15–64) reached 75.4%, a modest uptick from 75.3% in Q4 2024. When focusing on youth (15–24), employment for young men stood at 37.1% and for young women at 32.7%, resulting in a participation gender gap of approximately 4.4 pp. Among the working-age population (20–64), women's labour participation lagged behind men by 10 pp (70.8% vs. 80.8%). In the case of people over 55 years of age, the rate stands at 69%, being 12 points higher among men than among women (75.2% men vs 63.1% women).

2.2.6 Underemployment Rate

- Meaning: people employed part-time or in low-skill jobs despite willingness to work more or use higher skills.

- How to calculate: Underemployment Rate = (Underemployed persons / Employed population) × 100
- Interpretation: reveals hidden inefficiencies and can justify demand for training or job redesign.

The overall underemployment rate in the EU stood at approximately 2.20% in 2024, down from 2.30% in 2023, and slightly above its long-term average of 2.14%. This reflects the share of workers—particularly part-time employees—who desire more hours or full-time positions but currently lack them. Despite a modest year-on-year improvement (−0.10 pp), this indicator highlights persistent underutilization in the labour market, notably affecting youth and vulnerable worker groups.

One of the EU's core strategies to combat underemployment is investing in **upskilling and reskilling the workforce.** Through initiatives like the **European Skills Agenda**, the EU promotes lifelong learning to help individuals adapt to evolving labour market demands, particularly in the digital, green, and care sectors. These efforts aim to reduce skill mismatches and enable workers—especially those in precarious or part-time jobs—to transition into more stable and better-matched roles. Programs such as **individual learning accounts, micro-credentials,** and **vocational education and training (VET)** pathways are supported across Member States, with funding from instruments like **ESF+** and **Erasmus+**. By strengthening people's skills, the EU empowers them to secure more adequate, full-time employment and to progress in their careers.

2.2.7 Temporary/Precarious Employment Rate

- Meaning: percentage of workers with unstable contracts or little protection.
- How to calculate: Precarious Employment Rate = (Number of temporary workers / Total employed) × 100
- Interpretation: higher rates among youth may reflect entry-level job issues or exploitation.

In 2023, 11.6% of employed persons (aged 15–64) in the EU held fixed-term contracts, equivalent to approximately 23.1 million individuals. Youth are particularly affected: among those aged 15-29, 32.1% were temporary workers, compared to just 7.9% for ages 30-54. The gender gap persists, with women consistently more likely than men to be in temporary roles, a difference of around 2 percentage points from 2017 to 2023. Additionally, around one-third of workers who have low levels of education and are also parents are employed under temporary contracts. Among them, women are particularly affected: 16.2% of women in this group hold such precarious employment. While the share of temporary workers has gradually declined since the pandemic, it remains significantly high, especially among young and vulnerable populations, trending around 32% for youth, with certain countries like the Netherlands (50.3%) and Italy (37.8%) particularly affected.

2.2.8 Low-skilled Employment Rate

- Meaning: people working in occupations that require only basic education or training.
- How to calculate: Low-skilled Employment Rate = (Low-skilled employed / Total employed) × 100
- Interpretation: signals potential mismatch and the need for upskilling or education pathways.

In the EU, approximately 46% of adults (around 128 million people) are classified as low-skilled—typically with lower secondary education or less—making them vulnerable to precarious employment, unemployment, and underutilization in the labour market. To tackle this, the EU implements targeted strategies under frameworks like the European Skills Agenda and Flexicurity, supported by major funds such as ESF+. Key measures include:

a. Upskilling and Reskilling: Providing access to lifelong learning, vocational training, micro-credentials, and individual learning accounts to improve basic and job-relevant skills.
b. Active Labour Market Policies (ALMPs): Including public employment services, training subsidies, job-placement schemes, and wage incentives to integrate low-skilled workers into meaningful work.
c. Flexicurity Approach: Balancing flexible contracts with strong social safety nets and continuous training to enable smooth transitions and reduce labour-market segmentation.

These efforts are co-funded by ESF+ (with an €88 billion budget through 2027) and coordinated via the European Semester's country-specific recommendations, ensuring that Member States implement tailored reforms to uplift low-skilled workers into stable, well-matched jobs.

2.2.9 Gender Employment Gap

- Meaning: difference in employment rates between men and women.
- How to calculate: Gap = Employment Rate (men) - Employment Rate (women)
- Interpretation: shows the gender inequality in labour participation. Useful for mainstreaming gender in programme design.

In 2024, the gender employment gap in the EU stood at 10.0 percentage points, indicating that the employment rate of working-age men (20–64) exceeded that of women by this margin. The gap has narrowed over the past decade - from around 15 pp in 2005 to 10 pp today - reaching its lowest level in twenty years. Nonetheless, wide disparities persist across Member States: Finland (0.7 pp), Lithuania (1.4 pp), Estonia (1.7 pp), and Latvia (3.3 pp) have the smallest gaps, while Italy (19.4 pp), Greece (18.8 pp), and Romania (18.1 pp) record the largest.

2.2.10 Disability Employment Gap

- Meaning: difference in employment rates between people with and without disabilities.

- How to calculate: Gap = Employment Rate (non-disabled) - Employment Rate (disabled)
- Interpretation: indicates structural barriers. Can support inclusive policy design and targeted interventions.

In 2024, the employment gap between people with and without disabilities in the EU stood at 24.0 percentage points, meaning that individuals with disabilities were markedly less likely to be employed. This gap has remained stubbornly high for over a decade, lingering above 21 pp from 2014 to 2022. The situation is compounded by the fact that only about 51.3% of working-age individuals with disabilities are in paid employment. Regional disparities also persist: the gap is narrower in Italy and Greece, but exceeds 25 pp in many Baltic countries and Croatia. This entrenched inequality underscores a critical challenge for inclusive labour markets in Europe.

To address the persistent employment gap for people with disabilities, the EU promotes a range of inclusive labour market strategies. In 2023, the EU introduced a framework for quality jobs for people with disabilities, which sets out common standards on accessibility, fair pay, reasonable accommodation and career development. Public employment services (PES) also play a key role by providing personalised job placement services and staff training. Finally, efforts to ensure inclusive education and a smooth transition from school to work through apprenticeships, VET programmes and career guidance are essential to promote the long-term employment of people with disabilities.

2.2.11 Employment Gap between natives and foreigners

- Meaning: difference in employment rates between native-born individuals and people with a migrant background (foreign-born or with foreign-born parents).
- How to calculate: Employment Rate (native-born) – Employment Rate (foreign-born or second-generation migrants)
- Interpretation: this indicator reveals structural barriers to labour market inclusion faced by migrants and their descendants. A large gap suggests unequal access to employment opportunities, often caused by discrimination, lack of recognition of qualifications, limited language skills, or reduced access to support networks. Monitoring this gap is crucial for assessing labour market integration and guiding inclusive policy design.

Eurostat data show that the overall EU employment rate reached 75.8% in 2024. However, foreign-born individuals in the 20–64 age group lagged behind at around 66.3%, implying an employment gap of approximately 9.5 pp. This gap standardly exceeds 15 pp in several Member States—for example, Sweden, the Netherlands, and Belgium—while it remains significantly narrower in countries like Portugal and Italy.

Additionally, foreign-born persons and their immediate descendants show a higher incidence of precarious job types (e.g. temporary contracts, part-time work and elementary occupations)—for example, foreign-born share in elementary occupations was 18.2% in 2023, compared to only 5–7% for native-born individuals with native parents.

Table 1 summarises the indicators described above.

