Exploring tools for monitoring talent and skills in the EU

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HARNESSING TALENT PLATFORM

A new boost for EU Regions

Introduction to talent and skills in the EU

The European Union (EU) faces ongoing labour shortages across various sectors at all skill levels, with unemployment at 6.4% in December 2023 (Eurostat, 2024). Demographic shifts and the impact of COVID-19 have worsened labour and skills shortages (European Commission, 2023a), affecting the EU's human capital and increasing existing labour market inequalities (European Parliament, 2022). Rural areas, in particular, struggle with talent retention, depopulation, and migration to wealthier regions, as well as economic stagnation, either facing a talent development trap or at risk of facing a talent development trap (European Commission, 2023b). These regions face social challenges, limited innovation, and over-reliance on declining sectors. Besides they demonstrate limited capacity to build sustainable competitive economies, which hampers investments, productivity, and skills development (Diemer et al., 2022). The EU and its Member States face pressure to address skill shortages, which vary across regions. Despite efforts to map labour market needs, there is limited reliable, up-to-date data on the workforce, migration, and skills recognition (European Commission, 2023c). This makes it challenging to predict future labour market trends and required skills. However, there is a need for tools to monitor skills and talent, and anticipate future demands, helping to shape inclusive and forward-looking policies.

This paper investigates the current situation of talent monitoring in the EU to present new approaches and examples of good practices that could support regional authorities to monitor talent at a regional and local level. A literature review is provided on talent management and monitoring practices. Specific strategies and examples implemented at national, regional, and/or local levels are critically discussed to provide an approach for a systematic way to identify and analyse skills gaps and needs for talent monitoring, and to contribute to the next stage of talent attraction, management, and retention strategies. In the conclusion, the paper provides recommendations on talent monitoring initiatives, particularly at regional level.

Defining talent and talent management as a prerequisite for talent monitoring

Latukha et al. (2022) suggest that the modern "war for talent" encompasses challenges like brain drain and talent shortages. While the term is commonly used in business, it also applies at a macro level, as countries and regions compete to attract and retain talent through immigrant-friendly policies (Vaiman et al., 2019). Some countries devise national human capital plans that focus on repatriating skilled diaspora, while others invest in education to enhance local capabilities (Lanvin and Evans, 2018). Countries, regions, and globally connected cities are adapting to survive and compete in an increasingly globalised world. Within this context, there is a need for a consensus on the definition of talent and talent management (Marinakou, 2019).

Talent is defined based on people's abilities, skills, knowledge, and potential for development. It is characterised as high-potential, high-performing employees being the best in their class, regularly demonstrating exceptional skills and abilities in one or more areas (Gallardo-Gallardo and Thunnissen, 2016; Marinakou and Giousmpasoglou, 2019). This definition sees talent in an exclusive way, as it only refers to high-performing employees and "leaves unskilled labour out of the talent equation" (Evans et al., 2018, p.10). The inclusive approach proposes that talent includes everyone (Thunnissen, 2016), as skills and talent are not limited to those with educational qualifications. In view of this approach, the OECD (2019a, p.14) defines talent as "individuals who have a key role in a country's prosperity being essential for innovation, technological progress and contributing to economic growth".

Talent management is a proactive and systematic approach to Human Resources Management (HRM), focusing on the identification, development, engagement, retention, and deployment of talent (Meyers and van Woerkom, 2014, p.192). Notably, there is no universally accepted definition of talent management, and HRM practices vary significantly across OECD countries, particularly in terms of talent identification and monitoring (Huerta Melchor, 2013). This disparity underscores the need for strategic workforce planning monitoring at national and regional levels to address future talent management challenges. Regional opportunities for diversification within the EU vary due to differences in local capabilities, economic indicators, employment rates, and demographic trends, contributing to the 'talent development trap' (Hartmann et al., 2021; Diemer et al., 2022).