Table 1: Key Indicators for Vulnerable Groups

Indicator	Meaning	Data Source
NEET Rate (15–29 years)	Measures youth disengagement from education, training, and employment	Eurostat, ILOSTAT
Early School Leaving Rate	Share of 18–24 years old not continuing education after lower secondary school	Eurostat
Youth Unemployment Rate	Percentage of 15–24 years old without a job but actively seeking one	Eurostat, ISTAT
Long-term Unemployment Rate	People unemployed for more than 12 months	Eurostat
Labour Force Participation Rate	Share of people active in the labour market	Eurostat, ILOSTAT
Underemployment Rate	Involuntary part-time workers or underutilised workforce	ILOSTAT
Temporary/Precarious Employment Rate	Indicator of labour market instability and vulnerability	Eurostat
Low-skilled Employment Rate	Jobs requiring minimal qualifications or training	CEDEFOP, Skills-O-Meter
Gender Employment Gap	Difference in employment rates between men and women	Eurostat
Disability Employment Gap	Difference in employment rates between people with and without disabilities	Eurostat, national data
Origin Employment Gap	Difference in employment rates between native-born individuals and people with a migrant background	Eurostat, EU Commission

Links

Indicator	Link
NEET Rate (15–29 years)	https://ec.europa.eu/eurostat/databrowser/product/view/lfsi_neet_a?utm
Early School Leaving Rate	https://ec.europa.eu/eurostat/databrowser/view/edat_lfse_14/default/table?utm
Youth Unemployment Rate	https://ec.europa.eu/eurostat/databrowser/view/tesem140/default/table?utm
Long-term Unemployment Rate	https://ec.europa.eu/eurostat/databrowser/view/une_ltu_a/default/table?utm
Labour Force Participation Rate	https://ec.europa.eu/eurostat/databrowser/view/lfsi_act_a/default/table?utm
Underemployment Rate	https://ilostat.ilo.org/topics/unemployment-and-labour-underutilization/?utm
Temporary/Precarious Employment Rate	https://ec.europa.eu/eurostat/databrowser/view/lfsi_emp_a/default/table?utm

Low-skilled Employment Rate	https://www.cedefop.europa.eu/en/tools/skills-intelligence/datasets?utm
Gender Employment Gap	https://ec.europa.eu/eurostat/web/products-eurostat-news/w/ddn-20250527-1?utm
Disability Employment Gap	https://data.europa.eu/data/datasets/tbrhqm5vm0zrcz3arcfg?locale=en&utm
Origin Employment Gap	https://ec.europa.eu/eurostat/databrowser/view/lfsa_ergan/default/table?utm

2.3 Structural Labour Market Indicators

In addition to indicators focused on vulnerable groups, a complete labour market analysis should consider broader structural indicators to contextualise labour market inclusion and identify future opportunities. These include employment and unemployment rates, contract stability, skills mismatch, and sectoral trends.

2.3.1 Employment Rate

- Meaning: proportion of the working-age population (usually 20–64) who are employed.
- How to calculate: Employment Rate = (Employed persons / Working-age population) × 100
- Interpretation: indicates the overall capacity of the labour market to absorb workers.

2.3.2 Unemployment Rate

- Meaning: proportion of the active labour force who are unemployed but actively seeking work.
- How to calculate: Unemployment Rate = (Unemployed persons / Labour force) × 100
- Interpretation: a key indicator of labour market health and pressure points.

2.3.3 Absolute Number of Employed/Unemployed

- Meaning: total number of employed and unemployed persons.
- Interpretation: adds context to relative rates and helps quantify target groups for interventions.

2.3.4 Contract Rotation Rate

- Meaning: average number of contracts per person hired in a given period.
- How to calculate: Rotation Rate = (Number of contracts / Number of people hired)
- Interpretation: high values suggest job instability and contract fragmentation.

2.3.5 Social Security Affiliation

- Meaning: number of individuals formally registered in social protection systems.
- Interpretation: useful proxy for formal employment and inclusion.

2.3.6 Overqualification Rate

- Meaning: share of workers with higher education employed in jobs requiring lower qualifications (ISCO 4–9).
- How to calculate: (Highly educated workers in low-skill occupations / Total highly educated workers) × 100
- Interpretation: signals mismatch and inefficient use of skills.

2.3.7 Hiring Trends

- Meaning: change in the number of hires over time for specific occupations.
- How to calculate: difference in the number of contracts between one period and another
- Interpretation: allows detection of emerging or declining occupational fields.

2.3.8 Occupational Mismatch Ratio

- Meaning: compares unemployed jobseekers with the number of people hired with permanent contracts in the same occupation.
- How to calculate: Mismatch Ratio = (Unemployed jobseekers / Permanent hires)
- Interpretation: values <1 indicate potential shortages; >1 indicate excess supply.

2.3.9 Digital/Green Skills Demand

- Meaning: demand for digital or sustainability-related competencies in job offers.
- How to calculate: calculate the percentage of green skills in relation to the total skills required for a job
- Interpretation: aligns training with transitions in the labour market.

2.3.10 Low literacy rate

- Meaning: share of adults low proficiency level in literacy and numeracy
- How to calculate: (Adults with low proficiency level/ total working-age population) x 100
- Interpretation: Indicates basic skill needs

  *Data may not be available for this operation depending on the country

Table 2 summarises the indicators described above.

Table 2: Structural Labour Market Indicators

Indicator	Meaning	Interpretation	Data Source
Employment Rate	Share of working-age population currently employed	Shows labour market absorption capacity	Eurostat, ILOSTAT
Unemployment Rate	Share of active labour force who are unemployed	Reflects labour market stress or underperformance	Eurostat, ILOSTAT
Absolute Employment/Unemployment	Total number of people employed/unemployed	Adds quantitative depth to relative indicators	National Statistics,

			Labour Force Survey
Contract Rotation Rate	Average contracts per person hired	Higher rates indicate job instability	Administrative data, National employment registries
Social Security Affiliation	People formally registered in the social security system	Proxy for formal employment	Social Security Authorities
Overqualification Rate	Highly educated workers in low-skilled jobs	Signals mismatch and inefficient skills use	Eurostat, Labour Force Survey
Occupational Mismatch Ratio	Unemployed vs. permanent hires in same occupation	Identifies potential shortages or surpluses	Public Employment Services, ISCO-based data
Hiring Trends	Growth/decline in contracts over time	Highlights emerging or declining occupations	Labour force and employer surveys
Digital/Green Skills Demand	Presence of digital/sustainability skills in job ads	Aligns training with labour market transitions	CEDEFOP, Skills-OVATE, national job portals
Low literacy rate	Share of adults low proficiency level in literacy and numeracy	Indicates basic skill needs	Eurostat, CEDEFOP, OECD, national statistical offices

Links

Indicator	Link
Employment Rate	https://ec.europa.eu/eurostat/databrowser/view/lfsi_emp_a/default/table?utm
Unemployment Rate	https://ec.europa.eu/eurostat/databrowser/view/une_rt_a/default/table?utm
Absolute Employment/Unemployment	https://ec.europa.eu/eurostat/databrowser/view/lfsi_act_a/default/table?utm
Contract Rotation Rate	https://ec.europa.eu/eurostat/databrowser/view/lfsi_jhov/default/table?utm
Social Security Affiliation	https://ec.europa.eu/eurostat/databrowser/view/lfsa_arga/default/table?utm
Overqualification Rate	https://ec.europa.eu/eurostat/databrowser/view/edat_lfse_14/default/table?utm
Occupational Mismatch Ratio	https://ec.europa.eu/eurostat/databrowser/view/lfsi_urgan/default/table?utm
Hiring Trends	https://ec.europa.eu/eurostat/databrowser/view/jvs_a_nace2/default/table?utm
Digital/Green Skills Demand	https://www.cedefop.europa.eu/en/tools/skills-intelligence/skills-ovate?utm

Low Literacy Rate	https://ec.europa.eu/eurostat/web/microdata/adult-education-survey?utm

3. Step-by-step process for conducting a good labour market diagnosis

The objective of this section is to provide a step-by-step for conducting labour market diagnosis of quality, detailing all the aspects to be analysed and the information provided by each aspect/indicator. It is recommended to follow this methodology step by step, but depending on the objective of the assessment, some aspects may be omitted.

The analysis can be divided into two main sections: on the one hand, a study of the country's socioeconomic situation and its impact on the labour market is conducted, analysing demographic data, the evolution of key rates (activity, employment and unemployment), economic data (GDP) and information about the education system; on the other hand, it analyses exclusively labour market information, conducting a detailed analysis of job supply, hiring, Social Security affiliation, job offers and skills, employment conditions and salaries, overqualification and future forecasts.

3.1 Conducting a good socioeconomic analysis and its impact on the labour market

This first sub-section aims to provide background information to better understand the current labour market situation. Knowing and having data to understand the macroeconomic situation of a country or region allows for a better understanding of the reasons and causes for the data and its evolution and helps contextualise the situation. This information provides a basis for interpreting labour dynamics more accurately and formulating more effective policies or strategies. In other words, the labour market does not operate in isolation but is influenced by demographic, economic, social, and political factors. Therefore, this type of preliminary analysis allows for the detection of structural characteristics that influence labour supply and demand and directly influence job creation or destruction.

a. Demographics

The first area to analyse is demographics. Understanding the population structure of a territory reveals the challenges a society will face in the near future, as it helps identify population segments that may become scarce, with the resulting consequences. Analysing population structure at different times helps identify the segments in question. Therefore, it is interesting to analyse population structures for the current year and past years to gain a historical perspective and also analyse population forecasts.

For a complete view, it is necessary to disaggregate population information based on different variables (gender, age groups, nationality, educational level, or another series of variables more focused on vulnerable groups such as type of families, recipient of basic income or not, type of

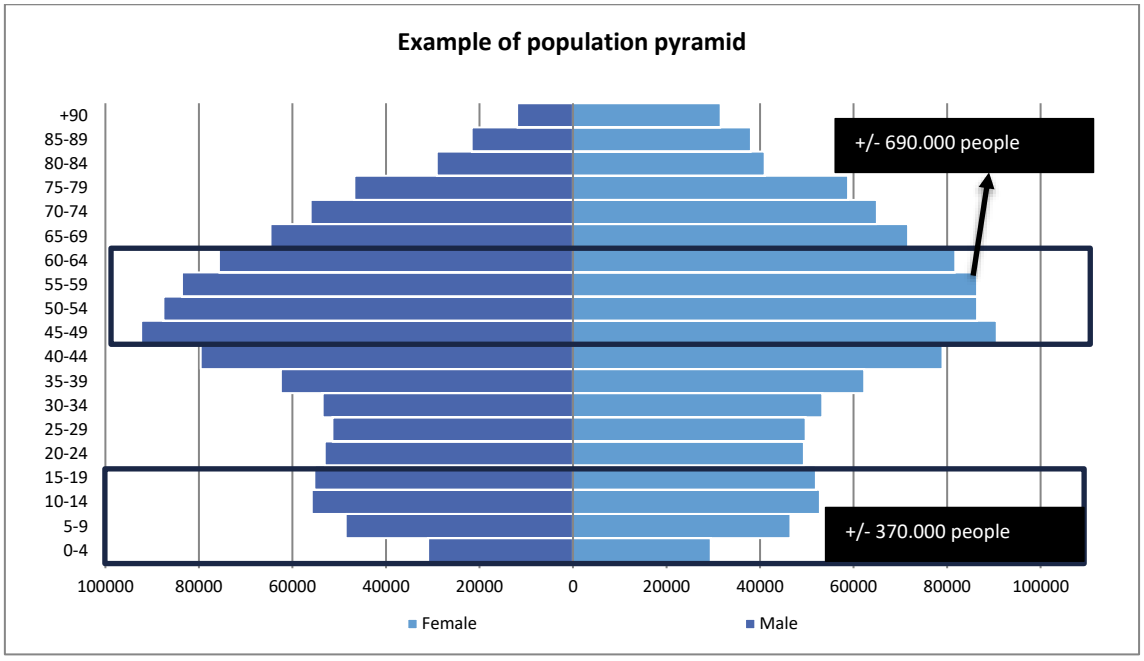
housing, belonging to ethnic minorities, etc. if it is possible). One of the most interesting operations in this section is to create a population pyramid based on demographic data. This type of graph offers a clear and concise visualization of the population distribution by age and gender, allowing for the identification of key demographic trends and the prediction of social, economic, and employment implications. The shape of the pyramid reveals structural patterns:

- Expansive pyramid: wide base and narrow top, typical of countries with high birth and death rates, showing a young population
- Stationary pyramid: base and body relatively balanced, indicating moderate population growth
- Regressive pyramid: narrow base and wide top, characteristic of countries with low birth rates and aging populations. Currently common in most countries of the European Union

It is also interesting to conduct detailed analyses of the different age groups most directly linked to the labour market. On the one hand, we have the 20–64 age group—that is, the population of working age. This segment is crucial, as it sustains the rest of society through labour market participation, the production of goods and services, and the payment of taxes.

On the other hand, the group aged 65 and over is equally significant. Its importance lies not only in its current social and economic impact, but also in the implications its growth holds for the future. As populations age—particularly in developed countries—this group plays a central role in studies of demography, labour, healthcare, and the sustainability of the welfare state.

Finally, the age group under 20 years old must also be considered. This segment represents the future labour force, destined to replace those leaving the market and to serve as the main foundation of tomorrow's economy.



The image above shows an example of a population pyramid, a shape that could be similar to that of any country in the European Union, given its regressive shape (narrow base and wide apex). Furthermore, this type of visualization allows us to observe the mismatch between future labour market exits and entries, thereby quantifying the real need for professionals in a given region or country to maintain the current capacity of the productive system.

For example, the graph shows how the shift in retirement age groups will be over the next 20 years. For the analysis, although the retirement age may not remain at 65 and although many people between 16 and 19 years old may be employed, it is assumed that the group of potentially active people is made up of people between the ages of 20 and 64. Thus, there is a group of people who are currently part of the potentially active population but who will become over 65 in the next 20 years (becoming pensioners). This group, in the example provided, is expected to number approximately 690,000 people. The group of people who are supposed to replace the previous group—people who are currently excluded from the labour market due to their age (under 20) but who will become part of the working population segment in the future—in the example, barely represents half of the previous group (370,000 people). This means that more than 300,000 people are needed to maintain the population structure of that territory.

b. Activity, employment and unemployment rates

This section analyses the main rates and their evolution, disaggregating the information by the most significant variables. This is essential for a thorough understanding of the actual functioning of the labour market and for designing effective, inclusive policies tailored to different social realities.

The activity, employment, and unemployment rates are key indicators of the labour market and reflect the working-age population's employment and unemployment behaviour. The three main rates provide complementary information:

- Participation rate: shows the percentage of the working-age population actively participating in the labour market (employed + unemployed seeking employment). A high rate indicates greater labour market participation
- Employment rate: this indicates what proportion of the working-age population is employed, or in other words, an economy's ability to employ its population. A high rate suggests a strong and dynamic labour market
- Unemployment rate: reflects the percentage of working people who are unemployed but looking for work. A high rate implies difficulties in finding employment, while a low rate indicates a tighter labour market or greater demand for workers

The three rates are interconnected. The unemployment rate depends on the activity rate, as it only affects those who are active (not inactive people such as students, retirees, etc.).

Conversely, a low employment rate may be due to a high unemployment rate or a low activity rate (a large inactive population).

Analysing their evolution over time allows for the detection of economic cycles (boom or recession). Furthermore, disaggregation by significant variables (gender, age, education, sector, territory, nationality, or another series of variables more focused on vulnerable groups such as type of families, recipient of basic income or not, type of housing, belonging to ethnic minorities, etc. if it is possible) reveals realities hidden by overall averages:

- Gender: gaps in female labour force participation, differences in unemployment, or occupational segregation can be identified
- Age: shows the labour insertion of young people (typically more precarious) and the prolongation or exit from employment of those over 55
- Educational level: allows us to assess how training influences employment opportunities
- Region or municipality (territoriality): helps identify areas with high unemployment rates or low activity levels, which is key for territorial policies
- Another series of variables more focused on vulnerable groups such as type of families, recipient of basic income or not, type of housing, belonging to ethnic minorities, etc.: to disaggregate statistics by these variables helps identify social inequalities and reveal how vulnerable groups are differently affected by various socio-economic conditions

c. Population in relation to activity

Knowing the absolute data on the active, employed, and unemployed population—in addition to the relative rates, already analysed in the previous section—is essential to complement the diagnosis, as they provide a real and tangible quantitative dimension that rates alone do not always fully reflect. Rates are relative proportions that allow comparisons between territories, groups, or periods, but they do not show how many specific people are in each situation. Absolute data do.