The context matters in talent management; hence the complexity of national and regional environments forces governmental and non-governmental organisations to incorporate a spatialised regional lens considering the social change, and the politics and economics of place (Metcalfe et al., 2021). Macro Talent Management is defined as "factors such as the demographics, the economic, educational, social and political conditions of countries and the policies, programmes and activities that are systematically developed by governmental and non-governmental organisations expressly for the purpose of enhancing the quality and quantity of talent within and across countries and regions to facilitate productivity, innovation and competitiveness of their domestic and multinational enterprises for the benefit of their citizens, organisations, and societies for long term advantage" (Khilji and Schuler, 2017, p. 400). The macro view on talent management has received little attention from scholars until recently (Khilji et al., 2015), although it concerns the country and regional level activities.

Talent monitoring initiatives and Talent Observatories – examples at EU, country and regional level

Talent monitoring is the process of continuously tracking and engaging targeted talent over a specified period, aligned with specific needs and requirements (McNally, 2024). Key principles of talent monitoring include talent identification, skills anticipation, and talent mobility. Talent migration is shaped by various social, economic, demographic, and political factors, making it crucial for countries and

regions to identify the key determinants that influence talent gaps. To attract and retain human capital effectively, it is essential to develop robust monitoring tools that can address these challenges and support long-term talent strategies (Iammarino et al., 2020; Vaiman et al., 2012, 2019). For this purpose, Talent Observatories are established, which form an important function for "sustained and dedicated analytical activity and coherent approaches to produce and disseminate readable information" (ETF, 2016, p.1).

The EU has implemented mechanisms to support mobility, labour migration, and skills-based migration schemes mainly for third-country nationals (Cedefop, 2024). Defining skills and talent across sectors is crucial to these efforts. EU-level initiatives aim to align migration policies with labour market needs, though they face conceptual and measurement challenges, and no modelling for monitoring talent has been done despite numerous proposed indices (Lanvin and Evans, 2017). In addressing this gap, more recently (in 2022), the EU Talent Pool initiative[1] was introduced with a proposal to develop a centralised EU-wide platform to facilitate labour market-responsive international recruitment and skills matching across the EU. The initiative will contribute to developing a monitoring mechanism for harmonising data, determining eligibility criteria and pre-screening procedures, including ethical recruitment principles, and providing support services for skills recognition and capacity building. This initiative is linked to Talent Partnerships[2], an EU policy and funding framework for engaging strategically with partner countries to enhance the EU's image in third countries (Rasche, 2021; OECD, 2019b). Interestingly, all initiatives for talent monitoring at EU level are still under development. Nevertheless, such initiatives can provide the support system for developing a talent monitoring process at regional and local level.

At national level within EU Member States, effective skills-based labour monitoring likewise remains under development. However, an interesting example at national level is Finland. Finland is ranked 6th on the latest Global Talent Competitiveness Index (GTCI)[3] out of 134 countries, a model nation in matching talent to work needs, placing emphasis on social mobility and egalitarian development (Evans et al., 2018). The regulatory landscape, the close relationships between government and business, and the clearly defined occupational clusters are among the advantages of the Finnish system of talent monitoring and retention. The challenge of high union membership and the difficulty to discharge employees was addressed with the interference of the government aiming at enhancing the country's competitiveness and attractiveness. The Finns have implemented initiatives such as the Talent Boost Programme[4], supported by Talent Hubs at regional level (OECD, 2018), providing short-term forecasts

[1] https://eures.europa.eu/eu-talent-pool-pilot_en
[2] https://home-affairs.ec.europa.eu/policies/migration-and-asylum/legal-migration-and-integration/talent-partnerships_en
[3] More information about the Global Talent Competitiveness Index available at: https://www.insead.edu/system/files/2023-11/gtci-2023-report.pdf
[4] https://tem.fi/en/talent-boost-en

of labour market changes relying on econometric models and other data sources (Cedefop, 2024). The initiatives aim at attracting talent internally and externally, supporting a strong ecosystem partnership between government or municipalities, businesses and employer federations, educational institutions and labour representation such as unions. The Finnish system is based on two main models, the VATTAGE, which generates the long-term baseline employment forecast, and the MITENNA model, which estimates the education and training provision required to meet labour market needs.[5] There is evidence of extensive collaboration between ministries, the Finnish National Agency for Education (EDUFI), research institutes, regional authorities, labour market organisations, Centres for Economic Development, Transport and the Environment (ELY centres), and Higher Education (HE) and Vocational Education and Training (VET) institutions. The outputs of the two models can be used by a range of users for a variety of purposes i.e. local and regional authorities may use them to implement central government policy. Both models provide a monitoring mechanism to anticipate short- and long-term labour (Cedefop, 2024).

At a regional level, efforts by the Belgian regions of Brussels, Wallonia and Flanders can be highlighted. The Brussels Observatory of Employment and Training[6], also known as view.brussels[7] monitors, analyses, and evaluates labour market trends and transitions for future employment needs within the three regions. Skills anticipation and monitoring of talent is undertaken at regional level through regional statistics. In addition, qualitative studies on the socio-economic situation are done. The results are analysed based on a directory of occupational profiles providing information on demand and supply at regional level. They also collect data on characteristics of jobseekers, looking into skills shortage areas to provide a list of occupations with shortage foreseen over time (Cedefop, 2023).

Furthermore, as part of the work performed under the Brussels Observatory, the public employment service VDAB of the Flemish community in Belgium run the so called 'CompeTrend' project[8]. The project exemplifies skills and talent monitoring by analysing online job vacancies and CVs to identify skill trends and competencies required by employers. It is an AI-experimental approach (based on the competence standard Competent 2.0) looking ahead to see which competences will be much sought after in the future labour market (Cedefop, 2024, p. 17). The extent to which different competences are interrelated is measured, to develop targeted training programmes to support regional skills development (Cedefop, 2024).[9] In collaboration with government actors and universities, view.brussels plans to expand on predicting skills needs required for sectoral developments.

[5] More information about the VATTAGE and MITENNA models available at: https://www.cedefop.europa.eu/en/data-insights/skills-anticipation-finland-2023-update
[6] https://www.cedefop.europa.eu/en/tools/timeline-vet-policies-europe/search/28022
[7] https://www.cedefop.europa.eu/en/data-insights/skills-anticipation-belgium-2023-update
[8] https://arinti.ai/cases/vdab-future-of-work-challenge/
[9] Details on the analyses done, and the use of metrics is available at: https://arinti.ai/cases/vdab-future-of-work-challenge/

Other examples can be found in Spain and Portugal. In 2018, Bizkaia Talent, a non-profit organisation established in 2005 supported by the Provincial Council of Bizkaia, Spain, partnered with Lightcast to establish the Basque Talent Observatory[10], the first publicly accessible platform for monitoring local labour market trends, that analyses occupational profiles on the basis of the European Commission's Occupations ESCO classification. This digital platform utilises a neuro-linguistic tool to analyse data from online job platforms, visualising talent searches by businesses for highly qualified candidates and facilitating the job search for international applicants. Users can access information on open vacancies, salaries, and required skills, engaging citizens to enhance key performance indicators for talent re-attraction in the region. They use real time monitoring of occupations, gather data on a daily basis, update statistics on a monthly basis, and measure any mismatch between labour market demands and offerings.[11] Additionally, Bizkaia Talent has collaborated with TabulaeX at the University of Milan-Bicocca to manage knowledge transfer and analyse labour market trends in the Basque region, with a focus on highly qualified professionals through big data analysis. Bizkaia Talent and TabulaeX have developed a checklist for member organisations to have a roadmap to follow with the support of an expert team (Bizkaia Talent, 2024).[12]

Another notable example of talent monitoring comes from Barcelona, Spain, where the City Council has implemented municipal policies based on economic data and studies. Barcelona Activa[13], a local development agency, monitors talent inflow and outflow, collaborating with LinkedIn to create the Barcelona Talent Map[14]. The talent map is created from the analysis of over 1.8 million professional records provided by the LinkedIn database, mapping talent in the metropolitan area through quantitative data on education, economic sectors, and mobility patterns. The parameters used are economic sector, talent, knowledge, educational institution as well as location in Barcelona and its metropolitan area.[15] The insights generated help identify new opportunities for talent attraction and provide the City Council with valuable information on sector-specific talent retention, inter-city mobility, and in-demand skills (MPF, 2024, p. 41).