Rates can hide significant changes if not considered alongside absolute data. An unemployment rate may fall, but the absolute number of unemployed people may remain stable or even rise if the labour force grows faster than employment. Or, the labour force may decline due to discouragement or aging, and the unemployment rate may improve without actual employment increasing. Absolute values allow us to verify whether improvements in rates truly reflect an improvement in the amount of employment or are due to other factors. They also help identify whether it is the denominator or the numerator that influences the rate's rise or fall.

- The working population is made up of all people of working age (usually 16 years and older) who are available and willing to participate in the labour market, either working (employed) or looking for work (unemployed)
- The employed population is the subset of the active population that actually has a job, whether as an employee, self-employed, cooperative member, or unpaid family helper

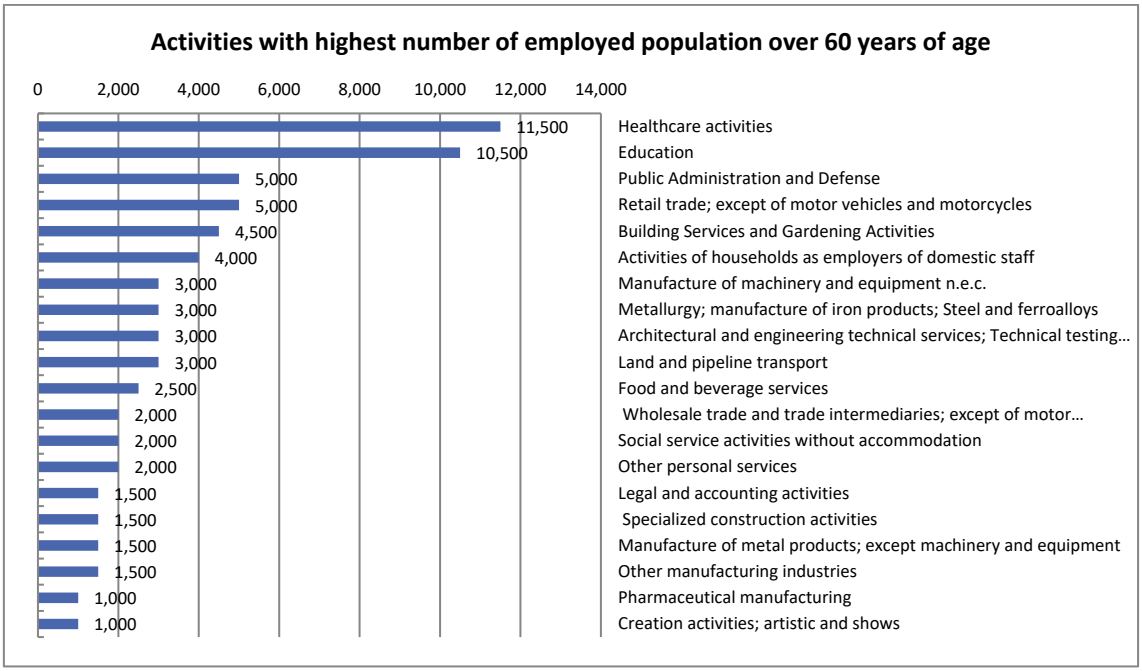
- The unemployed population are those without jobs but those who are available for work and are actively seeking employment

d. Employed population over 60 years of age

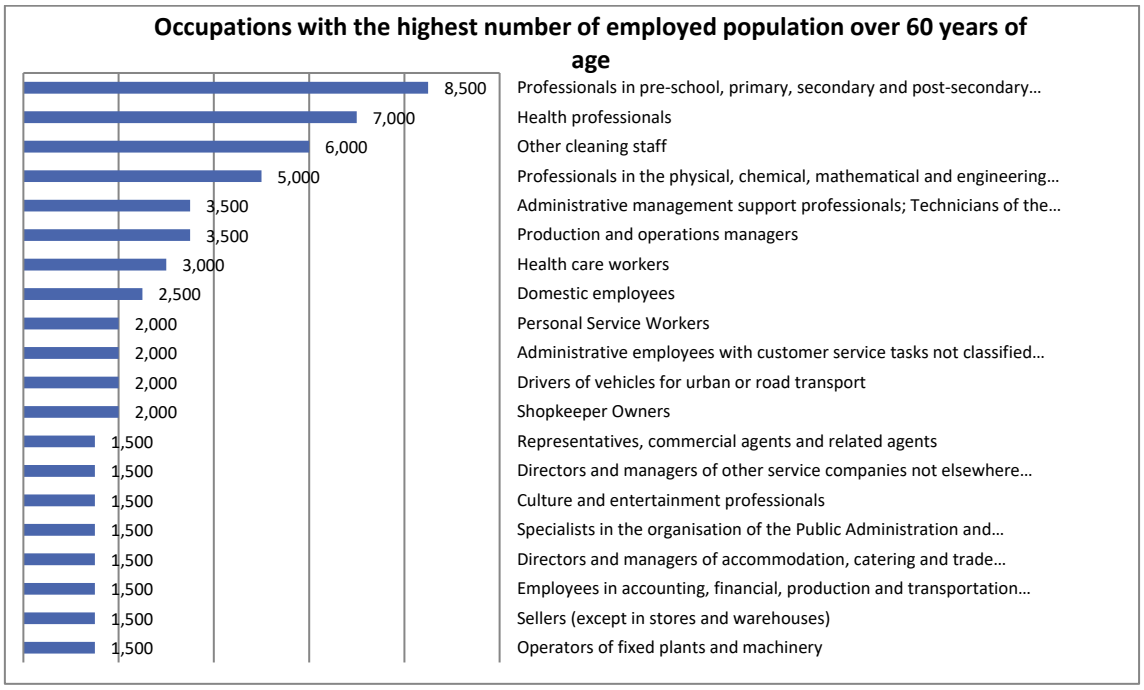
It is particularly interesting to analyse the weight and characteristics of the population over 60 years of age within the working population, in order to quantify the percentage of the working population approaching retirement (depending on the case or need, this analysis could also be carried out on individuals over 55 years of age or even 50 years of age). The disaggregated analysis of the 60- to 64-year-old group is especially interesting because this group is in a critical transition period between active working life and retirement. Their employment, social, and economic situation has a direct impact on the sustainability of the labour market, the pension system, and active aging policies.

If data permits, it is advisable to conduct this analysis by disaggregating the information by activities and occupations, in order to identify the critical activities and occupations in this regard (those with the greatest expected need for replacement) and which therefore require special monitoring.

Below are graphic examples of this type of analysis:



This chart shows the activities with the highest number of people over 60 years of age employed, that is, those that will require the greatest number of professional replacements in the short term, and therefore, it is of particular interest to monitor them closely. It also provides clues to activities of interest for the guidance of our groups.



Even more interesting is the occupation analysis, as it can provide clues to occupations with positive short- to medium-term prospects that could be of interest to our target group, given the high number of replacements they need to meet in order to continue responding to market demands.

e. Macroeconomic data

We recommend also analysing the Gross Domestic Product (GDP) of a territory, since this macroeconomic indicator reflects the level of economic activity in the territory and is directly related to the capacity to generate employment, the quality of the jobs created, and their productivity. This macroeconomic indicator measures the total monetary value of the final goods and services produced by a country, region, or economy in a given period (usually a quarter or a year), and is the most widely used measure for estimating the size and health of an economy.

There are three types of GDP:

- Nominal GDP, calculated using current prices for the current year (inflation effect)
- Real GDP, calculated at constant prices (base year) and used to measure the pure growth of an economy (the one normally used when referring to growth)
- GDP per capita, which measures economic well-being per inhabitant (used for comparisons between countries and regions of different sizes)

When GDP grows, demand for goods and services typically increases, generating greater hiring needs and, therefore, more employment. Conversely, a contraction in GDP often leads to layoffs, reduced working hours, or hiring freezes.

f. Information about the education system

Another of the fundamental aspects to complete the picture of the socioeconomic context in the design of labour market diagnoses is the education system, since it constitutes the pool of future professionals (with their skills and qualifications) who will feed the labour market. Analysing their structure, results and evolution makes it possible to anticipate training imbalances, predict qualification trends and guide employment and training policies.

In this section, different analyses are proposed:

- Analysis of the distribution and evolution of students by educational levels: Compulsory Secondary Education, Baccalaureate, Vocational Training (basic and higher), university studies (bachelor's, master's, doctorate)
- School failure (not reaching the minimum compulsory secondary education qualification) and early school leaving (percentage of young people aged 18–24 who do not continue studying and do not have a post-compulsory qualification)
- Situation of the NEET (young people who neither study nor work)

3.2 Conducting a good diagnosis of the labour market

In this sub-section, the objective is to analyse the employment dynamics (contracts, job offers, employment conditions, overqualification) for the main groups (job seekers, affiliated people and hired people).

g. Labour supply

Before beginning to discuss the job-seeking population, it is important to mention that this guide does not propose a separate analysis of the two main groups in the job market (unemployed jobseekers and employed jobseekers). The key is to analyse the overall demand of employment (or job supply), since it is assumed that if a person is registered as a jobseeker, their goal is to find a job. Labour supply is the availability of people who are willing and able to work, meaning the pool of workers offering their skills on the labour market. Therefore, the entire group, both unemployed and employed, represents a pool of professionals to consider if there is a need for a specific profile in the market. However, depending on the objective of the diagnosis, the analysis proposed in the guide could be carried out specifically for unemployed or employed jobseekers.

The important thing when analysing demand is to disaggregate the information by the main demographic variables (age, gender, nationality, academic level, or another series of variables more focused on vulnerable groups such as type of families, recipient of basic income or not, type of housing, belonging to ethnic minorities, etc., if it is possible) in order to observe the behaviour and specific characteristics of each group and to identify the groups that are most

prevalent among job seekers, as well as which groups have the greatest and least difficulties in accessing the labour market.

Some characteristics of the job seeker group:

- As age increases, the number of people seeking employment increases
- The lower the level of education of the individual, the greater the probability that he or she will apply for a job

Demand analysis can also identify the most in-demand occupations in a specific market and determine which activity is driving the most people out of the labour market. It can also observe cyclical patterns in certain activities, as well as the relationship between unemployment and social assistance provided by local, regional, or national governments.

h. Hiring

To study hiring, two types of analysis are proposed: first, analysing the number of contracts signed in the territory, and second, analysing the number of people hired. Then, with the information obtained, we can calculate the contract rotation rate, that is, how many contracts are signed for each person hired (on average), a figure that helps analyse the stability/precariousness of contracts in the territory.

The analysis of this concept makes it possible to observe the labour market entry patterns of individuals over a specific period (1 month, 3 months, 6 months, 1 year, 4 years, etc.). It applies both to people entering the market for the first time and to those who leave and re-enter, whether continuously or not. In other words, it is important to emphasize that the analysis of employment is not an analysis of the employed population. However, this does not diminish the importance of analysing this concept, as it is an interesting tool for observing how many jobs are being created in a given period in a specific territory, which sectors and occupations are driving the economy, and so on. It is a more short-term indicator than total employment, but it allows us to detect recent changes in economic activity.

In the analysis of hiring in general (number of contracts), it is not only how much is hired that matters, but also how it is hired, giving clues about job stability, precariousness, etc.:

- type of contract (permanent/temporary)
- type of workday (full/part-time)
- duration of contracts…

The analysis of employed people, however, allows for another complementary approach, since a person can sign multiple contracts in the same year or even in the same month. Therefore, if we only analyse the total number of contracts signed, we may overestimate actual job creation and fail to detect the rotation or precariousness associated with multiple temporary contracts. When analysing employed people, each person is counted only once, regardless of the number of contracts they have signed. In this regard, rather than disaggregating information by job-

related variables (type of contract, type of working hours, etc.), it makes more sense to work with demographic variables such as:

- Gender and age: Which groups are being hired the most?
- Educational level: What academic level do people have when they access the job?
- Place of residence: Is there territorial inequality in access to work?
- Nationality: Are there differences between the native and foreign communities?
- Analysis of specific groups: long-term unemployed, migrants, people with disabilities, single-parent families, recipient of aid, ethnic minorities, etc.

Now, by combining both factors (number of contracts and number of people employed), we can calculate the contract rotation index, that is, calculate the average number of contracts each person signs in a given period in a given territory. This indicator reveals how many contracts are needed to fill a single job or employ a single person, and is key to detecting patterns of precariousness, temporary employment, or excessive flexibility.

This analysis could be conducted disaggregated: by activity, by occupation, by gender, by age group, etc., to understand the behaviour of each group or economic activity/occupation in relation to contract stability and rotation. For example, a value of 3 on the index indicates that each person hired in the territory signed an average of three contracts during that period. The lower the index, the more stable the contracting; conversely, the higher the index, the lower the stability.

Below is an example table (fictitious data):

		People hired	Number of contracts	Rotation rate
Age groups	< 25 years old	2,000	3,500	1.8
	25-34 years old	3,000	6,500	2.2
	35-44 years old	3,500	8,000	2.3
	45-54 years old	2,500	7,000	2.8
	> 54 years old	1,000	2,000	2.0
Gender	Male	9,500	22,000	2.3
	Female	2,500	5,000	2.0
Academic level	Mandatory studies	4,000	12,000	3.0
	Baccalaureate	1,500	4,000	2.7
	VET	4,000	7,500	1.9
	University level	2,500	3,500	1.4
Origin	Native	10,500	22,500	2.1
	Foreigner	1,500	4,500	3.0
Total		12,000	27,000	2.3

It is observed that the general turnover rate is 2.3 contracts (i.e., each person hired on average signs 2.3 contracts), with turnover being higher among the 45-54 age group, among men, among people with lower academic levels, and among natives.

i. Affiliation

Other segments of the labour market that would be interesting to analyse are those affiliated with Social Security, as the main employed group in the labour market, which allows us to obtain

a formal and structural view, since it represents all people who have a declared employment or professional relationship and contribute to the social protection system.

A person affiliated with Social Security is someone who is registered in one of the system's schemes, either as an employee (salaried), self-employed (self-employed), civil servant, or other special groups.

It is an operation that allows disaggregating information by the main variables of the labour market:

- Sex and age
- Type of workday (full or partial)
- Type of contract (indefinite, temporary, fixed term)
- Economic Activity (NACE)
- Membership regime (general, self-employed, etc.)
- Place of work (province, municipality, region...)

j. Job offers and skills

Another aspect of interest when conducting a labour market assessment is the analysis of job postings, as a reflection of company demand. Job postings provide highly relevant information, as it is the only way to statistically observe what companies are demanding at a given time: what profiles, skills and sectors they are actively recruiting for.

While other indicators (such as job supply) show the supply of job seekers, job postings indicate what type of jobs companies are willing to offer at that time. It allows us to know which occupations are most in demand, what levels of training or experience are most in demand, what technical or soft skills are valued, and so on. Currently, there are tools that allow this type of analysis to be carried out in real time with information extracted from both official job portals (public employment services) and the main online job portals. This allows us to analyse vacancies published on official and unofficial channels.

Depending on the variables to be used, the information could be disaggregated based on the following areas:

- By occupation/professional group: IT technicians, salespeople, operators, healthcare workers, teachers, etc.
- By economic sector: industry, construction, hospitality, ICT, healthcare, personal services...
- By type of contract: permanent, temporary, part-time, full-time...
- By required educational level: mandatory studies, baccalaureate, vocational educational training, university degree...
- Based on previous experience: first job, less than a year, more than three...
- By geographical area: province, region, municipality...

- By publication channel: private portals, public employment services...

Furthermore, these types of portals and tools currently allow for analysis of job offers and vacancies based on the skills in demand. In recent years, we have seen a shift in the way we analyse these issues, moving from an analysis based on training, certifications, accreditations, and so on, to one based on competencies and skills. The increasing prioritisation of competencies over training and certifications in labour market analyses and selection processes responds to structural changes in employment, the economy, and the way people learn. A degree or qualification certifies that someone has undergone an educational process, but it does not necessarily guarantee that they have mastered certain practical skills or that they can apply them in real-life contexts. However, competencies are observable, assessable, and applicable, and answer the question: can this person perform this task well, under these conditions, autonomously and effectively?