In 2021, AQU Catalunya likewise partnered with Lightcast to introduce the Catalan Talent Observatory[16]. The latest advances in web scraping[17] and natural language processing[18] technologies are used to analyse job offers published online in Catalonia. The data is provided in an interactive

[10] https://basquetalentobservatory.bizkaiatalent.eus/visual/public/index
[11] Details on how the data is collected and analysed is available at: https://basquetalentobservatory.bizkaiatalent.eus/visual/docs/EU_Lightcast_Methodology_2022.pdf
[12] https://www.bizkaiatalent.eus/en/basque-talent-observatory/
[13] https://www.barcelonactiva.cat/en/
[14] https://mapadeltalent.barcelonactiva.cat/en/
[15] Details on the analyses and parameters are available at: https://mapadeltalent.barcelonactiva.cat/en/notes/
[16] https://bcu.cat/en/observatorio-del-talento-de-cataluna
[17] Web scraping refers to the process of extracting, copying, storing, as well as reusing foreign content from the web.
[18] Natural language processing (NLP) is a subfield of computer science and artificial intelligence (AI) that uses machine learning to enable computers to understand and communicate with human language.

visualisation offered in Catalan, Spanish and English, with eight different dashboards to access the data.

In similar fashion, the municipality of Porto, Portugal, partnered with Lightcast in 2020 to build a Talent Observatory platform named Porto for Talent Platform[19], to boost economic growth in Porto. This platform aims to be "an aggregating structure of the talent ecosystem, energised through a collaborative governance model". The observatory analyses various data sources to provide job and skills intelligence, creating a comprehensive talent map. Data on talent dynamics such as official statistics, studies and web scraping are collected from different perspectives (supply, demand and training) at a municipal level. For example, data, such as graduate statistics and course enrolments can help employers assess the existing skills supply. Additionally, CV uploads provide insights into available global talent. To boost engagement, they actively participate in job fairs and events like the Web Summit (Wray, 2024).

As another inspiring example in Portugal, in response to the increased poverty and widening inequalities exacerbated by the COVID-19 pandemic, the Aveiro Labour Observatory[20] was established as part of the Aveiro STEAM City project[21]. The observatory aims to enhance skills development and retain human talent in Aveiro, a medium-sized city competing with Lisbon and Porto for investment from large multinational companies. The team behind the observatory collects data and discusses with local companies and other stakeholders to build a valid and updated diagnosis of priorities for qualifications to meet the labour needs in Aveiro (Scopelliti, 2020). A quick response tool, labelled as a Competence Board[22], is developed and provides high-quality automated analysis of job ads. It displays the competences demand and regularly monitors talent.

Other regional initiatives can be found in the United Kingdom (UK), including the Southampton Data Observatory[23] recently established in Southampton, to address the challenges and impacts of COVID-19 on the local economy. Data from key stakeholders across Southampton and Hampshire combined with nationally published data are used to monitor talent and skills and provide intelligence to inform evidence-based decision making. Dashboards of data and intelligence are created and presented within Power BI[24] interactive dashboards. The observatory provides comprehensive data, specialised reports, needs assessments, and headline statistics derived from Southampton's Single Needs Assessment[25], covering critical areas such as health, community safety, the economy, and public

[19] https://portofortalent.com/
[20] http://observatoriodoemprego.web.ua.pt/en/
[21] This project was co-founded by the Urban innovative actions, an EU initiative from the European Regional Development Fund (support to the project: EUR 4.9 million). More information available at: https://www.uia-initiative.eu/en/uia-cities/aveiro
[22] An example in advanced computing can be found at: https://issuu.com/ska_telescope/docs/contact_-_issue_06/s/11507860
[23] https://data.southampton.gov.uk/about-us/ and https://data.southampton.gov.uk/
[24] Microsoft Power BI is the official name of a tool as part of the Microsoft universe.
[25] https://data.southampton.gov.uk/health/joint-strategic-needs-assessment-jsna/