Therefore, unlike traditional analyses focused on sectors, occupations, or contracts, this approach is based on understanding what the workforce knows how to do and what companies actually demand in terms of skills, knowledge, and attitudes. Skills are currently classified as follows:

- Techniques or “hard skills” (specific): handling of tools, software, languages, specific methodologies. E.g.: CAD design, logistics, digital marketing, accounting, welding…
- Transversal or “soft skills” (generic): transferable between occupations. E.g., problem-solving, creativity, time management, teamwork, leadership…
- Digital skills: from basic skills (office, email…) to advanced skills (machine learning, cybersecurity…)
- Green or sustainable skills: linked to circular economy, energy efficiency, environmental management…

In this way, competency analysis plays a fundamental role in guiding groups toward the labour market, especially in a context marked by digital transformation, the ecological transition and structural changes in employment. Having this information makes it possible to identify, assess, and enhance a person's real capabilities beyond their qualifications, and guide their professional integration based on: what they already know how to do (even if they haven't formally learned it), what they lack to access the desired job, and what the labour market is demanding.

For skills analysis, Cedefop (European Centre for the Development of Vocational Training) offers a number of really interesting online tools, with detailed information at country level (even in some operations information at regional level). Among other solutions, it has:

- Results of European skills & jobs survey
- Different indices have been developed, such as an index composed of 15 indicators that measures skills systems in different countries (European skills index) or another index that explores staff shortages, replacement and qualitative mismatches by country and occupation (Labour & Skills Shortage Index)

- Quantitative projections of employment by sector and occupation until 2035 (Skills Forecast) and short-term projections of employment by occupation at the ISCO level (STAS – Short-term anticipation of skills trends and VET demand)
- Inventory of 126 current and future policies (in 28 countries) to anticipate and adjust skills needs (Matching Skills)
- Different analyses, such as one of skills in demand in job advertisements (Skills-OVATE - Skills Online Vacancy Analysis Tool for Europe) or another visualization tool with thematic aspects on digitalization, employment... (Skills intelligence)

Although they all have their value, depending on the objective of the study, one of the most interesting is "Skills-OVATE - Skills Online Vacancy Analysis Tool for Europe", as we have already mentioned, it offers a powerful labour intelligence tool based on the analysis of online job ads. This tool provides very detailed information on occupations (ISCO-08) and regions (NUTS 2), as well as covering various sources: private portals, public employment, recruitment agencies, online newspapers, corporate sites and EURES vacancies. The operations offered by the tool are detailed in a summary below:

- Online job markets
    - Countries and occupations
    - Demand by occupation
    - Sectors by country
    - Cross-country comparisons
    - Regions and relationship with occupations and skills
- OJA data insights
    - Skills by occupation
    - Skills by sector
    - Skills by country
    - Occupations and their associated skills
    - Contracts and working hours
    - Focus on occupations
    - Interrelationship between sectors, occupations and skills
- Digital transition
    - ICT Specialists
    - Digitalness" (level of digitalization by occupation, sector, region)
- Green transition
    - Renewable Energy Occupations
    - Degree of greenness and presence of green skills by occupation, sector and region
- EURES job vacancy insights
    - Analyses EURES vacancy specific data by country, occupation, sector, skill and level of experience
    - EURES (European Employment Services) is a cooperation network of the European Commission and national public employment services. Its main goal

is to facilitate the free movement of workers within the European Economic Area by providing information, advice, and recruitment/placement services to jobseekers and employers.

k. Employment conditions and wages

Although many of these aspects are already analysed in hiring processes, it is also considered relevant to conduct a similar analysis for the general workforce. Hiring processes allow for short-term realities; that is, by analysing contractual conditions, we are analysing the working conditions of people entering the labour market at a specific time. However, by analysing the conditions of the working population in general, we are gaining a more general view of what is happening in the market, since we are not only analysing people entering the labour market but also those who have been operating in the market continuously for a long time. Furthermore, the working conditions of people with years of work experience are completely different from those of people entering the market for the first time or those who are constantly moving in and out.

Therefore, the objective in this section is to analyse the employed population as a whole and disaggregate the information by:

- Type of contract (indefinite/temporary)
- Type of workday (full/part-time)
- Afternoon shifts, evening shifts, etc.
- Overtime
- Flexibility
- Work-life balance
- Access to training

The wages chapter deserves special mention. Wage analysis (or in some cases labour cost analysis) allows us to understand not only how much is paid in different sectors, occupations, or territories, but also how labour compensation is structured, distributed, and evolves, which has direct implications for the quality of employment, equity, and competitiveness of a region or economy. This analysis includes aspects such as:

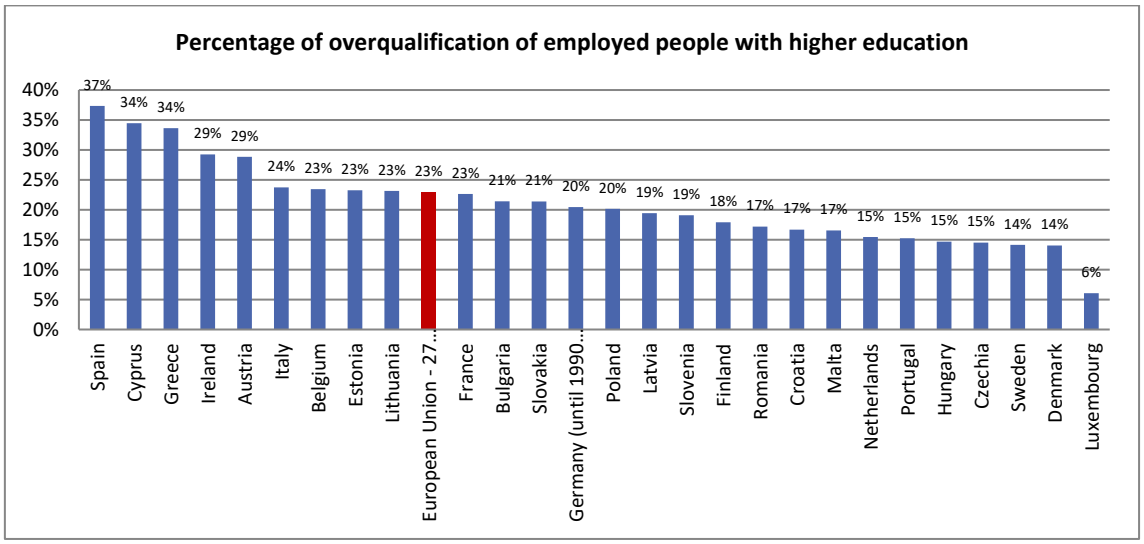
- Average salary level
- Salary distribution (differences between deciles, percentiles)
- Time evolution (nominal and real)

Furthermore, it allows us to observe inequalities or wage gaps, the most important of which is the gender wage gap (wage inequality between males and females), without forgetting the wage gap by origin (wage inequality between natives and foreigners), which is also of interest.

l. Overqualification

In many European Union countries, it is well known that the system generates more qualified professionals than the market needs, and therefore, many professionals choose to work in jobs where the required qualifications are lower than their own qualifications. This is called overqualification, where people are employed in occupations below their educational level. One way to observe this reality is to use the following methodology, used in many public employment services, to identify this problem: identify people with higher education (university studies or higher vocational training) working in jobs in categories 4 to 9 of the one-digit ISCO. This method can show how many people are currently overqualified for their jobs by looking at all employed workers. It can also show how overqualified new workers are when they enter the labour market, using last year's hiring data. For example, it looks at how many people with a university degree or advanced vocational training were hired for jobs that usually require lower-level skills (ISCO levels 4 to 9).