services. The primary approaches to talent monitoring in the UK involve complex strategies that integrate various factors. These include the industrial landscape, the relationship between skills and productivity, the culture of human resource management, and the influences of digitalisation and AI (Vaiman et al., 2019). Nevertheless, the UK's approach may not be easily transferable to other contexts, as it relies heavily on macroeconomic indicators to monitor talent. A cross-level model for talent monitoring could be more effective by considering regional factors. This approach allows for proactive support tailored to specific industries, addressing their unique challenges. Local databanks better enable government bodies and organisations to analyse regional talent needs and propose appropriate interventions.

Concluding Points

Today, talent has more opportunities to relocate for better living standards and careers (Latukka et al., 2022). As companies increasingly source talent globally, mobility patterns shift, and workforce diversity grows (PwC, 2020). However, the trend of sourcing talent globally poses a risk of brain drain, which undermines the development and sourcing of local human capital and weakens regional competitiveness. While the EU promotes cooperation among Member States and partner countries, a mutually beneficial approach that combines different talent monitoring strategies is essential to tackle these challenges. This can help counteract brain drain and develop effective talent retention strategies. Although current and projected labour market needs are mapped, information on workforce supply and skills demand varies both across and within countries at regional level. It appears that there is a lack of up-to-date regional labour market data with a particular lens on skills and talent availability and mobility. The examples discussed suggest that talent monitoring mechanisms should include future-oriented labour market skills analysis for identifying skills gaps and enhancing talent monitoring, enabling more effective recruitment, development and retention strategies that align regional and local talent supply with demand. This process for monitoring of talent at local and regional level should engage stakeholders from the public, private, and third sectors (i.e. companies, government, researchers, universities etc), spanning across various economic sectors and regions, to create a solid foundation for skills anticipation. To address territorial disparities, a one-size-fits-all approach to talent monitoring is not proposed. While comparing skills across EU Member States is important, it should not be the primary goal of talent monitoring. Smaller, lower-income regions struggle to compete with labour-intensive industries in more advanced economies. Therefore, effective talent monitoring should begin with policies grounded in a thorough analysis of regional capabilities, as this makes development opportunities more achievable and societal changes easier to implement (Rigby et al., 2022). The use of big data and AI further enhances the sophistication of talent monitoring, enabling more tailored and informed decision-making.

In any case, it appears from the above discussion that data triangulation – using multiple methods and sources – is essential for enhancing the validity and reliability of information to support informed decision-making. Good practice indicates the need for developing synergies and includes a range of methods, for example the development of webpages to match employers with talent as well as the development of digital dashboards and databases. Moreover, the development of a talent culture across all sectors and the society is vital, as for example the system should include the educational system and policies as educational institutions play a significant role in developing human capital and identifying skills shortages and needs. Additionally, regular updates are necessary to ensure the accuracy of talent monitoring. The systems employed must be agile, incorporating new technologies like AI with caution. AI has the potential to enhance talent acquisition by offering intelligent tools for a comprehensive, real-time view of people's skills. However, it is currently insufficient for bridging the skills gap due to limited application in macro-regional talent monitoring and gaps in user training for effective AI integration. A talent monitoring system should be systematic in which interrelated components of the system are promoted simultaneously i.e., inform talent about existing opportunities, and inform companies about existing channels to find and communicate with talent.

New technologies and digitalisation complement physical structures and enhance communication through user-friendly digital platforms. For effective monitoring of talent, participation at job fairs and career expos, large-scale marketing activities through social media, and other activities such as matchmaking events (employers with talent) and collaboration with the private sector should be used to create awareness and encourage the systematic monitoring of talent via data analysis at regional level.[26] Monitoring and managing talent should be tailored to regional needs to address skills shortages, emigration, and brain drain. Initiatives like the mentioned EU Talent Partnerships and the EU Talent Pool should be leveraged to create a unified, easily accessible digital framework for monitoring and managing talent.

[26] For example: https://futureplaceleadership.com/cases/international-talent-attraction-talent-pool-campaigns-across-europe-attracting-professionals/

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