The key to this type of analysis is disaggregating the information by major groups (males, females, young people, people over 45, foreigners, natives, etc.) to understand the unequal behaviour of each group, in addition to analysing it by occupational group and economic activity. Public data exists at the European Union country level to conduct this type of analysis, which also enables comparisons between EU countries, allowing us to measure each country's position relative to other countries and the European average.



Source: Eurostat

m. Future forecasts

To conclude and complete the diagnosis, an analysis of future forecasts is conducted, as these allow for anticipating changes in the employment structure, skill needs, and/or the evolution of key sectors. It typically provides forward-looking information on several aspects. First, job demand, meaning how many workers will be needed and in which sectors. Second, professional supply, or how many people will be available and with what qualifications. Third, the match between professional supply and demand, which shows whether there will be enough

professionals to meet business needs. It also covers the skills required for different jobs and identifies emerging or declining occupations.

The information is usually disaggregated by:

- Economic activities: allows you to identify the activities that will drive the economy in the coming years
- Occupational groups: which occupational levels will concentrate employment in the future?
- Academic levels: how will the concentration or distribution of the different educational levels be in future employment?

4. Conducting a good analysis of hiring trends and mismatches generated by ups and downs of the labour market

This section will provide calculations and methodologies to identify mismatches in specific occupations generated by labour market behaviour or to identify trending occupations based on the analysis of hiring trends. These types of operations are often extremely interesting for agents working to target all types of groups, whether vulnerable or not. In other words, identifying occupations under pressure (pressure understood as difficulty in answering the demands of companies) can give clues about occupations of interest where it's advisable to direct target audiences. The same approach allows for the analysis of hiring trends. Identifying occupations that perform best in the short to medium term will allow to target people to these occupations. In short, being able to perform these types of calculations internally across organizations will allow for targeting based on analytical information rather than blindly.

Until now, the different aspects of the labour market have been analysed independently. However, in order to operate with information that is truly valuable for the daily work (identifying opportunities in occupations with better prospects, identifying swamped occupations, mismatches between occupations, etc.), it is interesting to combine different indicators. Therefore, once the different labour market indicators have been analysed separately, it is essential to conduct combined analyses, such as combining hiring and job supply in specific occupations. This will determine whether, in a given occupation, maintaining the current hiring rate and with the current pool of unemployed job seekers, there will be a need for specific profiles in the short term.

However, we are also aware of the difficulties organizations experience when analysing the reality of the labour market (lack of in-depth knowledge of labour market aspects and indicators, lack of time, etc.), so we also propose simpler operations, such as analysing hiring trends over different periods. In this case, it is interesting to analyse both hiring in general and permanent contracts alone, in order to identify occupations with better performance. We will delve deeper into these aspects later.

a. 1st Operation: Ratio of unemployed job seekers/people hired on permanent contracts -for the identification of short-term mismatches in occupations

This ratio is the first of those that help identify occupations with potential short-term shortages; that is, it helps identify occupations with mismatches between expected hiring (permanent) and unemployed job seekers. This concept aims to analyse whether, in some occupations, at the rhythm of permanent hiring of people in the last year (i.e., whether permanent hiring maintains the same level as last year) and taking into account the current number of unemployed job seekers, there will be a need for professionals. In other words, whether with the current pool of

unemployed job seekers we are able to cover the need for permanent hiring (understood as an extension of last year's reality).

The operation takes into account the number of people hired on a permanent basis in a specific year, preferably in the previous year, and the number of unemployed job seekers at a specific point in time, preferably at the end of the year. The calculation is performed by disaggregating the information by occupation (the more disaggregated the occupation classification, the more accurate the conclusions will be).

$$\frac{nº\ of\ unemployed\ job\ seekers}{nº \text{ of people hired on a permanent basis}}$$

The objective with this ratio is to identify occupations with a current need for professionals. This is why only permanent contracts are considered. A real need for a specific occupation is demonstrated when a company offers a quality contract and no professionals are found to fill it. In other words, the first step a company must take to fill a difficult-to-fill position is to offer quality employment (a permanent contract is a valid indicator of this). Before there is a shortage of professionals, there must be specific tensions in the market (difficulty in finding specific profiles), and these tensions are manifested through increased employment conditions in these occupations—in other words, with a quality job offer. Therefore, a permanent contract is considered a quality job offer; if this type of contract is not offered, the need is considered less critical.

Let's look at an example. As already mentioned in this section, it will combine the number of unemployed job seekers in a territory at a specific time (for example, December 31, 2024) with people hired on permanent basis in a territory over a period (for example, the entire year of 2024).

It is recommended that seasonality be taken into account when selecting the recruitment analysis period. It is recommended to select full years, since, when selecting six months, for example, these data may be subject to seasonality, causing hiring in some occupations to be over- or underrepresented. For example, if the months from June to September were chosen in the selection, the hospitality industry (depending on the region) may likely have a significant increase, which selecting the entire year may dilute. It is always recommended to select full calendar years, although other periods may occasionally be useful, always taking into account the seasonality of the data.

This gives the number of unemployed job seekers by occupation according to ISCO-4. The data shown are fictitious and do not correspond to any territory; they are shown as an example.

		Number of unemployed job seekers (31/12/2024)
2266	Audiologists and speech therapists	3,500
2267	Optometrists and ophthalmic opticians	6,600
2342	Early childhood educators	15,000
2144	Mechanical engineers	1,250
3122	Manufacturing supervisors	2,750
3433	Gallery, museum and library technicians	9,900
5120	Cooks	8,750
5311	Child care workers	1,500
7115	Carpenters and joiners	1,000
7133	Building structure cleaners	3,000
7542	Shotfirers and blasters	4,500

On the other hand, we need to know the cumulative hiring for the year 2024.

		Number of people hired on permanent contracts (2024)
2266	Audiologists and speech therapists	2,700
2267	Optometrists and ophthalmic opticians	8,000
2342	Early childhood educators	20,000
2144	Mechanical engineers	1,800
3122	Manufacturing supervisors	4,000
3433	Gallery, museum and library technicians	5,000
5120	Cooks	7,000
5311	Child care workers	1,400
7115	Carpenters and joiners	2,000
7133	Building structure cleaners	1,000
7542	Shotfirers and blasters	7,000

To complete the analysis, we need to combine the two tables and calculate the mismatch ratio. To calculate this, simply divide the number of unemployed job seekers by the total amount of people hired with permanent contracts.

		Number of unemployed job seekers	Number of people hired with permanent contracts (2024)	Mismatch ratio
7115	Carpenters and joiners	1,000	2,000	0.50
7542	Shotfirers and blasters	4,500	7,000	0.64
3122	Manufacturing supervisors	2,750	4,000	0.69
2144	Mechanical engineers	1,250	1,800	0.69
2342	Early childhood educators	15,000	20,000	0.75
2267	Optometrists and ophthalmic opticians	6,600	8,000	0.83
5311	Child care workers	1,500	1,400	1.07
5120	Cooks	8,750	7,000	1.25
2266	Audiologists and speech therapists	3,500	2,700	1.30
3433	Gallery, museum and library technicians	9,900	5,000	1.98
7132	Building structure cleaners	3,000	1,000	3.00

With these sample data, it can be seen that the most stressed occupation is "Carpenters and jooiners," since 2,000 persons were hired last year with a permanent contract, but only 1,000 people are registered seeking this occupation. Therefore, at last year's hiring rate, there will not be a sufficient pool to meet business demand, and tensions (unfilled positions) may arise. In addition, five more occupations are identified as experiencing tension or mismatch (values below 1). However, it is also necessary to closely monitor occupations with values close to 1, such as "Child care workers" (1,500 recruited with a permanent contract and 1,400 unemployed job seekers). Although it may seem that there is a sufficient pool to meet market demands, any fluctuations will cause the occupation to become stressed, as there is little room for manoeuvre.

Conducting combined analyses of job seekers and recruiters is an interesting practice for detecting occupational mismatches or labour market tensions, allowing for an accurate diagnosis of occupational imbalances.

Often, the level of disaggregation of information provided by employment services and statistical agencies is not adequate for performing these types of calculations, but almost all of them have a specific request mailbox available to users that generally works.

b. 2nd Operation: Analysis of the evolution of contracts

However, no matter how simple some of these procedures may seem, they are often overlooked due to lack of time or knowledge. Therefore, this guide proposes a very simple procedure that doesn't require much effort or knowledge, yet provides valuable insights for the day-to-day activities of organisations. This can include providing guidance to all types of groups, as it allows for the detection of growing occupational trends.

The proposed operation is to analyse the trend in hiring, that is, to compare the cumulative hiring recorded over different periods to identify which occupations have grown the most. This

is done with the goal of guiding our groups toward those occupations with the best performance in the labour market and/or avoiding saturated or declining sectors. Analysing the trend in hiring to identify occupations with positive performance is a key tool for improving job guidance systems, especially those aimed at groups with greater difficulties in finding employment.

The proposed calculation is as follows: the accumulated hiring for a specific period (for example, accumulated hiring in 2024) is compared with that for another period (for example, accumulated hiring in 2023).

	Number of accumulated contracts (2024 set)	Number of accumulated contracts (2023 set)	Absolute Evolution	Relative Evolution
Audiologists and speech therapists	43,500	23,000	20,500	89.1%
Optometrists and ophthalmic opticians	34,000	14,000	20,000	142.9%
Manufacturing supervisors	13,500	6,000	7,500	125.0%
Carpenters and joiners	24,000	22,000	2,000	9.1%
Cooks	65,700	64,000	1,700	2.7%
Building structure cleaners	13,000	12,000	1,000	8.3%
Early childhood educators	23,500	23,000	500	2.2%
Child care workers	23,000	23,500	-500	-2.1%
Gallery, museum and library technicians	10,000	11,000	-1,000	-9.1%
Mechanical engineers	45,500	50,000	-4,500	-9.0%
Shotfirers and blasters	18,000	24,000	-6,000	-25.0%

The data show that there are occupations with positive performance over the last year that are worth monitoring closely. In other words, the analysis shows seven occupations with positive short-term performance, which could be interesting to target for our target audience. For example, the occupation "Audiologists and Speech Therapists" has experienced a growth in hiring by 20,500 contracts, almost doubling the hiring recorded last year. The data show significant growth that would be worth monitoring, as there could be a similar market need this year, and it would be necessary to address it for the healthy performance of the regional economy. In this very simple way, it is also possible to identify occupations or market niches that are truly interesting for our groups.

An even more interesting option would be to carry out this operation but focusing only on permanent contracts. The appropriateness of considering only permanent contracts has already been mentioned, understood as quality contracts that demonstrate a need on the part of companies. Therefore, limiting the analysis to permanent contracts, if possible (due to data availability), can lead to more realistic conclusions about the need.

This type of analysis not only serves to identify specific job opportunities but also strengthens decision-making in guidance, training, and job placement, allowing career counsellors to offer concrete and up-to-date recommendations to actively seeking employment, tailored to the

current labour market. Furthermore, given the changes that labour markets may experience due to digitalisation, the ecological transition, and population aging, this type of analysis allows for the detection of structural changes in hiring patterns. Finally, it should be noted that hiring trends can also be analysed at the local, regional, or sectoral level, thus allowing for the identification of local economic specializations.

5. Resources of Interest

5.1 LMI Sources

To effectively plan vocational education and training (VET) tailored to the needs of learners and the labour market, access to robust and up-to-date Labour Market Intelligence (LMI) is essential. The Erasmus+ LMI-EUniv project (https://lmi-euniv.eu/) offered a foundational mapping of national-level LMI sources across 19 EU countries, highlighting the main institutions involved in the production and dissemination of labour market data and intelligence. These include national statistical agencies (e.g. ISTAT, INSEE, Statistics Sweden), public employment services, labour market observatories, research centres, and employer organisations. Each of these actors contributes data on employment and unemployment trends, occupational structures, job vacancies, skill shortages, wages, and demographic shifts. The data is collected via administrative records, national and international surveys, and increasingly through big data sources such as online job advertisements and web analytics.

At the European level, EUROSTAT remains a cornerstone of official and harmonised statistics. It provides essential datasets on employment, unemployment, labour cost, job vacancy rates, and education and training indicators. Its Labour Force Survey (EU-LFS) enables comparable insights across Member States, broken down by age, gender, education level, and region.

Another crucial source is Skills-OVATE, the Skills Online Vacancy Analysis Tool for Europe, developed by CEDEFOP. This tool analyses millions of online job advertisements to identify in-demand occupations and skills across Europe. It provides detailed information by occupation (ISCO), location (NUTS regions), sector, and required skills – including digital and green skills. It allows VET providers and social entities to monitor real-time labour market trends and anticipate shifts in skill demand. For instance, the tool can be used to detect growing demand for occupations such as "healthcare assistants" or "solar panel installers", and to explore the associated transversal and technical skills (e.g., teamwork, programming, sustainability awareness).

The LMI-EUniv project also developed the LMI-Hub, an open-access, centralised repository where VET providers and other stakeholders can find structured country fiches, compare data sources, and access detailed information about LMI providers. In addition to data sources, the LMI-Hub hosts training materials, methodological guidelines, and a comprehensive training guide designed to support higher education institutions and training professionals in integrating LMI into planning, teaching, and guidance. These resources are freely available for consultation and adaptation.

Among the European tools that complement LMI, ESCO (European Skills, Competences, Qualifications and Occupations) provides a multilingual classification of skills and occupations that facilitates better matching of learners to job profiles.

Europass, another EU initiative, supports individuals in documenting and presenting their skills and qualifications clearly, with digital CV tools and learning pathway planners. These tools are particularly valuable when combined with LMI insights to guide learners in identifying realistic and strategic career opportunities.

In the context of LMI4VET, these resources are not only informative but operational. Social entities and VET professionals can use them to:

- identify occupations and sectors with excess labour supply or shortages,
- anticipate future skill needs and emerging job profiles,
- design more targeted and relevant curricula,
- match learners to realistic career opportunities,
- and contribute to reducing skill mismatch and underemployment.

Among the most relevant types of LMI for VET planning are:

- occupational tension indicators (e.g. ratio between unemployed and permanent hires),
- overqualification rates,
- demand for digital and green skills,
- contract rotation rates, and
- sectoral hiring trends over multiple years.

These and other indicators are explained in detail in Section 2 of this guide, where readers can find definitions, calculation methods, interpretations, and practical examples tailored to vulnerable groups. Interpreting these indicators allows training providers to focus on jobs with real opportunities and to avoid training learners for sectors in structural decline. All these considerations have been examined in detail in the previous sections of this guide, which offers practical tools, examples and methodological advice for applying labour market information to support the design of training and guidance services.

5.1.1 Useful Resources and Links

Resource	Link
EUROSTAT – Labour Market Statistics	https://ec.europa.eu/eurostat/web/labour-market
CEDEFOP – Skills OVATE	https://www.cedefop.europa.eu/en/tools/skills-ovate
LMI Hub – LMI-EUniv Project Repository	https://www.lmi-euniv.eu/lmi-euniv-hub
ESCO – European Skills, Competences, Qualifications and Occupations	https://ec.europa.eu/esco/portal/home
Europass – Skills Portfolio and Digital CV	https://europa.eu/europass/en

6. Project related information

The LMI4VET project (Labour Market Information for VET) aims to equip social partners in the VET ecosystem with practical tools, training, and guidance on how to use labour market information effectively. Its main objectives are to foster the inclusion of vulnerable groups by increasing their employability, align VET curricula more closely with labour market needs, and promote a more informed, responsive VET system that is capable of understanding and adapting to economic cycles.

This guide is the core output of Work Package 2 of the LMI4VET project. The work began with the identification and review of existing LMI tools and practices at European level, followed by surveys and consultations with VET providers and stakeholders. Based on this groundwork, partners co-developed this methodological guide to support evidence-based decision-making in training provision.

The next steps of the project, included in Work Package 3, involve the co-design of interactive training materials to accompany the guide, including an online course and a chatbot powered by artificial intelligence. These resources will help users practice and internalize the methodologies described in this guide. Once developed, the tools will be tested and validated across several European countries. The results will be disseminated in multiple languages and shared widely through the project's website and events (Work Package 4).